

# Learners' Perceptions Survey

## *Instructions Manual for Data Users*

*version#001- edition#13  
October 15, 2015*

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# Learners' Perceptions Survey (LPS) Instructions Manual for Data Users

## **I. INTRODUCTION**

### **I.A. Background**

Since 1946, health professions education has been one of the four statutory missions for VA,<sup>1, 2, 3</sup> along with patient care, research, and clinical backup to the Department of Defense. In 2014, VA medical centers had more than 7,200 affiliation agreements with 1,800 unique accredited college and university programs and 2,300 graduate medical education programs, involving 120,700 students representing over 40 professions, including 41,223 physician residents, 22,931 medical students, 27,275 nursing students and residents, 1,399 dental students and residents, and 27,265 associated health trainees. Nearly two-thirds of all U.S. medical students will train in a VA facility prior to their graduation.

The Learners' Perceptions Survey (LPS) is a standardized, scientifically validated instrument that has been designed by the Department of Veterans Affairs (VA) to measure how health professions trainees perceive their clinical training experiences at a VA medical center, hospital, or outpatient care facility. The LPS is intended to assess trainee perceptions of their clinical training experience. The LPS is used for research in health professions education, as well as program evaluation, regulatory, managerial, and operations oversight, program, policy analyses, and clinical training program accreditation.

The Department of Veterans Affairs, Veterans Health Administration, Office of Academic Affiliations (OAA) through its National Evaluation Workgroup first drafted the LPS in 1999.<sup>4</sup> Since 2001, OAA has administered the LPS annually during the academic year. The survey is requested of all health professions education trainees who go through a VA medical center as part of an accredited health professions education program. VA trainees include students, practicum participants, externs, interns, residents, or fellows, who rotate through, are assigned to, or spend educational time in a VA healthcare system facility. For our purposes, the academic year is said to begin on July 1<sup>st</sup> in the prior year and runs through June 30<sup>th</sup> of the current year. The current academic year 2016 began on July 1, 2015 and will end on June 30, 2016.

The LPS underwent thirteen version changes from 2001 to 2016, as detailed in Table 1. These changes were made in order to meet the growing demands for information about VA's health professions trainees, or to simplify the LPS for administrative purposes, or because a topic was out of date. Most changes were to update categories of health professions, disciplines, specialties, subspecialties, special fellows, and academic levels. In rare cases, changes in the items comprising the questions themselves were changed.

### **I.B. Administration**

LPS questionnaires are administered to trainees centrally through OAA's Data Management and Support Center in St. Louis, MO. VA trainees are encouraged to complete the LPS questionnaire at or near the end of their clinical rotations via OAA's website. Trainees are informed about eligibility and the importance of the survey, as well as given instructions on how to take the LPS through their VA medical center's Designated Learning Officer (DLO), Designated Education Officer (DEO), and/or Associate Chief of Staff for Education (ACOS-E).

This information is provided in many ways, directly by face-to-face contacts, through posters and circulars distributed throughout the VA medical center and education offices, as well as indirectly through discussions with the trainee's education program director at their affiliated educational institution. Trainees also learn about the LPS through direct emails received from the Office of Academic Affiliations (OAA). Trainees may access the LPS landing page by either going directly to the page or by the OAA website LPS link. Upon accessing the survey landing page, the trainee clicks on the appropriate link. There are two choices. Choice 1 is: "All health professions trainees, students, interns, residents or fellows, except MD or DO." Choice 2 is: "MD or DO trainees, medical students, interns, residents, or fellows." The LPS can also be accessed through profession and specialty specific portals where education programs communicate with their clinical trainees. These portals provide links that allow trainees to bypass the landing page and go directly to the appropriate profession specific LPS survey.

### **I.C. LPS Data Accounting**

All LPS data files are collected, maintained, processed, and analyzed using a three-stage data accounting system designed for these purposes.<sup>5</sup> The purpose of this accounting system is to: (1) ensure efficient use and ease of access to OAA databases to qualified and approved investigators for evaluation, performance appraisals, assessments, investigations, research, or other purposes, (2) document all access, data changes, analyses, and result outputs, (3) maintain data integrity for reliability and validity, (4) ensure data security to preserve the confidentiality of respondents answers to LPS questions, and (5) facilitate cross-training of OAA staff who can access, process, and analyze LPS datasets.

All data processing and analyses are performed by first preparing code, validating the code for accuracy (often on test datasets), approving it for use, and finally running the code on actual datasets. All software used for data processing and analyses is indexed, referenced, and stored permanently for documentation and possible future use. The accounting system is flexible in allowing OAA staff to introduce changes in response codes, data values, or index computations by changing the code to the software, and then re-running the software with the new code to re-populate datasets and re-construct output tables, charts, graphs, and other results. In this way, OAA can efficiently introduce changes to improve the data, or remove such changes as needed.

The accounting system processes the data in three stages.

**I.C.1. Raw Databases:** (R-files). Construction of the LPS dataset begins with data collection when trainees click on the LPS and enter responses to questions online. OAA collects the responses and creates *raw data* files. Raw data are collected directly from responses and stored on servers maintained at the OAA's Data Management and Support Center in St. Louis, MO. Names for raw variables are designed to point to their origins and/or location in files (e.g., by question number). At the end of the academic year, LPS data files are examined, approved, and then officially closed, or sealed. Once sealed, R-files cannot be opened for further changes, modifications, deletions, or additional entries.

**I.C.2. Research-Ready Databases:** (RR-files). Raw databases are then pre-processed into research-ready, or RR-files. Investigators, programmers, analysts, and researchers access RR-files, not R-files, for purposes of analyzing LPS data. RR datasets are created by running a written and reviewed research-ready program that generates RR-files from R-files. RR-files are held indefinitely until OAA leadership determines they should be changed or deleted. Data can be changed in the RR-files only by coding the change into the RR software and then re-running the RR program to re-populate existing RR-files or create new files to include all corrections, additions, and deletions.

The LPS RR-files are created in three levels.

**I.C.2.(i). Level-1:** In the first level, the raw data collected each year are processed by restructuring data into datasets based on a file architecture and data format that are designed to make access easier and improve programming efficiency and accuracy. These level-1 RR-files are named as LPS\_01\_AH and LPS\_01\_PR for 2001 for the LPS-AH and LPS-PR surveys, LPS\_02\_AH and LPS\_02\_PR for 2002, and so forth. Thus for 2016, the level-1 files are LPS\_16\_AH and LPS\_16\_PR.

RR Level-1 software also computes construct variables and scores indices using pre-determined algorithms. Response categories are coded and labeled, and a referent response is defined (e.g. male / female coded as '0' / '1' where '0' is assigned to male as the referent and '1' as the alternative). Numerical responses are formatted to reflect appropriate significant figures (e.g. age in years as an integer).

RR level-1 software also gives names to the RR-variables based on naming conventions that point to the analytic purpose of the variable, not its location or origin. Thus, the software includes codes to transcribe R-file variables into RR-file research-ready variables. The names of variables are often chosen so that, when alphabetized, the corresponding variables cluster by a common purpose. The naming convention is designed to make programming more efficient, reduce programming errors, and decrease preparation time to prepare final results in a timelier manner.

RR level-1 software also amends and corrects raw data as needed. Once completed and approved, R-files do not change. To amend mistakes after an R-file is sealed, the RR software will make the necessary changes when generating the respective RR-variable. In this way, the RR program documents all changes to the RR dataset used in analyses. This process also permits OAA staff to "reverse" all changes, if necessary. Since all processing and analyses are executed formally by written programs (rather than through a menu), changes can easily be introduced by amending the software, and then running the amended software to re-populate the datasets, create new datasets, and produce corrected outputs as graphs, charts, tables, and figures.

RR level-1 software also codes critical education program information, including the facility identity and the responder's academic discipline, profession, specialty, subspecialty, or special fellows program, and academic level. In some cases, multiple classification systems exist. Separate variables are created to reflect each system.

**I.C.2.(ii). Level-2:** In the second level, level-1 RR datasets created for each academic year are merged into a single file, both across years and the two PR and AH surveys. The intent is to create a database that both captures complete information collected in the respective year, while affording investigators opportunities to make cross year and cross facility comparisons. Names of the RR-variables that may differ by year are amended to be uniform across academic years. Prior year data are retrofitted by re-coding responses and computing transcription algorithms to account for any changes that may occur in data format, response codes, definitions, and standards. This is achieved by adding response options, merging two or more options into a single response category, or creating variables that populate values in academic years when such data were collected and assigned a missing value code in years when data were not being collected. In addition, new variables are created from existing variables by collapsing their multiple response options into broader, more inclusive categories.

The level-2 RR-file for 2016 is named: LPS2016. In prior years, level-2 RR-files were LPS2015 for academic year 2015, LPS2014 for academic year 2014, and so forth. Each dataset contains prior year data retrofitted to fit the LPS format in the final year, with retired questions treated as

missing data in subsequent years, and new questions treated as missing data in prior years. This strategy allows investigators to perform longitudinal analyses for questions no longer asked directly on the updated dataset.

**I.C.2.(iii). Level-3:** In the third level, level-2 data are analyzed to adjust values for selected variables to reflect a 'referent' respondent or facility. These adjustments are created using generalized linear models, including logistic regression. Adjusted values are useful when comparing responses among responders from different facilities, across disciplines or academic levels, or over time while reporting on the same facility.

The level-3 RR-files are: LPS2016-adj for all data through academic year 2016, LPS2015-adj for all data through academic year 2015, etc. These datasets contain all Level-2 and Level-3 variables for the specified 'current' academic year plus values from prior years that were retrofitted as needed to fit the coding schedules for the defined 'current' year.

**I.C.3. Analytic Databases:** (A-files). Analytic databases, or A-files, are temporary datasets created from RR-files for the purposes of conducting specific analyses to create tables, charts, graphs, statistics, estimated models, and other statistical and computational outputs.

A-files are created from Level-3 RR-files through an analytic program, or A-program. A-programs have two parts. The first part pre-processes RR-files to create A-files that are designed for specific analyses. Processing includes merging datasets, re-coding categorical variables, transforming continuous variables, and constructing new indices. The second part is the actual analyses of the A-datasets. A-files are temporary and are to be deleted when analyses are done. However, the A-programs creating the files are indexed and stored for referral, documentation, and possible re-construction of the analytic dataset when needed.

A-files are created to feed OAA's data cube, to compute findings for special OAA reports, and to prepare results for scientific manuscripts.

## **I.D. Federal Authority to Administer the LPS**

The Office of Academic Affiliations (OAA) within Veterans Health Administration (VHA) is permitted to administer the LPS to VA's clinical health professions trainees under the Office of Management and Budget (OMB) license #2900-0691, under VA Form 10-0439 Learners' Perceptions Survey (LPS). Authority for the license can be found under Federal Law 38 U.S.C. Part V, Chapter 73, Section 7302 providing that the Department of Veterans Affairs (VA) offers education and training to a national cohort of health care trainees each year and thus, VA is required to evaluate such programs on a continuing basis and determine its effectiveness in achieving its goals (Federal Law, 38 U.S.C. Part I, Chapter 5, Section 527). In addition, the Government Performance and Results Act (GPRA) of 1993, requires Federal agencies to set goals, measure performance, and report on the accomplishments.

Specifically, since 1949, health professions training is one of the Veterans Health Administration's (VHA) statutory missions since the 1949 Policy Memorandum No. 2 established an association between Veterans Administration medical centers (VAMC) and schools of medicine. VA medical centers now affiliate with accredited training programs in undergraduate and graduate medical education, nursing, dentistry, and associated health including pharmacy, psychology, social work, podiatry, optometry, chaplaincy, chiropractic, dietetics, rehabilitation including physical therapy, occupational therapy, vocational therapy, recreation and manual arts therapy, and blind rehabilitation, marriage and family therapy, and licensed professional mental health counseling. In addition to performance assessment, LPS survey results are used by VA affiliate institutions in their applications for program accreditation. Credit for academic work will

satisfy requirements for professional licensing only if such credit issues from accredited programs.

The need for information collected from the LPS survey is also found in assessing how the changing healthcare environment may impact VA medical centers. For instance, academic accrediting bodies, such as the Accreditation Council on Graduate Medical Education (ACGME) have imposed sweeping changes, including resident duty hour limits and strict supervision requirements that affect the VA training environments as well as the clinical care environments where veteran patients' health care needs are served. Changes in regulations governing clinical training programs are expected to impact how health professionals are trained in VA. This changing landscape in the clinical education environment comes at a time when Veterans Health Administration (VHA) must rise to the challenge of creating "veteran centric" care models to treat a new generation of veterans, as well as to provide care to veterans, recruit and retain highly qualified clinical staff, and train the nations new health professionals to provide care for the special health needs of US military veterans. The interface between the clinical and educational arenas necessitates a system for assessment of the education environment to identify both strengths and opportunities for improvement in VA's clinical education environment and measures the satisfaction of VA clinical trainees who come in direct contact with our veteran patients and who contribute to their care. Implicit in the LPS is the identification of key drivers of clinical trainees' satisfaction so as to develop and implement targeted improvements that will benefit both learners and patients in VHA. In summary, the LPS is consistent with VA's oversight responsibilities and Government Performance and Results Act (GPRA) and represents a major metric for a statutory VA mission.

More recently, the Veterans Access, Choice, and Accountability Act of 2014 (PL 113-146), as signed into law on August 7, 2014 (128 Stat. 1754; 38 USC 101; HR3230), was enacted to "... improve the access of veterans to medical services from the Department of Veterans Affairs...". The Act requires the Secretary to: "... ensure that already established medical residency programs have a sufficient number of residency positions..." (at §301(b)(1) amending 38 U.S.C. 7308(e)(1)); to provide annual reports (directly to both House and Senate Veterans' Affairs Committees) detailing its progress towards meeting the 1,500 new GME positions goal (at §301(b)(3)) and include the number of "positions filled," "not filled," "anticipating filling," (at §301(b)(3)(B)(i)) provide the resident's geographic location, academic affiliation (at §301(b)(3)(B)(ii)), "the policy at each medical facility ... with respect to the ratio of medical residents to staff supervising medical residents" (at §301(b)(3)(B)(iii)), "... the number of individuals who declined an offer from the Department [of Veterans Affairs] to serve as a medical resident at a medical facility of the Department and the reason why each such individual declined such offer" (at §301(b)(3)(B)(iv)), descriptions of "... challenges ... faced by the Department in filling graduate medical education residency positions..." (at §301(b)(3)(B)(v)(I)), the "actions ... taken by the Department to address such challenges..." (at §301(b)(3)(B)(v)(II)), and finally "... efforts ... to recruit and retain medical residents to work for the Veterans Health Administration as full-time employees." (at §301(b)(3)(B)(vi)).

## **I.E. Reporting Requirements and Confidentiality**

### **I.E.1. Learners' Perceptions Survey [LPS]**

The nationally administered Learners' Perceptions Survey, or LPS, consists of two surveys: the LPS-AH intended for all health professions trainees including Associated Health, Dentistry, and Nursing trainees, students, interns, residents, or fellows, except MD or DO trainees, and the LPS-PR intended for MD and DO trainees, including medical students, interns, residents, or fellows.

Under license issued by OMB, OAA is responsible to protect the confidentiality of survey responses from the “field.” The field covers not only the public at large, but also local VA medical staff, supervisors, education program administrators and directors, as well as program directors, educators, administrators, and faculty and staff at VA’s affiliate universities, colleges, and institutions.

OAA’s responsibility to protect respondent confidentiality also originates from the contract between responders who take the survey and OAA who administers the survey and use the information to further VA aims and objectives. Specifically, the respondent begins the survey with the introduction page that includes the statement:

*“This is a confidential survey.”*

Thus, OAA establishes a contract with each respondent. The respondent agrees to submit reliable and accurate responses to LPS questions. In exchange, OAA agrees to protect the identity of the respondent. An agreement is reached when OAA puts the survey on its official website and the respondent responds and submits to at least one question in the survey to OAA.

To comply with both OMB licensing and respondent contract requirements, OAA releases to the field only aggregated data (means, medians, modes, frequencies) for reporting units with 10 or more respondents. In September 2015, this number was reduced to 8 to be consistent with other agencies and offices within Veterans Health Administration. It is noted that this is only a guideline, the purpose of which is to determine a “reasonable” re-identification risk standard. OAA, nor any other agency, cannot provide assurances that respondents will have absolutely no risk of re-identification when responding to the LPS.

In special cases, LPS survey responses may provide evaluation information that is required by VA trainees’ education programs from our affiliated institutions. Such evaluation information is often used in applications to professional associations to accredit the education program. Such accreditation is necessary for the clinical experiences in VA for trainees enrolled in the education program to count to satisfy their professional licensing or board certification requirements. In such cases, whenever the total number of trainees who could potentially take the LPS from the reporting unit is known, and whenever trainees were informed that LPS survey results were necessary for the program’s application for accreditation, and whenever the accreditation is of substantial interest to the Government, the program, and the respondents, then the number of potential respondents, not actual responders, are counted to determine if the aggregate minimum of eight respondents were reached, and thus a reasonable re-identification risk standard is met.

### **I.E.2. Learners’ Perceptions Survey - Consented version [LPSc]**

For FY2016, OAA created the LPSc where “c” indicates that survey responses may be released to the field containing aggregated responses (means, medians, modes, and frequencies) for respondent groups of two (2) or more. As with the LPS, the LPSc includes two questionnaires: the LPS-AHc intended for all health professions trainees, including students, interns, residents, or fellows in Associated Health, Dentistry, and Nursing except MD or DO, and LPS-PRc intended for MD and DO trainees including medical students, interns, residents, or fellows. Both LPS-PRc and LPS-AHc contain the same questions as their LPS-PR and LPS-AH equivalents. However, LPSc has a different introduction page, as described below.

The LPSc was necessary to allow LPS surveys to be used for investigational studies, requested reports from Executive and Legislative branches, and for accreditation and certification

applications from VA affiliated education institutions and programs when the number of actual or potential trainees involved are between two and seven.

To begin the process, VA medical staff and faculty will approach all respondents whose responses are to be used for accreditation or other critical purposes for the trainee's education program. The staff explains the purpose of the LPSc, its importance, qualifications to take the LPSc, and offers two options to each qualifying trainee. The trainee may take the LPS survey whose responses will be aggregated by no fewer than 8 respondents in the reporting unit. Alternatively, the trainee may take the LPSc survey where responses may be aggregated by no fewer than 2 reporting respondents in the reporting unit. The trainee is then given the website where they may link to either the LPS or LPSc surveys. The trainee's choice will not be known to VA faculty and staff, or to the trainee's education program director.

Trainees who access the LPSc survey are given notice on the LPSc introduction page:

*This is a confidential survey. Your responses will not be made available to your program directors, faculty, or clinical staff. However, your responses may be combined with those from one or more other respondents to compute aggregate information (means, frequencies). Aggregate information may be released to program directors, faculty, and clinical staff for program evaluation and administrative purposes. By taking the survey you have agreed to these terms.*

Trainees may discontinue taking the LPSc survey, and re-enter the system to take the LPS survey. There are no connecting data that can link a trainee's attempts to enter both LPS and LPSc, or to identify any respondent who enters the LPS or LPSc website.

### **I.E.3. Learners' Perceptions Survey - Identified version [LPSi]**

For FY2016, we created the LPSi, where "i" indicates that the respondent is to be identified. That is, responses can be released to the field containing aggregated responses for respondent groups of one (1) or more. The LPSi consists of two questionnaires: LPS-PRi intended for MD and DO trainees including medical students, interns, residents, or fellows, and LPS-AHi intended for all health professions trainees, including students, interns, residents, or fellows in Associated Health, Nursing, and Dentistry except MD or DO. The LPS-PRi and LPS-AHi are the same as the LPS-PR and LPS-AH, respectively, except for an additional question that asks LPSi respondents to provide the text of their first, middle and last name. Together with the facility identifier, investigators are able to match LPSi responses to other databases by the responder's name.

The LPSi is accessible only to trainees who were properly consented and signed an informed consent as part of an IRB-approved research protocol. To access the LPSi, the trainee must be given the specific website that enables him or her to link to the LPSi survey. That is, LPSi surveys are intended for responders who are participating in evaluation or research studies and who have signed informed consent to an IRB approved protocol. OAA's use of the data, such as linking survey responses to other datasets, is limited to what is allowed as specified in the IRB-approved protocol, and is further limited to any terms in the signed informed consent agreement, and other limitations imposed by applicable data use agreements.



#### **I.E.4. Learners' Perceptions Survey - Primary Care version [LPS-PC]**

In 2012, OAA created a primary care version of the LPS, or LPS-PC2012. The LPS-PC was designed to capture the experiences of health professions trainees who rotate through or are assigned to a VA primary care clinic.<sup>6</sup> The LPS-PC is applicable to all trainees and thus contains only one questionnaire.

Historically, LPS-PC2012 was created from the LPS2012 by (i) replacing "VA Medical Center" with "VA Primary Care Clinic," (ii) by modifying, deleting, and adding individual questions to fit a primary care setting (e.g., excluding elements referring to inpatient care), and (iii) changing the wording to make survey questions applicable to all health professions trainees, and thus no longer making distinctions in questions pertaining to Associated Health, Dental, Nursing, and Physician Resident and Medical Student. For the LPS-PC survey, "primary care" was defined as any clinical setting where patients receive comprehensive, continuity, and primary care, such as general internal medicine, primary care, or Patient Aligned Care Team (PACT) clinics.

The LPS-PC2012 data were obtained by administering the LPS-PC\_v002 (04/02/2012) survey to a 2% sample of LPS responders who claimed to have rotated through a VA primary care clinic. The LPS-PC2013 data was obtained from the LPS-PC\_v003\_ed03 survey (09/06/2012) that was administered for the 2013 academic year (July 1, 2012 through June 30, 2013). Updates from LPS-PC2012 to LPS-PC2013 paralleled those updates from LPS2012 to LPS2013. The LPS-PC2014 data were collected from responses from the 2% sample to the LPS-PC\_v004\_ed011 (10/09/2013). Updates to LPS-PC2014 paralleled those applied to the LPS2014.

The LPS-PC2015 data were obtained from the LPS-PC\_v005\_ed.003 (08/05/2014), with mid-year updates to LPS-PC\_v006\_ed006 (03/30/2015) that included changes in profession response codes, and again to LPS-PC\_v007\_ed004 (04/14/2015) and to LPS-PC\_v007\_ed006 (09/24/2015) to be consistent with changes to the LPS response codes and survey questions, whenever appropriate. Table 2 shows applicable differences between LPS and LPS-PC.

#### **I.E.5. Learners' Perceptions Survey - Primary Care Identified version [LPS-PCi]**

For FY2016, the LPS-PCi\_v007\_ed006 was created to include an additional question to the LPS-PC that asks responders to report their first, middle, and last names. That is, the LPS-PC\_v007\_ed006 and LPS-PCi\_v007\_v006 offers the same questions, response codes and question and response order, but includes an identity question to determine the identity of the respondent. Like the LPSi, each responder must sign an informed consent from an IRB approved protocol. After signing, trainees are given the website by VA faculty and staff to access the link and direct the trainee to enter responses to the LPS-PCi survey. As with the LPSi, the LPS-PCi is intended for responders who are participating in evaluation or research studies and who have signed informed consent to an IRB approved protocol that thus permit investigators to have access to the responder's identity where such information may be used to link with other data sources in accordance with the IRB approved protocol, and may be limited further by the signed, IRB-approved informed consent agreement and all applicable data use agreements.

#### **I.E.6. Learners' Perceptions Survey - Standard version [LPSs]**

OAA maintains a standard version of the LPS that is applicable to both VA and non-VA facilities. The standard version asks the same questions as the LPS where VA specific language has been replaced by generic terms. For instance, "VA Medical Center" and "Computerized Patient Record System" found in LPS questions were replaced by "MAIN" facility and "Patient Health Record," respectively, in LPSs questions.

## **II. DATA STRUCTURE**

The current LPS Survey, or LPS2016, is a self-reporting survey designed to measure the perceptions of health professions trainees about their clinical training experiences at a VA facility. The progression of LPS surveys since 2001 (LPS2001, LPS2002, ... LPS2014, LPS2015, LPS2016) are described in Table 1. Differences between LPS2013, LPS2014, LPS2015 and LPS2016 are described in Table 2. A description of differences in LPS surveys for years prior to 2013 is available in the respective LPS Instructions Manual prepared for the applicable years.

By definition, a “VA facility” is a VA Healthcare System, Medical Center, Hospital, Outpatient Clinic, or Outreach Center. “Experience” is operationally defined to be the respondent’s most recent clinical experience at a given VA facility. LPS surveys are administered near the end of the respondent’s rotation, assignment, or educational time for the designated VA facility of interest.

LPS2016 survey is made up of two separate questionnaires. These questionnaires are administered separately to trainees from different education programs. The LPS2016 Physician Resident Questionnaire, or LPS2016\_PR, is designed to measure the perceptions of medical students, physician interns (or PGY-1), residents (PGY2-4), or fellows (PGY4+) in a graduate medical education program. Questions cover the respondent’s most recent clinical training experience at a given VA facility.

The LPS2016 Associated Health, Dental, and Nursing Questionnaire, or LPS2016\_AH, is designed to measure the perceptions of trainees in Associated Health, Dentistry, and Nursing programs about their most recent clinical training experience at a given VA facility. The LPS2016\_AH is intended for all academic levels that range from pre-baccalaureate certificate and diploma programs through postdoctoral and residency training programs.

The LPS2016\_PR and LPS2016\_AH questionnaires and response codes were designed to work together so that responses across professions would be comparable. Both questionnaires contain facility-level and environment-level domains that describe teaching and working experiences and the clinical environment. In addition, the LPS2016\_PR contains environment-level domains that capture the respondent’s perceptions about the availability, timeliness and quality of staff and services, as well as systems and processes to deal with medical errors. Table 2 provides a detailed description of how the LPS\_PR and LPS\_AH questionnaires differ.

### **II.A. Facility-Level Information**

Facility level information is based on information supplied by the respondent to describe their reporting facility.

#### ***II.A.(i). Reporting Facilities***

Each VA facility is classified using a Veterans Integrated Services Network (VISN), VHA Service Support Center (VSSC), and six-digit number (STA6n or STA6ID), that distinguishes sites down to basic service levels, as identified in VA corporate data sets. Examples of service levels include a domiciliary unit, nursing home, main hospital, and outpatient care facility. The service level classification of facilities is grouped by point of service indicating a common physical address and classified using a five-digit number (STA5). The point of service classification of facilities is grouped by a common parent facility and classified using a five-digit number (STA5n).

Facility information is computed at parent facility levels (STA5n). However, computation of the calibration instrument used to adjust scores (described below in this Manual) relies on point of service (address-based) facility levels (STA5).

The LPS will adopt the new region classification of VA medical centers intended for 2016 when those rules become finalized.

#### ***II.A.(ii). Facility-Level Complexity Codes***

For performance measurement, administration pay grade, and research purposes, the Human Resource Committee of the National Leadership Board, through the Office of Productivity, Efficiency and Staffing, assigns each parent facility to one of six peer groupings that represent different degrees of operating complexity.

Veterans Health Administration assigned complexity scores based on a five-point ordinal scale. These scores are based on a Facility Complexity Model that is approved by the Under Secretary in an Executive Decision and published for VA use. Scores were published in 2005, 2008, 2011, and 2014. A complexity score is assigned to each facility by year based on the most recently computed value. Thus, complexity scores for FY2001 through 2007 are based on schedules published in 2005; complexity scores for 2008 through 2010 are based on schedules published in 2008; scores for 2011 through 2013 are based on schedules published in 2011 and scores for 2014 through 2015 are based on schedules published in 2014.

The Facility Complexity Model assigns the parent facility (STA5n) to a complexity level based on seven variables. These variables are as follows:

(i) *Patient Volume* is calculated as the number of pro-rated patients seen based on the Veterans Equitable Resource Allocation model (VERA) that classifies patients by level of treatment and costs incurred.

(ii) *Intensive Care Unit and Surgical Operative Complexity Levels* are measured on a combined scale where the highest score is a facility with Level 1 ICU and complex surgery, and the lowest score is a facility with neither program.

(iii) *Patient Risk* is computed as the Medicare Relative Risk score calculated from all VA patient diagnoses based on Diagnostic Cost Groups. Patients with higher risk are considered to have more complex illnesses that are more difficult to manage.

(iv) *Total Resident Slots* is determined as the number of paid resident slots that were allocated to the facility by VA's Office of Academic Affiliations. More slots indicate greater commitment to the education mission and are expected to add complexity to facility management.

(v) *Herfindahl-Hirshman Index of Resident Slots* is computed for each facility as the proportion of the facility's residents for each academic program, squaring the proportion, and then summing the squared proportions over all of the facility's programs. Scores range from zero to one. Higher scores indicate facilities where residents are more concentrated in fewer programs. Greater concentration is expected to decrease the complexity of managing a facility's education mission.

(vi) *Research Dollars* is computed as VERA Research Support allocation.

(vii) *Complexity of Clinical Programs* is computed as the number of complex clinical programs from a list of 11 such programs that require specialized staff, equipment, or complex academic affiliations (PGY5-7). These programs include Spinal Cord Injury, Blind Rehab, Cardiac Surgery, Invasive Cath Lab, Neurosurgery, Transplant, Radiation Oncology, Interventional Radiology, Polytrauma, Inpatient Acute Mental Health and PTSD, and Mental Health Intensive Care Management.

These seven variables are weighted and combined to assign each parent facility to a high, medium, or low complexity group. Those assigned to the high complexity group are further subdivided into three sub-groups.

For 2014, the number of facilities assigned based on Option 2 is as follows:

Complexity Rating	Description	Number Facilities 2014
1a	Largest level of patient volume, patient risk, teaching and research Largest number / breadth of physician specialist Level 5 ICU unit	39
1b	Very large patient volume, patient risk, teaching and research Level 4 or 5 ICU unit	21
1c	Large patient volume, patient risk, teaching and research Level 4 ICU unit	24
2	Medium patient volume, patient risk, some teaching and / or research Level 3 and 4 ICU unit	25
3	Smallest patient volume, smallest patient risk, little or no teaching and / or research Lowest number physician specialist per pro-rated person Level 1 and 2 ICU units	31

## II.B. Respondent-Level Information

Respondent level information includes the following classes of information.

### II.B.1. *Specialty and Academic Level*

“Specialty” refers to either a discipline, specialty within a discipline, or a subspecialty within a specialty. These specialties are, in turn, aggregated into one of four health professions education programs: Associated Health, Dentistry, Nursing, and Physicians.

#### II.B.1.(i). Discipline, specialty, and subspecialty

##### II.B.1.(i)(a). *Program*

Each respondent is asked to identify their health professions education program from among 4 possible pull down menus listing program choices: Associated Health, Dentistry, Nursing, and Physicians (MD or DO) (Table 3).

##### II.B.1.(i)(b). *Reported Specialty*

Once they have indicated a health professions program, respondents are then asked to select their specialty from a list specific to each program (Table 3). There are a total 176 possible disciplines, specialties, and subspecialties, including 25 specialties listed for associated health, 22 specialties within dental health professions, 23 for nursing, and 106 physician specialties and subspecialties, including medical student as a classification (Table 3). In addition, respondents may also report their participation in an advanced special fellowship from a list of 25 fellowship programs (Table 4).

Respondents are asked to select a specialty that best describes their current educational goal for their current education program, not their ultimate career goal. For example, a physician resident entering PGY-1 in internal medicine, though intends eventually to enter a cardiology

fellowship upon completion of an Internal Medicine program, should report “Internal Medicine” as the specialty of their current education program.

The names of all health specialties, and their assignment into a Specialty Group (Table 3), were based on and reviewed by the VA Office of Academic Affiliations’ Director of Medicine and Dentistry, Director of Associated Health, and Director of Nursing Education.

#### **II.B.1.(j)(c).** *Specialty Groups*

All trainee respondents are assigned by a computer algorithm into one of 26 health professions specialty groups. While respondents are asked to report their specialty [II.B.1.(i)(b)] and academic level [II.B.1.(ii)(a)], actual assignments to a specialty group are reviewed by a pre-programmed computer algorithm that reviews the trainee-report specialty (Table 3) and compares trainee-reported academic level (Table 5) against a range of possible academic levels that are applicable to the trainee-reported specialty (Table 6).

That is, the assignment algorithm accounts for respondents who may be reporting their ultimate career objective, rather than their immediate and current education program. So, a respondent reporting a specialty that maps into a specialty group (Table 3) while reporting an academic level that is not included among acceptable academic levels for that specialty group (Table 6), would be assigned to a different specialty grouping, depending on the specialty and academic level specified. For these assignments, the algorithm assumes that the listing of academic level is accurate because academic program levels have explicit language that is universal across professions and trainees are likely to monitor closely their progress through an academic education program.

For example, a trainee who reports “Psychology” as the health specialty (Table 3) and “Doctoral Practicum Extern” as the academic level (Table 6) would be assigned to the “Psychology” specialty group. If the trainee reports being in “Psychology” (Table 3), but at a Baccalaureate level (not listed as a specialty-specific academic level under “Psychology” in Table 6), the trainee’s discipline would be assigned to the “Other Associated Health” specialty group. In another example, a second year resident in Internal Medicine who selects “Cardiology” as their specialty because it is their ultimate education goal, would be assigned by the computer algorithm to the “Internal Medicine” specialty group since the trainee would begin a cardiology program only after completing his or her Internal Medicine program. If the respondent reports being a medical student, but reports being a PGY-1 academic level, then the respondent is assigned to the Internal Medicine group at a PGY-1.

All assignments made by the computerized assignment algorithm were reviewed and approved by the VA Office of Academic Affiliations’ Director of Medicine and Dentistry, Director of Associated Health, and Director of Nursing Education. Whenever the reported academic level falls outside the range of allowed academic levels for the selected specialty, the respondent’s assigned specialty is classified as “other” within the chosen health professions education program. The reported academic level is then mapped to an assigned specialty-specific academic level defined by the “other” specialty category.

#### **II.B.1.(j)(d).** *Special Fellows*

All respondents are asked if they participate in one of 25 special fellowship programs that OAA funds, as listed in Table 4. Response selections do not depend on the respondent’s selection of a specialty program or an academic level.

### **II.B.1.(ii). Academic Level**

#### **II.B.1.(ii)(a). *Reported Academic Level***

The “current academic level” is defined as the level that best describes the progress the trainee is making in the course of their health professions education program. To facilitate responses, responders are asked to choose an academic level from separate lists of possible academic levels based on the type of health professions education program they had selected at the beginning of the LPS survey (Associated Health, Dentistry, Nursing, and Physicians). Table 5 tabulates the list of possible choices by program type (i.e., Associated Health, Dentistry, Nursing, and Physicians MD and DO). For example, a third year medical student working to complete a third year of medical school should report “medical school – 3<sup>rd</sup> year” as the appropriate academic level, even though completing medical school and entering a physician residency program may be the overall education goal.

#### **II.B.1.(ii)(b). *Academic Year***

A metric was constructed to reflect years since high school that the respondent has spent in a health professions education program. How specific levels are translated into academic years is defined in Table 5. The purpose of counting years is to provide a measure of academic progress that is comparable across all health professions with a common reference point. Academic year is a relatively new measure and not available prior to 2014.

#### **II.B.1.(ii)(c). *Academic Level Group***

A metric was also constructed to measure academic progress across health professions by coding respondents into broad academic groups that define their health professions education level. Assignments are described in Table 5. Academic level group is available on LPS datasets since 2001.

### **II.B.2. Education Background**

For physicians, the LPS\_PR collects information on: **(1a)** *U.S. medical school status* or whether the respondent graduated from a U.S. or non-U.S. medical school; **(1b)** *year medical school graduation*, or the year the respondent graduated from medical school, or will graduate from medical school; **(1c)** *VA rotation status*, or currently whether the respondent is rotating at a VA facility, “yes” or “no”; and **(1d)** *percent VA*, or percent of the time that the respondent spent in their clinical training program that was also spent at the VA facility.

For Associated Health, Dentistry, and Nursing programs, the LPS\_AH collects information on: **(2a)** *time required in current program*, or how much total time in weeks, months, and years, the trainee expects to spend in their current clinical education program, **(2b)** *time spent in current program*, or how much time in weeks, months, and years, the trainee has spent in their current clinical education program, and **(2c)** *percent VA*, or percent of the time that the respondent spent in their current clinical education program that was also spent at the VA facility.

### **II.B.3. Respondent’s Demographic Characteristics**

Demographic characteristics include **(1)** gender, or whether the respondent is “female” or “male;” and **(2)** *active duty status*, or “yes” or “no” to whether the respondent is currently active in the military.

### **II.B.4. Mix of Patients Seen by Respondent**

The characteristics of patients, or patient mix, that the respondent saw during their most recent clinical training experience with the VA facility are described in terms of the percent of patients seen who: (1) were 65 years of age or older, (2) female gender, (3) had a chronic medical

illness, (4) had a chronic mental illness, (5) had multiple medical illnesses, (6) had alcohol / substance dependence, (7) had low income or socioeconomic status, and (8) did not have social or family support.

## **II.C. Domains**

Perceptions are described in terms of facility-level domains and environment-level domains. Each domain contains a series of elements that define specific items that collectively comprise the domain. The nine environment-level domains are also grouped into one of three experiences. A listing of all domains, their associated element questions, and how domains are grouped by experience, is summarized below and in Table 2.

### **II.C.1. Facility-Level Domains**

Respondents are asked to summarize their overall clinical training experience at the VA facility by answering questions that correspond to five facility-level domains.

**II.C.1.(i)** *Likely use again* is an ordinal four-point Likert scale that indicates whether respondents: “definitely would not,” “probably would not,” “probably would,” or “definitely would” choose their VA training experience again.

**II.C.1.(ii)** *Employment potential* comprises two scales.

**II.C.1.(ii)(1)** *Likely Recruitable before*, or a five-point Likert scale indicating whether respondents before their VA clinical training experience were “very likely,” “somewhat likely,” “had not thought about it,” “somewhat unlikely” or “very unlikely” to consider future employment opportunities at a VA medical facility.

**II.C.1.(ii)(2)** *Likely Recruitable after*, or a five-point Likert scale indicating the change in whether respondents as a result of their VA clinical training experience are “a lot more likely,” “somewhat more likely,” “no difference,” “somewhat less likely,” or “a lot less likely” to consider future employment opportunities at a VA medical facility.

**II.C.1.(iii)** *Patient care quality*

**II.C.1.(iii)(1)** *Quality before*, or a five-point Likert scale indicating whether the quality of care at the VA facility before starting the VA training experience is “excellent,” “very good,” “good,” “fair,” or “poor.”

**II.C.1.(iii)(2)** *Quality after*, or a five-point Likert scale indicating whether the quality of care at the VA facility based on their actual VA experience is “excellent,” “very good,” “good,” “fair,” or “poor.”

### **II.C.2. Environment-Level Domains**

#### **II.C.2.(1) Core Domains**

(i) *Domain Elements*: As described in Table 2, there are a total of nine core domains that describe the trainee’s teaching, working, and clinical experiences during the respondent’s most recent clinical training experience at a given VA facility. Core domains are made up of from 6 to 15 item questions, or *domain elements*. Each domain element question asks the respondent about a different aspect of the domain. Each domain element question asks respondents to describe their perceptions on an ordinal five-point Likert scale: “very satisfied,” “somewhat satisfied,” “neither satisfied nor dissatisfied,” “somewhat dissatisfied,” or “very dissatisfied.”

(ii) *Domain Summary*: After all domain element questions have been answered, the respondent is also asked to respond to a *domain summary* question. Here, the respondent is

asked to provide an overall rating that summarizes the domain where all domain elements are taken into account. As with domain element questions, domain summary questions ask respondents to describe their perceptions on an ordinal five-point Likert scale: “very satisfied,” “somewhat satisfied,” “neither satisfied nor dissatisfied,” “somewhat dissatisfied,” or “very dissatisfied.”

**II.C.2.(1)(a)** Teaching Experience is made up of two domains:

**II.C.2.(1)(a)(i)** *Learning Environment* domain contains 15 elements that describe the respondent’s clinical learning environment. Elements include time working with patients, supervision, autonomy, non-education “scut” work, interdisciplinary approach, preparation for clinical practice, for future training, and for business aspects of clinical practice, time for learning, access to specialty expertise, teaching conferences, quality of care, culture of patient safety, spectrum of patient problems, and diversity of patients seen.

**II.C.2.(1)(a)(ii)** *Clinical Faculty and Preceptors* domain contains 13 elements that describe the relationships with VA clinical faculty and preceptors whom respondents encountered during their VA clinical training experience. Elements include clinical skills, teaching ability, interest in teaching, research mentoring, accessibility and availability, approachability and openness, timeliness of feedback, fairness in evaluation, being a role model, mentoring, patient-oriented, quality of faculty, and evidence-based clinical practice.

**II.C.2.(1)(b)** Working Experience is made up of three domains:

**II.C.2.(1)(b)(i)** *Working Environment* domain contains 9 elements that describe the respondent’s VA working environment that had been encountered during their clinical training experience. Elements include ancillary / support staff morale, laboratory services, radiology services, ancillary / support staff, call schedule, computerized patient record system, access to online journals, resources and references, computer access, and workspace.

**II.C.2.(1)(b)(ii)** *Physical Environment* domain contains 8 elements that describe the respondent’s VA physical environment that had been encountered during their clinical training experience. Elements include convenience of facility location, parking, personal safety, availability of needed equipment, facility maintenance and upkeep, facility cleanliness and housekeeping, call rooms, and availability of food at the medical center when on call.

**II.C.2.(1)(b)(iii)** *Personal Experience* domain contains 7 elements that describe the respondent’s VA personal experience that had been encountered during their clinical training experience. Elements include personal reward from work, balance of personal and professional life, level of job stress, and of fatigue, continuity of relationship with patients, ownership and personal responsibility for patients’ care, and enhancement of clinical knowledge and skills.

**II.C.2.(1)(c)** Clinical Experience is made up of four domains:

The physician LPS survey, or LPS\_PR questionnaire, asks respondents to answer all four clinical experience domains. The associated health, nursing, and dental LPS survey, or LPS\_AH questionnaire, asks respondents to answer only the Clinical Environment domain.

**II.C.2.(1)(c)(i)** *Clinical Environment* domain contains 7 elements that describe the respondent’s clinical environment that had been encountered during their VA clinical training experience. Elements include hours worked, number of inpatients admitted for care, number of outpatients and clinic patients seen, how well physicians and nurses work together, physicians and other clinical staff work together, ease of getting patient records, backup system for electronic health



records. Both physician and non-physician specialties are administered the clinical environment domain.

**II.C.2.(1)(c)(ii) Availability and Timeliness of Staff & Services** domain contains 13 elements and include outpatient nursing staff on weekdays, and for both weekdays and for nights and weekends regarding attending and supervisory staff, inpatient nursing staff, ancillary support staff, pharmacy services, radiology services, and laboratory services.

**II.C.2.(1)(c)(iii) Quality of Staff & Services** domain (whenever staff or services are available), contains 6 elements describing quality of attending and supervisory staff, nursing, ancillary, pharmacy, radiology, and laboratory services.

**II.C.2.(1)(c)(iv) Processes of Dealing with Medical Errors** domain contains 6 elements and include prevent / reduce medical errors, assure medication safety, report medical / medication errors, assure confidentiality of error reporting, facilitate discussion of medical / medication errors, and facilitate analysis of medical / medication errors as a learning experience.

### **II.C.2.(2) Topic Domains**

As described in Table 2, LPS includes three special topic domains that are designed to ask respondents about special events or to focus on different aspects of their training experiences that are not otherwise covered by one or more core domains.

Topic domain questions are often fact-based where respondents are asked to agree or disagree with a statement about their VA experiences. In some cases, the topic domain will include both fact-based and corresponding satisfaction-based questions. The intent is to measure the extent to which an item, factor, condition, or circumstance exists in the respondent's clinical training experience. Topic domain responses can be compared with core domain responses to determine if the presence or absence of a factor has an impact on how respondents rate their domain satisfaction.

**II.C.2.(2)(i) Psychological Safety.** The 2 element questions comprising the psychological safety topic domain ask if respondents "strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree" with, respectively, whether members of the clinical team are able to "...bring up problems and tough issues," and if the respondent felt "... free to question the decisions or actions of those with more authority?"

**II.C.2.(2)(ii) Patient / Family Centered Care.** (a) The 17 element questions comprising the patient / family centered care domain ask respondents about whether they "strongly disagree," "disagree," "neither agree nor disagree," "agree," or "strongly agree" with specific statements of facts regarding patient and family centered care at VA. (b) Respondents are also asked a fact-based summary question: "overall, VA practitioners provide patient and family centered care." (c) In addition, respondents are asked to rate their overall satisfaction with patient and family centered care at the VA facility as: "very satisfied," "somewhat satisfied," "neither satisfied nor dissatisfied," "somewhat dissatisfied," or "very dissatisfied."

**II.C.2.(2)(iii) Interprofessional Team Care.** (a) The 9 element questions comprising the interprofessional team care domain ask respondents about whether they "strongly disagree," "disagree," "neither agree nor disagree," "agree," or "strongly agree" with specific statements of facts regarding interprofessional team care at VA. (b) Respondents are also asked a fact-based summary question: "overall, VA practitioners provide interprofessional team care." (c) In addition, respondents are asked to rate their overall satisfaction with interprofessional team care at the VA as: "very satisfied," "somewhat satisfied," "neither satisfied nor dissatisfied," "somewhat dissatisfied," or "very dissatisfied."

### **III. SCORING METHODS**

Several strategies are applied to compute scores that can represent a given respondent's overall ratings for facility-level, environment-level, and topic domains. Scoring strategies are selected to meet the information needs of users of LPS data. Users include, but are not necessarily limited to, VA education administrators, trainee supervisors, and clinical practitioners, Designated Education Officers, Designated Learning Officers, Associate Chiefs of Staff for Education, VA executive leadership at the local VA medical center, VISN offices, and VA Central Offices, education program directors and executive officers at the local affiliate education university, college, or institution, national policy makers, program administrators, education evaluators, program investigators, and medical, epidemiologic, analytic, and health services researchers.

#### **III.A. *Background: Scale Types***

**III.A.1. *Categorical Scores:*** Categorical scores represent classes or groupings of items that have no particular order. Examples include ethnicity, gender, education program specialty, or professional discipline.

**III.A.2. *Ordinal Scores:*** Categories that can be ordered according to a value of interest are said to be ordinal. For example, satisfaction questions asks respondents to consider the intensity by which they are satisfied (or dissatisfied) with an element of their learning experiences, and then classify that intensity into a distinct category, such as "very satisfied," "somewhat satisfied," "neither satisfied nor dissatisfied," "somewhat dissatisfied," and "very dissatisfied." Responders who report being "very satisfied" will have a higher level of intensity of satisfaction than responders who report being "somewhat satisfied," who in turn, will have a higher intensity of satisfaction than a responder who reports being "neither satisfied nor dissatisfied." Likewise, responders who "strongly agree" with a given statement are likely to agree more intensively than responders who only "agree" with the statement.

Ordinal scores, however, do not measure intervals between ordered ratings. We often assign a consecutive integer value to each response code to keep track of its respective order. So, for responses to satisfaction questions, we assign 1 to "very dissatisfied," 2 to "somewhat dissatisfied," 3 to "neither satisfied nor dissatisfied," 4 to "somewhat satisfied," and 5 to "very satisfied." These assigned integer numbers reflect the true order of their respective response categories. So "very satisfied" (valued at 5) is more satisfied than "somewhat satisfied" (valued at 4). That is, 5 is greater than 4 and reflects the order of the respective response categories representing the intensity of satisfaction. However, the difference between very satisfied and somewhat satisfied (i.e.,  $5 - 4 = 1$ ), and the difference between "somewhat dissatisfied" at 2 and "very dissatisfied" at 1 (i.e.,  $2 - 1 = 1$ ) does not necessarily mean that the difference in the former is equal to the difference in the latter even though numerically, the difference in the ordered scale are both 1. That is, differences in integer values for ordinal scales are meaningless.

**III.A.3. *Interval Scales:*** Interval scores are ordinal scores with the additional property that differences between values are defined. For example, the difference in the actual intensity of satisfaction between two raters who score a "2" ("somewhat dissatisfied") and "3" (neither satisfied nor dissatisfied) respectively, will represent the same difference in satisfaction between two raters who score a "3" and "4" ("somewhat satisfied"). There are strategies to turn ordinal scales into interval scales. In specific cases, those strategies are applied here.

**III.A.4. *Ratio Scales:*** Ratio scores are interval scales for which absolute zero is defined. In this way, one can claim that one score is "twice" that of another score. Scores of groups of

respondents computed as “percent satisfied” is a ratio scale because “zero” percent is defined as no respondent was satisfied, even though each respondent’s response is classified as either “satisfied” or “otherwise,” which is an ordinal scale. For our purposes, we can compute a ratio score for each respondent by estimating the “likelihood” that a respondent will report being satisfied. “Likelihoods” are reported as probabilities that vary between 0 (very unlikely respondent will report being satisfied) to 1 (highly likely respondent will report being satisfied).

### **III.B. Element Scores**

#### ***III.B.1. Element o-scores***

We score responses to element questions using an ordinal scale taken directly from selected responses to element questions. For satisfaction-based questions, we assign the integer value of 1 to indicate the order of the “very dissatisfied” response as that with the lowest satisfaction intensity. Similarly, we assign 2 to “somewhat dissatisfied,” 3 to “neither satisfied nor dissatisfied,” 4 to “somewhat satisfied” and 5 to “very satisfied” indicating the highest satisfaction intensity. For fact-based questions, the value of 1 is assigned to indicate “strongly disagree,” 2 to “disagree,” 3 to “neither agree nor disagree”, 4 to “agree,” and 5 to “strongly agree.” Element o-scores constitute an ordinal scale.

#### ***III.B.2. Element p-scores***

Each element may also be scored as a binary value. These are called “p” scores because it can be used to indicate the percent of respondents who are satisfied with a condition, or who agreed with a statement about their VA training experiences. For element questions with satisfaction-based responses, 1 (satisfied) is assigned to respondents who reported “very satisfied” or “satisfied” with the given condition, and are assigned 0 (otherwise) if respondents reported “neither satisfied nor dissatisfied,” “dissatisfied,” or “very dissatisfied”. For element questions with agreement-based responses, 1 (agree) indicates the respondent “strongly agrees” or “agrees” with the given statement, and 0 (otherwise) indicates the respondent “neither agrees nor disagrees,” “disagrees,” or “strongly disagrees” with the given statement.

### **III.C. Domain Scores**

Domain scores summarize the information contained across elements for each domain.

#### ***III.C.1. Summary Domain o-scores***

A summary score are determined from the 5-item responses to the summary domain question. Each summary question is asked at the end of each domain section following the respective element questions. By design, o-scores are ordinal scales. Since respondents are asked to summarize the domain, the response to the summary question reflects how each respondent considered and weighed each element when determining an overall rating for the entire domain. That is, summary domain o-scores comprise element responses that are weighted by each individual respondent. Summary scores reflect how individual respondents value each of the elements when conceptually rating the overall domain. For example, the ratings of those elements about which a respondent places little overall value in the context of the domain would thus have little impact on how a respondent rates the overall domain.

For satisfaction-based summary domain questions, to reflect how responses are ordered in terms of satisfaction intensity, we assign the integer value of 1 to indicate the order of the “very dissatisfied” response as that with the lowest overall domain satisfaction intensity. Similarly, we assign 2 to “somewhat dissatisfied,” 3 to “neither satisfied nor dissatisfied,” 4 to “somewhat satisfied” and 5 to “very satisfied” indicating the highest satisfaction intensity. For fact-based

questions, the value of 1 is assigned to indicate “strongly disagree,” 2 to “disagree,” 3 to “neither agree nor disagree,” 4 to “agree,” and 5 to “strongly agree.”

**III.C.2. Summary Domain p-score** Summary domain scores are dichotomized to two values. For satisfaction-based summary domain questions, 1 (‘satisfied’) is assigned to respondents who reported “very satisfied” or “satisfied,” and assigned 0 (‘otherwise’) to respondents who reported “neither satisfied nor dissatisfied,” “dissatisfied,” or “very dissatisfied.” For agreement-based summary domain questions, 1 (‘agree’) indicates the respondent “strongly agrees” or “agrees” with the given statement, and 0 (‘otherwise’) indicates the respondent “neither agrees nor disagrees,” “disagrees,” or “strongly disagrees” with the given statement.

### **III.C.3. Summary Domain adjusted p-score**

Adjusted p-scores are computed as likelihoods that an individual respondent will have a summary domain p-score of 1 (“very satisfied” or “somewhat satisfied” for satisfaction-based domains and “strongly agree” or “agree” for fact-based domains) versus 0 alternative (“neither satisfied nor dissatisfied,” “somewhat dissatisfied,” or “very dissatisfied” for satisfaction-based domains, and “neither agree nor disagree,” “disagree,” or “strongly disagree” for fact-based domains). Adjusted p-scores are calculated by regressing the summary domain o-score as the dependent variable, and the mean element summary domain (m-score) plus other covariate adjustors as the independent variables. M-scores are defined below.

Specifically, adjusted p-scores are calculated by estimating generalized linear models with summary domain o-score as an ordinal dependent variable, and the mean element domain m-score and mean-centered covariate adjustors as independent variables, with a cumulative logit linking function and multinomial error distribution. P-scores are calculated by summing the predicted likelihood the respondent would have reported being “very satisfied” or “somewhat satisfied” based on the respondents actual mean element domain m-score and covariates that are valued for a referent trainee.

There are two sets of covariate adjustors and referent trainee:

**R1:** Summary domain adjusted p-scores based on R1 permit comparisons across facilities, within a facility overtime, or across domains. Covariates include the respondent’s specialty or discipline based on the specialty group variable, academic level based on the academic level group variable, gender, response bias index, service complexity of reporting facility, and mix of patients seen. Covariates are mean centered around the ‘referent’, defined to be a trainee in internal medicine specialty and PGY 1-3 academic level, male, with zero response bias, in a facility classified as ‘1a’ complexity (highest), and seeing a median mix of patients, for trainees during academic years 2011-2015.

**R3:** Summary domain adjusted p-scores based on R3 permit comparisons among respondents over academic level and among disciplines, specialties, and subspecialties. List of covariates explicitly excludes the respondent’s specialty or discipline and academic level, but includes gender, response bias index, service complexity of reporting facility, and mix of patients seen. Covariates are mean centered around the ‘referent’ defined to be a trainee who is male, with zero response bias, in a facility classified as ‘1a’ complexity (highest), and seeing a median mix of patients, for trainees during academic years 2011-2015.

### **III.C.4. Mean Element Domain m-scores**

Mean element scores, or m-scores, are computed by domain for each respondent by taking the average of non-missing element o-scores. Here, the consecutive integer values (1, 2, 3, 4, and 5 for the 5-item Likert scales) for the element o-scores are treated as actual numbers when computing their average to calculate the domain’s m-score. Elements not answered are treated

as missing and not counted. If 20% of element questions within a given domain for a given respondent are unanswered, the respondent's mean element score for the given domain is treated as a missing value.

As described, m-scores are interval scales. This is allowed because element questions comprising a single domain are generally one-dimensional [see VI.]. Thus, mean element domain m-scores reflect "latent" domain factors that represents the intensity by which respondents are reporting their satisfaction, or agreement. The simple mean of element responses thus becomes a sufficient statistic to represent that latent factor.

By design, m-scores are computed as simple averages of element o-scores where integer values are treated as numbers. Thus, each element o-score is weighted equally across all elements in computing a score to represent the entire domain. This contrasts with summary domain o-scores where respondents must weigh the relative importance of each element when determining how they rate the entire domain (by responding to the domain summary question).

### **III.C.5. Mean Element Domain z-scores**

Mean element domain m-scores can be recomputed to z-scores by subtracting the mean of m-scores from the respondent's m-score, and dividing the difference by the square root of the variance of m-scores across all responders.

Z-scores enable investigators to compare ratings across responders where scores are adjusted to reflect a standard variance of one and a mean of zero. A z-score of zero is benchmarked to be the score the average respondent assigned to an average facility. A negative (or positive) z-score would indicate that the respondent rates a given facility less (or more) than the average rater rating an average facility.

### **III.C.6. Mean Element Domain Adjusted z-scores**

Mean element domain z-scores can also be adjusted to reflect differences in other covariates. Adjusted z-scores are calculated by regressing the mean element domain z-scores against covariates in a generalized linear model with an identity linking function and normal error distribution. The adjusted z-score is computed as residual values between the respondent's actual z-score (based on the respondent's ratings) and the predicted z-score obtained from the estimated model. There are two sets of covariate adjustors included in the model.

**R1:** Mean element domain z-scores adjusted based on R1 permit comparisons across facilities, within facility overtime, or across domains. Covariates include the respondent's specialty based on the specialty group variable, academic level based on the academic level group variable, gender, response bias index, service complexity of the reporting facility, and mix of patients seen.

**R3:** Mean element domain z-scores adjusted based on R3 permit comparisons among respondents over academic level and among disciplines, specialties, and subspecialties. List of covariates explicitly excludes the respondent's specialty or discipline and academic level, but includes gender, response bias index, service complexity of the reporting facility, and mix of patients seen.

### **III.D. Missing Values**

To compute mean element domain scores, we take the mean of only those elements for which the respondent reported a useable response (not missing or inapplicable). The mean domain score is treated as a missing value whenever the respondent fails to answer two or more domain element questions.

To compute adjusted scores, respondents must have described the mix of patients they saw during their VA clinical encounters along seven dimensions. To account for missing data when respondents failed to provide a complete set of information on these covariate factors (approximately 13%), we imputed the values for the given respondent by taking the mean among all such responders who were in the respondent's facility, in the same specialty group and academic level group, and who responded to the survey during the same two-year reporting period.

#### **IV. INDEX COMPUTATIONS**

The LPS survey is designed to compute important indices needed to interpret findings from survey responses.

##### **IV.A. Element Value, Importance, Attitude Score**

The value or importance that a group of respondents place on a domain element and within the context of that domain, can be computed as an independent association between the element satisfaction rating and the domain summary satisfaction rating, independent of effects of all other elements on the domain summary.<sup>6, 7</sup> The element value is essentially the weight that the respondent applied to that particular element when considering their overall satisfaction for the domain. Elements with less value are considered relatively unimportant drivers of a respondent's satisfaction with their clinical training experience in the context of the given domain.

##### **IV.B. 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 be observed by observing how different trainees report satisfaction 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 here is taken from three element questions used in 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. Listed in Table 2, these common elements 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 Physical Domain elements). 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 index is an m-score computed as the mean of re-coded responses across the three common elements.

An index value is computed for each respondent by taking the m-score for the three common elements for a given respondent and subtracting the average m-score from among all respondents to the given facility and calendar year. 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.

#### **IV.C. Differencing Variable**

Responses to topic domains can be used to compute differencing variables.<sup>12</sup> Differencing variables are equivalent to moderator variables found in controlled clinical trials that can turn on, or turn off, the effect of an intervention of interest. Responses to topic domain questions enable investigators to assess the extent to which the presence or absence of a condition impacted a respondent’s rating of their VA clinical training experience by core domains. The differencing variable strategy enables investigators to use LPS data to make inferences about effect sizes of interventions on core domains using pre-post, before-after, and with-without designs. The strategy has been explained, and applied to LPS data to determine the impact of changes in ACGME duty hour standards on trainee satisfaction with the VA clinical learning experience.<sup>12</sup>

#### **V. DISSEMINATION**

The Office of Academic Affiliations, within the Department of Veterans Affairs Veterans Health Administration, provides official findings of the LPS2016 data by means of a series of standardized and on-going Current Reports, and one-of-a-kind Special Reports. These reports are designed to provide information about the progress the VA has made towards its education mission. The intended audience for these reports include, among others, VA’s Designated Learning Officers, Education Officers, Associate Chiefs of Staff for Education, and local and

national academic leaders. The purpose for these reports are to help education leaders identify problems, propose solutions, implement interventions, and evaluate the progress achieved when those interventions are implemented, in order to offer VA trainees an optimal clinical learning environment while providing veterans with safe, effective, and high quality health care.

## **V.A. Current Reports / Data Cube**

The LPS2015 Current Reports provide analytic information calculated from trainee responses to LPS surveys administered during the academic years from 2010 through and including 2015. Current Reports allow users to compare scores between facilities, to see how scores have changed over time for a given facility, and to examine how scores vary across specialties and academic levels.

While LPS data contains LPS and LPSc responses, current reports are computed whenever a minimum eight respondents are available for a reporting unit.

Current Reports are available through a data cube accessible on OAA's website at <http://vaww.oaa.med.va.gov/lpsCurrentReports/>. Current Reports are formatted so that users specify the facilities to include in the analyses (one facility, group, VISN, or all facilities nationwide) and specify specialty (by specialty group) and academic level (by academic level group). Current Reports will produce charts to display information graphically, and tables to display statistics numerically. Where multiple domains are applicable, separate charts and tables are usually produced, a set for each domain.

Current Reports were created and developed using Microsoft Visual Studio (2008) tools, with the Data Cube constructed on an SQL Server (2008 R2) Analysis Services platform, and Reports constructed on an SQL Server (2008 R2) Reporting Services platform. Adjusted scores and pre-processing of the raw data were performed on SPSS version 19. To permit comparisons of satisfaction ratings across facilities, over time, among specialties, and over academic levels, the construction of these Reports from the original raw survey data required an equivalent 26,500 lines of programming, excluding software developed to assess robustness, construct validity, response biases, or reliability of the final research-ready datasets.

Available Current Reports are as follows:

### **1. Element reports**

- 1.1** For each of nine domains, describes percent satisfied across a primary group and a comparison group of facilities, for each of between six and fifteen of the domain's elements, the overall domain satisfaction, and the adjusted overall domain satisfaction, for respondents identified by selected disciplines or specialties, and academic level. For example, the primary group may consist of one facility with all facilities in the corresponding VISN or all facilities as the comparison group. Element report also shows trainee survey counts and HI/LOW table.
- 1.2.** For each of nine domains, describes percent satisfied across the last three reporting years for each of between six and fifteen of the domain's elements, the overall domain satisfaction, and adjusted overall domain satisfaction, for respondents identified by selected facilities, disciplines or specialties, and academic levels.

### **2. Domain Reports**

- 2.1.1.** For each of nine domains, describes adjusted percent satisfied across selected individual facilities for respondents identified by reporting years, disciplines or specialties, and academic levels.



- 2.1.2. For each of nine domains, describes adjusted percent satisfied across all VISNs for respondents identified by reporting years, disciplines or specialties, and academic levels.
- 2.2. For each of nine domains, describes adjusted percent satisfied across reporting years 2005 through 2015, for respondents identified by reporting facilities, respondent's disciplines or specialties, and academic levels.

## V.B. Special Reports

LPS2016 data can be used to generate a series of short Special Reports for administrative, evaluative, regulatory, and research purposes, in response to inquiries from OAA staff, from ACOS-E, Designated Learning Officers, and interested VA faculty and staff in the field, and other government Executive and Legislative branch offices and agencies.

## V.C. Publications and Presentations

Information contained in the LPS2016 data will be disseminated through manuscripts published in peer-reviewed scientific journals, presentations at scientific meetings, formal lectures and continuing education seminars, and project reports for distribution to the public through the Office of Academic Affiliations. A brief list of publications and presentations are listed below where input was obtained from LPS datasets:

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 15<sup>th</sup> 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 3<sup>rd</sup> 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 11<sup>th</sup> 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 42<sup>nd</sup> Annual Meeting of the Society for Mathematical Psychology and the 40<sup>th</sup> 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 *43<sup>rd</sup> 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.; Bennett, David S.; and Keitz, Sheri A. "Has Interprofessional Education Changed Learning Preferences? A National Perspective," invited resubmission to Health Services Research.

## VI. Psychometric Properties

Historically, LPS Survey responses have shown good internal consistency<sup>8</sup> ( $\alpha$ 's ranging from 0.87 to 0.92), and have been validated for discriminant and construct validity across medical students and physician residents,<sup>8</sup> medical specialties,<sup>9, 10</sup> dental specialties,<sup>11</sup> and in longitudinal analyses for physician residents.<sup>12</sup> Empirical analyses with LPS data revealed that trainee responses that have been subject to scoring, covariate adjustments, response bias corrections, and calibrations do permit investigators to make robust comparisons of satisfaction ratings across responding trainees representing different disciplines, specialties and subspecialties, academic levels, and reporting facilities.

Table 7 summarizes the psychometric properties computed for LPS responses obtained during the academic year for 2015 (July 1, 2014 through June 30, 2015). Properties examined for each domain included the number of elements, mean, standard deviation, and minimum and maximum values based on mean element domain scores, Cronbach alpha across elements for consistency, intraclass correlation for single and average measures, the Eigen value for each principal component for all components with Eigen values equal to or greater than 0.50, and the percent of variance explained for each principal component.

## TABLES

**TABLE 1**  
**Development of the Department of Veterans Affairs  
 Learners' Perceptions Survey (LPS)**

VA LPS	Academic Year Administered	LPS Version Number	Comments
LPS2001	July 1, 2000 - June 30, 2001	v001	The initial survey was administered to all VA trainees. Questions asked about the respondent's discipline / specialty, academic level, gender, time in training, and percent of time in training spent at VA. Facility-level domains include VA and nonVA comparisons, 100-point numerical score, overall value of VA clinical training experience, whether respondent would recommend experience to other trainees and would choose VA training experience again. Core domains focused separately on Clinical Faculty / Preceptors, Learning Environment, Working Environment, and Physical Plant.
LPS2002	July 1, 2001 - June 30, 2002	v002	The second version added a listing of Physician Residency Specialties and VA Post-Residency Special Fellowship training programs. The name of the Physical Plant Domain changed to Physical Environment. The question describing "preparation for an evidence-based clinical practice," previously presented as a separate question, was listed as an element to the Clinical Faculty / Preceptors Domain. Questions asking for the name and address of the Main Medical Facility and the institutions sponsoring the training program were added. Seven items describing characteristics of patients seen were added. Respondent-level questions asking about year graduated from medical school and whether the medical school was US or non-US were added.
LPS2003	July 1, 2002 - June 30, 2003	v003	The single survey was divided into two separate questionnaires, one intended for Associated Health trainees (AH) and the other for Physician Residents, including fellows and medical students (PR). Research Mentoring and Mentoring by Faculty elements were added to the Clinical Faculty Preceptors Domain. Personal Experience Domain was added. Patient characteristics described in terms of whether "Treatment will resolve an acute problem," "Treatment will stabilize or improve a chronic condition," and "Treatment will comfort or palliate" were added to the

**TABLE 1**  
**Development of the Department of Veterans Affairs  
 Learners' Perceptions Survey (LPS)**

VA LPS	Academic Year Administered	LPS Version Number	Comments
			characteristics of patients seen. Clinical Environment, Staff / Service Availability, Staff / Service Quality, and Quality of Care and Patient Safety Domains were added to the PR survey. Questions asking about the Main Medical Facility were deleted.
LPS2004	July 1, 2003 - June 30, 2004	v004	Quality of Care and Patient Safety Domain was re-focused to become the Systems and Process Medical Error Domain. A Topic Domain was added to the PR questionnaire describing the overall effect of the 2003 Accreditation Council for Graduate Medical Education (ACGME) duty hours / scheduling on training experiences. Facility-Level Question, "Would you consider the VA as a future employment site?" was added. The element: "Dealing with terminally ill patients" was removed from the Personal Experience Domain, and "Ownership / personal responsibility for your patients' care" was added to the Personal Experience Domain. "Treatment will resolve an acute problem," "Treatment will stabilize or improve a chronic condition," and "Treatment will comfort or palliate" were removed from the characteristics of patients seen. Questions identifying the sponsoring institution were deleted.
LPS2005	July 1, 2004 - June 30, 2005	v005	The classification of academic levels for Pharmacy trainees was modified.
LPS2006	July 1, 2005 - June 30, 2006	v006	Specialty and subspecialty classifications for Physician Residents were expanded.
LPS2007	July 1, 2006 - June 30, 2007	v006	No change
LPS2008	July 1, 2007 - June 30, 2008	v006	No change
LPS2009	July 1, 2008 - June 30, 2009	v006	No change
LPS2010	July 1, 2009 - June 30, 2010	v007	Rehabilitation discipline was divided into blind, occupational, physical and other therapy. The question: "Are you currently on Active Duty in the military?" was added among questions describing the characteristics of the respondent.

**TABLE 1**  
**Development of the Department of Veterans Affairs  
 Learners' Perceptions Survey (LPS)**

VA LPS	Academic Year Administered	LPS Version Number	Comments
LPS2011	July 1, 2010 - June 30, 2011	v008	ACGME Topic Domain was deleted from the PR questionnaire.
LPS2012	July 1, 2011 - June 30, 2012	v009	The classification of Physician Residents Specialty and Advanced Fellowship Programs were revised. Three Topic Domains were added: Psychological Safety, Patient / Family Centered Care, and U.S. Accreditation Council for Graduate Medical Education (ACGME) Duty / Hours Scheduling Domains. Disciplines were divided into Associated Health, Dentistry and Nursing programs. Separate questions describing Advanced Fellowship Programs were added to the AH questionnaire.
LPS2013	July 1, 2012 - June 30, 2013	v010	There were major changes in how specialties and academic level data were collected for Associated Health and Nursing. Consistent with the strategy for Dentistry and Physicians, Associated Health and Nursing program respondents were asked separate questions to name their discipline or specialty, and to indicate their academic level, in their current program. The list of disciplines and specialties for Associated Health Programs was expanded to include Marriage & Family Counseling, Mental Health Counseling, and Surgical Technician / Technologist. Nursing disciplines and specialties were also expanded. The listings for disciplines and specialties and academic levels for Dentistry were also updated.
LPS2014	July 1, 2013 - June 30, 2014	v011	The listings of academic levels and listings of disciplines, specialties, and subspecialties for each health professions programs (Associated Health, Dentistry, Nursing, and Physicians) were updated. Pre-baccalaureate academic levels "certificate," "diploma," and "associate degree" were clarified to distinguish pre-baccalaureate from post-doctoral certificate. The number of facility-level domains was reduced based on reported need in the field. The before-after quality of care assessment was continued for physician residents, and added to the Associated Health survey for dental, nursing, and associated health programs. The elements comprising teaching experiences, including clinical learning environment and faculty & preceptor

**TABLE 1**  
**Development of the Department of Veterans Affairs  
 Learners' Perceptions Survey (LPS)**

VA LPS	Academic Year Administered	LPS Version Number	Comments
			<p>domains, were left unchanged from LPS2013. In addition, the number of elements comprising the working experience domains, including personal experience, working environment, and physical environment, were reduced based on the contribution each element had to drive variation in all element scores by domain. For clinical experience, Staff and Services Timeliness and Availability, Quality of Staff and Services, and Process Medical Error Domains were left unchanged from FY2013. However, the number of elements comprising Clinical Environment was reduced based on the contribution each element had to drive variation in all element scores for the domain. The ACGME2011 duty hour topic domain was discontinued, as that study concluded. The Patient-Centered Care topic domain was modified. Specifically the domain was divided into an Interprofessional Team Care domain focusing on provider-provider interactions, and Patient-Centered Care domain focusing on provider-patient interactions. Both Interprofessional-team and Patient-Centered Care domains had a fact-based domain summary and a satisfaction-based domain summary.</p>
LPS2015	July 1, 2014 - June 30, 2015	v012	<p>The listing of specialties for Physicians was updated to include Adult Reconstructive Orthopaedics, Advanced Heart Failure and Transplant Cardiology, Blood Banking \ Transfusion Medicine, Brain Injury Medicine, Chemical Pathology, Clinical Informatics, Complex General Surgical Oncology, Craniofacial Surgery, Cytopathology, Emergency Medical Services, Epilepsy, Female Pelvic Medicine and Reconstructive Surgery - OB-GYN, Female Pelvic Medicine and Reconstructive Surgery - Urology, Foot and Ankle Orthopaedics, Forensic Pathology, Hand Surgery - Orthopaedic, Hand Surgery - Plastic Surgery - Integrated, Hematology - Internal Medicine, Hematology - Pathology - Anatomic and Clinical, Medical Biochemical Genetics, Medical Microbiology, Molecular Genetic Pathology, Musculoskeletal Oncology, Neuromuscular Medicine - Neurology, Neuromuscular Medicine - (PM&amp;R), Neuropathology, Neurotology, Ophthalmic Plastic and Reconstructive Surgery, Orthopaedic Sports Medicine, Orthopaedic Surgery of the Spine, Orthopaedic Trauma, Selective Pathology, and Vascular Neurology. The</p>

**TABLE 1**  
**Development of the Department of Veterans Affairs  
 Learners' Perceptions Survey (LPS)**

VA LPS	Academic Year Administered	LPS Version Number	Comments
			scale for the question "as a result of this VA clinical training experience, how likely would you be to consider a future employment opportunity at a VA medical facility" was revised to very likely, somewhat likely, had not thought about it, somewhat unlikely and very unlikely.
LPS2016	July 1, 2015 - June 30, 2016	v013	The Associated Health and Nursing Program disciplines were updated. Also, Advanced Fellowship programs was expanded to include Addiction Treatment, Clinical Simulation, Health Professions Education Evaluation and Research, and Pycho-Social Rehab Physicians Fellow. The question "practitioners from different settings (inpatient, outpatient, and extended care) communicate with me about my patients and their transitions from one level of care to another, such as hospital discharge" was deleted from the Patient-Centered Care topic domain, however, the question remains in the Interprofessional Team Care topic domain.



**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006	
	AH	PR	AH	PR	AH	PR	AH	PR		
<i>FACILITY-LEVEL</i>										
<i>Numerical score</i>	✓	✓								
<i>Value of experience</i>	✓	✓								
<i>Choose experience again</i>	✓	✓	✓	✓	✓	✓	✓	✓		✓
<i>Recommend experience</i>	✓	✓								
<i>Likely to consider VA future employment before experience</i>	✓	✓	✓	✓	✓	✓	✓	✓		✓
<i>Likely to consider VA future employment after experience</i>	✓	✓			✓	✓	✓	✓		✓
<i>More/Less likely to consider VA future employment as result of VA experience</i>	✓	✓	✓	✓						
<i>Consider as a future employer</i>	✓	✓			✓	✓	✓	✓		✓

**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<i>What level of patient care quality did you expect to find at the VA facility BEFORE starting VA training experience</i>		✓	✓	✓	✓	✓	✓	✓	✓
<i>How do you rate the quality of patient care at the VA facility NOW, based on your actual experience</i>		✓	✓	✓	✓	✓	✓	✓	✓
<i>Compare alternative experiences with:</i>									
<i>VA clinical faculty and preceptors</i>	✓	✓							
<i>VA facility staff</i>	✓	✓							
<i>VA learning environment</i>	✓	✓							
<i>VA working environment</i>	✓	✓							
<i>VA physical environment</i>	✓	✓							
<i>Degree of autonomy</i>	✓	✓							
<i>Degree of supervision</i>	✓	✓							











**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006	
	AH	PR	AH	PR	AH	PR	AH	PR		
<i>Personal safety</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<i>Availability of phones</i>	✓	✓								
<i>Availability of needed equipment</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<i>Maintenance of equipment</i>	✓	✓								
<i>Facility maintenance / upkeep</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<i>Lighting</i>	✓	✓								
<i>Heating and air conditioning</i>	✓	✓								
<i>Facility cleanliness / housekeeping</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<i>Call rooms</i>	✓	✓	✓	✓	✓	✓	✓	✓		
<i>Availability of food at the medical center when on call</i>	✓	✓	✓	✓	✓	✓	✓	✓		
<i>OVERALL satisfaction</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<b><u>Personal Experience</u></b>										
<i>Personal support from colleagues</i>	✓	✓								
<i>Personal reward from work</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<i>Relationship with patients</i>	✓	✓								









**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<i>Getting tests done in a timely fashion on weekdays</i>		✓							
<i>Getting tests done in a timely fashion on nights and weekends</i>		✓							
<i>Ease of getting patient records</i>		✓		✓	✓	✓	✓	✓	✓
<i>Backup system for electronic health records</i>		✓		✓	✓	✓	✓	✓	✓
<i>Amount of "paper work"</i>		✓							
<i>Ability to work within the system to get the best care for respondent's patients</i>		✓							
<i>Nursing support for patient care issues between visits</i>									
<i>How well primary care practitioners support patient care for each other's assigned patients</i>									
<i>Management of patient phone calls</i>									
<i>OVERALL satisfaction</i>		✓		✓	✓	✓	✓	✓	✓

**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006	
	AH	PR	AH	PR	AH	PR	AH	PR		
<u><i>Staff and Services Timeliness and Availability</i></u>										
<i>Attending / supervisory staff: weekdays</i>		✓		✓		✓		✓		✓
<i>Attending / supervisory staff: nights and weekends</i>		✓		✓		✓		✓		✓
<i>Outpatient nursing staff: weekdays</i>		✓		✓		✓		✓		✓
<i>Inpatient nursing staff: weekdays</i>		✓		✓		✓		✓		✓
<i>Inpatient nursing staff: nights and weekends</i>		✓		✓		✓		✓		✓
<i>Ancillary / support staff: weekdays</i>		✓		✓		✓		✓		✓
<i>Ancillary / support staff: nights and weekends</i>		✓		✓		✓		✓		✓
<i>Pharmacy services: weekdays</i>		✓		✓		✓		✓		✓
<i>Pharmacy services: nights and weekends</i>		✓		✓		✓		✓		✓
<i>Radiology services: weekdays</i>		✓		✓		✓		✓		✓









**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<i>Families are actively involved in care planning and transitions</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Web portals provide specific health-related, patient education resources for patients and families</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Clinicians use e-mail to communicate with patients and families</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Clinicians use telemedicine or telehealth technology to evaluate or interact with patients or other practitioners who are off-site</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Other than e-mail or telemedicine / telehealth, clinicians use additional electronic means of communicating with patients</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Educational materials are routinely provided to patients and families</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Assistance is provided for patients who have difficulty accessing health care services</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Patients have access to their paper / electronic health records</i>	✓	✓							

**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<i>Patients have access to their health records</i>			✓	✓	✓	✓	✓	✓	✓
<i>Environment encourages family presence</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Families are treated as members of the treatment team</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Respondent participates in regularly scheduled treatment team meetings that include physicians and non-physicians (e.g., nurses, psychologists, social workers, pharmacists)</i>	✓	✓							

**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<i>Respondent participates in regularly scheduled treatment team meetings that include physicians and non-physicians (e.g., nurses, psychologists, social workers, pharmacists)</i>	✓	✓							
<i>Care is provided using an interprofessional, collaborative team approach</i>	✓	✓							
<i>Respondent follows a defined panel of patients longitudinally</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Patients or cohorts of patients with chronic disease(s) are identified who might benefit from additional intervention or coordination of care between clinic visits</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>For patients with chronic disease such as diabetes, respondent reviews lists of patients in respondent's primary care clinic or panel in order to identify and better manage patients not meeting treatment goals</i>	✓	✓							



**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<i><b>Interprofessional Team Care</b></i>									
<i>Participate regularly in team meetings (formal or informal) with members of different professions to discuss and coordinate care of patients</i>			✓	✓	✓	✓	✓	✓	✓
<i>Participate regularly in team meetings (formal or informal) with members of different professions to discuss performance improvement</i>			✓	✓	✓	✓	✓	✓	✓
<i>Participate regularly in team meetings (formal or informal) with members of different professions to discuss clinical operational issues</i>			✓	✓	✓	✓	✓	✓	✓
<i>Practitioners from different settings (inpatient, outpatient, extended care) communicate about patients and their transitions from one level of care to another, such as hospital discharge</i>			✓	✓	✓	✓	✓	✓	✓
<i>VA staff work well together among primary and specialty care practitioners</i>			✓	✓	✓	✓	✓	✓	✓

**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<i>Primary care practitioners (e.g., physicians, nurse practitioners, physician assistants) work well together</i>									
<i>VA staff work well together among physicians and nurses</i>			✓	✓	✓	✓	✓	✓	✓
<i>Primary care practitioners and nursing staff work well together</i>									
<i>VA staff work well together among physicians and other health professionals (e.g., optometry, pharmacy, podiatry, psychology, rehabilitation, social work)</i>			✓	✓	✓	✓	✓	✓	✓
<i>Primary care practitioners and other health professionals work well together (e.g., optometry, pharmacy, podiatry, psychology, rehabilitation, social work)</i>									
<i>VA staff work well together among nurses and other health professionals</i>			✓	✓	✓	✓	✓	✓	✓
<i>VA staff work well together among clinical and administrative support staff</i>			✓	✓	✓	✓	✓	✓	✓



**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<b><u>ACGME Duty Hours / Scheduling</u></b>									
<i>Personal support from colleagues</i>		✓							
<i>Personal reward from work</i>		✓							
<i>Relationship with patients</i>		✓							
<i>Appreciation of respondent's work by faculty</i>		✓							
<i>Supervision of respondent's work by attendings and more senior residents</i>		✓							
<i>Appreciation of respondent's work by patients</i>		✓							
<i>Balance of personal and professional life</i>		✓							
<i>Enjoyment of respondent's work</i>		✓							
<i>Level of job stress</i>		✓							
<i>Level of fatigue</i>		✓							
<i>Continuity of relationship with patients</i>		✓							
<i>Ownership / personal responsibility for respondent's patients' care</i>		✓							



**TABLE 2**  
**Domain Elements By Learners' Perceptions Survey Questionnaires**

MEASURES	LPS2013		LPS2014		LPS2015		LPS2016		LPS-PC ver007 ed006
	AH	PR	AH	PR	AH	PR	AH	PR	
<i>Quality of care respondent's patients receive</i>		✓							
<i>Safety of patient care</i>		✓							
<i>Respondent's personal safety (e.g., driving home from work)</i>		✓							
<i>Enhancement of respondent's clinical knowledge and skills</i>		✓							
<i>Ability to transition care of patients to other members of the treatment team</i>		✓							
<i>Overall effect of changes in ACGME requirements</i>		✓							

**TABLE 3**  
**Reported Specialties Listed in the LPS Survey,  
 By Health Professions Education Program  
 and Assigned Specialty Group**

Program	Assigned Specialty Group	Reported Specialty <i>(discipline, specialty, subspecialty)</i>
Associated Health	Audiology	Audiology
	Chaplaincy	Chaplaincy
	Chiropractic	Chiropractic
	Dietetics	Dietetics
	Occupational Therapy	Occupational Therapy
	Optometry	Optometry
	Pharmacy	Pharmacy
	Physical Therapy	Physical Therapy
	Physician Assistant	Physician Assistant
	Podiatry	Podiatry
	Psychology	Psychology
	Rehabilitation	Blind Rehabilitation Recreation / Manual Arts Therapy Rehabilitation / Other
	Social Work	Social Work
	Speech Pathology	Speech Pathology
Technical and Laboratory	Laboratory Medical Imaging Medical / Surgical Support Tech Radiation Therapy	

**TABLE 3**  
**Reported Specialties Listed in the LPS Survey,  
 By Health Professions Education Program  
 and Assigned Specialty Group**

Program	Assigned Specialty Group	Reported Specialty ( <i>discipline, specialty, subspecialty</i> )
		Surgical Technician / Technologist
	Other Associated Health	Licensed Professional Mental Health Counselor Marriage & Family Therapist Orthotics / Prosthetics Other
Dentistry	Dental Auxiliary	Dental Assistant Dental Hygiene
	Dentists	Anesthesiology Craniofacial Special Care Orthodontics Dentist Endodontics General Practice Maxillofacial Prosthetics Oral and Maxillofacial Pathology Oral and Maxillofacial Radiology Oral and Maxillofacial Surgery Oral and Maxillofacial Cosmetics Oral and Maxillofacial Craniofacial Oral and Maxillofacial Oncology Oral Medicine Orthodontics & Dentofacial Orthopedics Orthodontics / Periodontics Pediatric Periodontics Prosthodontics Prosthodontics / Maxillofacial Prosthetics Public Health
Nursing	Nursing	Nurse Aide / Assistant Certified Registered Nurse Anesthetist Clinical Nurse Leader Clinical Nurse Specialist - Acute Care Clinical Nurse Specialist - Adult-Gerontology

**TABLE 3**  
**Reported Specialties Listed in the LPS Survey,**  
**By Health Professions Education Program**  
**and Assigned Specialty Group**

Program	Assigned Specialty Group	Reported Specialty <i>(discipline, specialty, subspecialty)</i>
		Clinical Nurse Specialist - Family/Individual Across Lifespan Clinical Nurse Specialist - Neonatal Clinical Nurse Specialist - Pediatrics Clinical Nurse Specialist - Psychiatric-Mental Health Clinical Nurse Specialist - Women's Health/Gender-Related Licensed Practical Nurse Licensed Vocational Nurse Nurse Administration Nurse Educator Nurse Midwifery Registered Nurse Nurse Practitioner - Acute Care Nurse Practitioner - Adult-Gerontology Nurse Practitioner - Family/Individual Across Lifespan Nurse Practitioner - Neonatal Nurse Practitioner - Pediatrics Nurse Practitioner - Psychiatric-Mental Health Nurse Practitioner - Women's Health / Gender-Related
Physicians	Medical Student	Medical Student
	Internal Medicine	Internal Medicine Internal Medicine - Chief Resident Internal Medicine / Emergency Medicine Sports Medicine - Internal Medicine
	Int. Med. Subspecialty	Advanced Heart Failure and Transplant Cardiology Cardiovascular Disease Clinical Cardiac Electrophysiology Critical Care Medicine - Internal Medicine Endocrinology, Diabetes, and Metabolism Gastroenterology Geriatric Medicine - Internal Medicine Hematology - Internal Medicine Hematology and Oncology Infectious Disease

**TABLE 3**  
**Reported Specialties Listed in the LPS Survey,  
 By Health Professions Education Program  
 and Assigned Specialty Group**

Program	Assigned Specialty Group	Reported Specialty <i>(discipline, specialty, subspecialty)</i>
		Interventional Cardiology Nephrology Oncology Pulmonary Disease Pulmonary Disease and Critical Care Medicine Rheumatology Sleep Medicine (multidisciplinary)
	Medical / Other	Allergy and Immunology Brain Injury Medicine Clinical Neurophysiology Dermatology Dermatopathology (multidisciplinary) Epilepsy Family Medicine Geriatric Medicine - Family Medicine Hospice and Palliative Medicine (multidisciplinary) Neurology Neuromuscular Medicine - Neurology Neuromuscular Medicine – (PM&R) Physical Medicine and Rehabilitation (PM&R) Procedural Dermatology Spinal Cord Injury Medicine Sports Medicine - Family Medicine Sports Medicine - (PM&R) Vascular Neurology Other
	Hospital-Based	Anesthesiology Blood Banking / Transfusion Medicine Chemical Pathology Clinical Informatics Clinical Neurophysiology Critical Care Medicine - Anesthesiology Cytopathology Emergency Medical Services

**TABLE 3**  
**Reported Specialties Listed in the LPS Survey,  
 By Health Professions Education Program  
 and Assigned Specialty Group**

Program	Assigned Specialty Group	Reported Specialty <i>(discipline, specialty, subspecialty)</i>
		Emergency Medicine
		Forensic Pathology
		Hematology - Pathology - Anatomic and Clinical
		Medical Biochemical Genetics
		Medical Genetics
		Medical Microbiology
		Medical Toxicology - Emergency Medicine
		Medical Toxicology - Preventive Medicine
		Molecular Genetic Pathology (multidisciplinary)
		Neuropathology
		Neuroradiology
		Nuclear Medicine
		Nuclear Radiology
		Pain Medicine (multidisciplinary)
		Pathology - Anatomic and Clinical
		Preventive Medicine
		Radiation Oncology
		Radiology - Diagnostic
		Selective Pathology
		Sports Medicine - Emergency Medicine
		Transitional Year
		Vascular and Interventional Radiology

**TABLE 3**  
**Reported Specialties Listed in the LPS Survey,  
 By Health Professions Education Program  
 and Assigned Specialty Group**

Program	Assigned Specialty Group	Reported Specialty ( <i>discipline, specialty, subspecialty</i> )
	Surgery	Adult Reconstructive Orthopaedics Colon and Rectal Surgery Complex General Surgical Oncology Craniofacial Surgery Endovascular Surgical Neuroradiology Female Pelvic Med and Reconstructive Surgery - OB-GYN Female Pelvic Med and Reconstructive Surgery – Urology Foot and Ankle Orthopaedics Hand Surgery - Orthopaedic Hand Surgery - Plastic Surgery - Integrated Musculoskeletal Oncology Neurological Surgery Neurotology Obstetrics and Gynecology Ophthalmic Plastic and Reconstructive Surgery Ophthalmology Orthopaedic Sports Medicine Orthopaedic Surgery Orthopaedic Surgery of the Spine Orthopaedic Trauma Otolaryngology Plastic Surgery Plastic Surgery - Integrated Surgery - General Surgical Critical Care Thoracic Surgery Thoracic Surgery - Integrated Transplant Hepatology Urology Vascular Surgery Vascular Surgery - Integrated

**TABLE 3**  
**Reported Specialties Listed in the LPS Survey,  
By Health Professions Education Program  
and Assigned Specialty Group**

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Program	Assigned Specialty Group	Reported Specialty <i>(discipline, specialty, subspecialty)</i>
	Psychiatry	Addiction Psychiatry Forensic Psychiatry Geriatric Psychiatry Psychiatry Psychosomatic Medicine - Psychiatry

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**TABLE 4**  
**Special Fellowships Listed in the LPS Survey**

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Addiction Treatment	Parkinson's Disease (PADRECC)
Advanced Geriatrics	Patient Safety
Clinical Simulation	Polytrauma / Traumatic Brain Injury Rehabilitation (1 year clinical track)
Dental Research	Polytrauma / Traumatic Brain Injury Rehabilitation (2 year research track)
Geriatric Neurology	Psychiatric Research / Neurosciences
Health Professions Education Evaluation and Research	Psycho-Social Rehab Physicians Fellow
Health Services Research & Development	Quality Scholars
Health Systems Engineering (1 year practitioner track)	The Robert Wood Johnson (RWJ) Clinical Scholars
Health Systems Engineering (2 year research track)	Spinal Cord Injury Research
Medical Informatics	War Related and Unexplained Illness
Mental Illness Research and Treatment (Advanced Psychiatry)	Women's Health
Mental Illness Research and Treatment (Advanced Psychology)	Other
Multiple Sclerosis	

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**TABLE 5**  
**Academic Level, Academic Year, and Academic Level Group, by Program**

Program	Academic Level	Grouping		
		Year <sup>1</sup>	Level <sup>2</sup>	
Associated Health	Clinical hours for Certificate (Pre-Baccalaureate)	1	1	
	Clinical hours for Diploma (Pre-Baccalaureate)	2	1	
	Clinical hours for Associate Degree	3	1	
	Clinical hours for Baccalaureate Degree	4	2	
	Post-Baccalaureate clinical hours	5	3	
	Clinical hours for Masters Degree or Fellowship	6	3	
	Post-Masters clinical hours	7	3	
	Predoctoral or Doctoral clinical hours, Externship, or Practicum	9	4	
	Predoctoral or Doctoral Internship	10	5	
	Postdoctoral Residency or Fellowship Year 1	11	6	
	Postdoctoral Residency or Fellowship Year 2	12	6	
	Postdoctoral Residency or Fellowship Year 3	13	6	
	Postdoctoral Residency or Fellowship Year 4	14	7	
	Postdoctoral Residency or Fellowship Year 5	15	7	
	Postdoctoral Residency or Fellowship Year 6	16	7	
	Dentistry	Certificate (Pre-Baccalaureate)	1	1
Diploma (Pre-Baccalaureate)		2	1	
Associate Degree		3	1	
Baccalaureate Degree		4	2	
Post-Baccalaureate Internship		5	3	
Masters Degree		6	3	
Post-Masters Internship or Fellowship		7	3	
Dental Student - 1 <sup>st</sup> Year		7	4	
Dental Student - 2 <sup>nd</sup> Year		8	4	
Dental Student - 3 <sup>rd</sup> Year		9	5	
Dental Student - 4 <sup>th</sup> Year		10	5	
Postdoctoral Residency or Fellowship Year 1		11	6	
Postdoctoral Residency or Fellowship Year 2		12	6	
Postdoctoral Residency or Fellowship Year 3		13	6	
Postdoctoral Residency or Fellowship Year 4		14	7	
Postdoctoral Residency or Fellowship Year 5		15	7	
Postdoctoral Residency or Fellowship Year 6		16	7	
Postdoctoral Residency or Fellowship Year 7		17	7	
Nursing		Certificate (Pre-Baccalaureate)	1	1
		Diploma (Pre-Baccalaureate)	2	1
	Associate Degree	3	1	
	Baccalaureate Degree	4	2	
	Post-Baccalaureate Residency	5	3	
	Masters Degree	6	3	
	Post-Masters	7	3	
	Post-Masters Residency	7	3	
	Pre-Doctoral Research Fellowship	7	4	
	Pre-Doctoral Clinical Fellowship	7	4	

**TABLE 5**

**Academic Level, Academic Year, and Academic Level Group, by Program**

Program	Academic Level	Grouping	
		Year <sup>1</sup>	Level <sup>2</sup>
Physicians	Doctoral / PhD	10	5
	Doctoral / DNS, DNSc	10	5
	Doctoral / DNP	10	5
	Postdoctoral Research Fellowship	11	6
	Postdoctoral Clinical Fellowship	11	6
	Post-Doctoral Residency	11	6
	Medical Student - 1 <sup>st</sup> year	7	4
	Medical Student - 2 <sup>nd</sup> year	8	4
	Medical Student - 3 <sup>rd</sup> year	9	5
	Medical Student - 4 <sup>th</sup> year	10	5
	Residency or Fellowship - PGY1	11	6
	Residency or Fellowship - PGY2	12	6
	Residency or Fellowship - PGY3	13	6
	Residency or Fellowship - PGY4	14	7
	Residency or Fellowship - PGY5	15	7
	Residency or Fellowship - PGY6	16	7
	Residency or Fellowship - PGY7	17	7
	Residency or Fellowship - PGY8	18	7
	Residency or Fellowship - PGY9	19	7

- 1 - Academic Year: Certificate [1]; Diploma [2]; Associate Degree [3]; Baccalaureate [4]; Post-Baccalaureate [5]; Masters [6]; Doctoral First Year, Post-Master, Pre-Doctoral [7]; Doctoral Second Year [8]; Doctoral Third Year, Practicum [9]; Doctoral Fourth Year, Doctoral Intern, Doctoral [10]; Post-Doctoral First Year [11]; Post-Doctoral Second Year [12]; Post-Doctoral Third Year [13]; Post-Doctoral Fourth Year [14]; Post-Doctoral Fifth Year [15]; Post-Doctoral Sixth Year [16]; Post-Doctoral Seventh Year [17]; Post-Doctoral Eight Year [18]; Post-Doctoral Ninth Year [19].
- 2 - Academic group: pre-Baccalaureate [1], Baccalaureate [2], Masters [3], Doctoral First or Second Year [4], Doctoral Third or Fourth Year [5], Post-Doctoral First, Second or Third Year [6], Post-Doctoral Fourth Year or higher [7]

**TABLE 6**  
**Specialty-Specific Academic Levels,**  
**by Specialty Group**

<b>Assigned Specialty Group</b>	<b>Specialty-Specific Academic Level</b>
<u>Associated Health</u>	
Audiology	Masters Post-Masters Doctoral Postdoctoral
Chaplaincy	Certificate Baccalaureate Masters Doctoral Postdoctoral
Chiropractic	Doctoral Postdoctoral
Dietetics	Associate Degree Baccalaureate Post-Baccalaureate Masters Post-Masters
Occupational Therapy	Pre-Baccalaureate Baccalaureate Master Doctoral
Optometry	Doctoral Postdoctoral
Pharmacy	Doctoral PharmD Postdoctoral
Physical Therapy	Pre-Baccalaureate Baccalaureate Master Doctoral

**TABLE 6**  
**Specialty-Specific Academic Levels,**  
**by Specialty Group**

<b>Assigned Specialty Group</b>	<b>Specialty-Specific Academic Level</b>
Physician Assistant	Baccalaureate Post-Baccalaureate Intern / Fellow Masters Post-Masters
Podiatry	Doctoral Postdoctoral - PGY1 Postdoctoral - PGY2 Postdoctoral - PGY3 Postdoctoral - PGY4 Postdoctoral - PGY5
Psychology	Post-Masters Doctoral Practicum Extern Doctoral Intern Postdoctoral
Rehabilitation	Certificate, Diploma, Associate Degree Baccalaureate Masters Doctoral Postdoctoral
Social Work	Baccalaureate Masters Doctoral Postdoctoral
Speech Pathology	Masters Post-Masters Doctoral Postdoctoral
Technical and Laboratory	Certificate or Diploma Associate Degree Baccalaureate Masters Post-Masters
Other Associated Health	Certificate or Diploma Associate Degree

**TABLE 6**  
**Specialty-Specific Academic Levels,**  
**by Specialty Group**

<b>Assigned Specialty Group</b>	<b>Specialty-Specific Academic Level</b>
	Baccalaureate Post-Baccalaureate Masters Post-Masters Doctoral Postdoctoral
<u>Dentistry</u>	
Dental Auxiliary	Certificate / Diploma Associate Degree Baccalaureate Post-Baccalaureate Intern Masters Post-Masters Intern / Fellow
Dentists	Doctoral Intern Postdoctoral Intern / Fellow Resident / Fellow - PGY1 Resident / Fellow - PGY2 Resident / Fellow - PGY3 Resident / Fellow - PGY4 Resident / Fellow - PGY5
<u>Nursing</u>	
	Certificate Diploma Associate Degree Baccalaureate Post-Baccalaureate Residency Masters Post-Masters Pre-Doctoral Fellowship Doctoral Postdoctoral Fellowship Post-Doctoral Residency

**TABLE 6**  
**Specialty-Specific Academic Levels,**  
**by Specialty Group**

<b>Assigned Specialty Group</b>	<b>Specialty-Specific Academic Level</b>
<u>Physicians</u>	
Medical Student	Medical School - year 1 Medical School - year 2 Medical School - year 3 Medical School - year 4
Medical / Internal Medicine	PGY - 1 PGY - 2 PGY - 3 PGY - 4
Medical / Internal Medicine Subspecialties	PGY - 4  PGY - 5 PGY - 6 PGY - 7 PGY - 8 PGY - 9
Medical / Other	PGY - 1 PGY - 2 PGY - 3 PGY - 4 PGY - 5 PGY - 6 PGY - 7 PGY - 8 PGY - 9
Surgery	PGY - 1 PGY - 2 PGY - 3 PGY - 4 PGY - 5 PGY - 6 PGY - 7 PGY - 8 PGY - 9

**TABLE 6**  
**Specialty-Specific Academic Levels,**  
**by Specialty Group**

---

<b>Assigned Specialty Group</b>	<b>Specialty-Specific Academic Level</b>
Psychiatry	PGY - 1
	PGY - 2
	PGY - 3
	PGY - 4
	PGY - 5
	PGY - 6
	PGY - 7
	PGY - 8
	PGY - 9
Hospital-Based	PGY - 1
	PGY - 2
	PGY - 3
	PGY - 4
	PGY - 5
	PGY - 6
	PGY - 7
	PGY - 8
	PGY - 9

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**TABLE 7**  
**Psychometric Properties of LPS Domain Satisfaction Ratings**

Domains / Elements	Overall	Components			
		First	Second	Third	Fourth
<i><u>Learning Environment</u></i>					
<i>Number elements</i>	15				
<i>Mean Element</i>	4.42				
<i>Standard Deviation</i>	0.69				
<i>Range: [min, max]</i>	[1.00, 5.00]				
<i>Cronbach's Alpha</i>	0.956				
<i>Intraclass Correlation – single measure</i>	0.111 [0.095, 0.127]				
<i>Intraclass Correlation – average measure</i>	0.200 [0.173, 0.225]				
<i>Eigenvalue</i>	9.518	.875	.726	.560	
<i>% of variance</i>	63.453	5.833	4.840	3.735	
<i>Time working with patients</i>	.747	-.295	.238	.052	
<i>Degree of supervision</i>	.792	-.363	.145	.005	
<i>Degree of autonomy</i>	.739	-.411	.236	.166	
<i>Amount of non-educational work ("scut")</i>	.752	.010	-.241	.222	
<i>Interdisciplinary approach</i>	.826	.018	-.183	-.043	
<i>Preparation for clinical practice</i>	.871	-.173	-.019	-.055	
<i>Preparation for future training</i>	.875	-.159	-.009	-.056	
<i>Preparation for business aspects of clinical practice</i>	.773	.232	-.249	.217	
<i>Time for learning</i>	.829	-.028	-.181	.089	
<i>Access to specialty expertise</i>	.816	.077	-.132	.001	
<i>Teaching conferences</i>	.755	.154	-.218	.212	
<i>Quality of care</i>	.850	.073	-.058	-.398	
<i>Culture of patient safety</i>	.823	.112	-.061	-.443	
<i>Spectrum of patient problems</i>	.773	.341	.399	.004	
<i>Diversity of patients</i>	.707	.461	.417	.135	

**TABLE 7**  
**Psychometric Properties of LPS Domain Satisfaction Ratings**

Domains / Elements	Overall	Components			
		First	Second	Third	Fourth
<u><i>Clinical Faculty / Preceptors</i></u>					
<i>Number elements</i>	13				
<i>Mean Element</i>	4.51				
<i>Standard Deviation</i>	0.70				
<i>Range: [min, max]</i>	[1.00, 5.00]				
<i>Cronbach's Alpha</i>	0.968				
<i>Intraclass Correlation – single measure</i>	0.086 [0.070, 0.103]				
<i>Intraclass Correlation – average measure</i>	0.159 [0.131, 0.186]				
<i>Eigenvalue</i>		9.554	.527	*	*
<i>% of variance</i>		73.489	4.051	*	*
<i>Clinical skills</i>		.839	.266	*	*
<i>Teaching ability</i>		.893	.028	*	*
<i>Interest in teaching</i>		.877	-.065	*	*
<i>Research mentoring</i>		.755	.008	*	*
<i>Accessibility / availability</i>		.848	-.208	*	*
<i>Approachability / openness</i>		.859	-.300	*	*
<i>Timeliness of feedback</i>		.848	-.255	*	*
<i>Fairness in evaluation</i>		.846	-.230	*	*
<i>Being role models</i>		.910	-.011	*	*
<i>Mentoring by faculty</i>		.889	.019	*	*
<i>Patient-oriented</i>		.862	.189	*	*
<i>Quality of faculty</i>		.872	.225	*	*
<i>Evidence-based clinical practice</i>		.838	.336	*	*

**TABLE 7**  
**Psychometric Properties of LPS Domain Satisfaction Ratings**

Domains / Elements	Overall	Components			
		First	Second	Third	Fourth
<u><i>Working Environment</i></u>					
<i>Number elements</i>	9				
<i>Mean Element</i>	4.19				
<i>Standard Deviation</i>	0.82				
<i>Range: [min, max]</i>	[1.00, 5.00]				
<i>Cronbach's Alpha</i>	0.929				
<i>Intraclass Correlation – single measure</i>	0.169 [0.153, 0.184]				
<i>Intraclass Correlation – average measure</i>	0.288 [0.265, 0.311]				
<i>Eigenvalue</i>		5.787	.919	.539	*
<i>% of variance</i>		64.295	10.210	5.986	*
<i>Ancillary / support staff morale</i>		.817	-.303	-.373	*
<i>Laboratory services</i>		.854	-.301	.087	*
<i>Radiology services</i>		.830	-.284	.230	*
<i>Ancillary / support staff</i>		.853	-.338	-.241	*
<i>Call schedule</i>		.788	-.085	.423	*
<i>Computerized Patient Record System (CPRS)</i>		.764	.268	-.013	*
<i>Computer Access</i>		.760	.479	-.148	*
<i>Workspace</i>		.766	.356	-.178	*
<i>Access to online journals, resources, references</i>		.777	.326	.219	*
<u><i>Physical Environment</i></u>					
<i>Number elements</i>	8				
<i>Mean Element</i>	4.26				
<i>Standard Deviation</i>	0.76				
<i>Range: [min, max]</i>	[1.00, 5.00]				

**TABLE 7**  
**Psychometric Properties of LPS Domain Satisfaction Ratings**

Domains / Elements	Overall	Components			
		First	Second	Third	Fourth
<i>Cronbach's Alpha</i>	0.896				
<i>Intraclass Correlation – single measure</i>	0.217 [0.201, 0.233]				
<i>Intraclass Correlation – average measure</i>	0.357 [0.335, 0.378]				
<i>Eigenvalue</i>		4.971	.770	.655	*
<i>% of variance</i>		62.143	9.630	8.190	*
<i>Convenience of facility location</i>		.710	.338	-.353	*
<i>Parking</i>		.603	.669	.284	*
<i>Personal Safety</i>		.804	.165	-.248	*
<i>Availability of needed equipment</i>		.846	-.141	-.070	*
<i>Facility maintenance / upkeep</i>		.885	-.237	-.131	*
<i>Facility cleanliness / housekeeping</i>		.866	-.235	-.146	*
<i>Call rooms</i>		.824	-.194	.224	*
<i>Availability of food at the medical center when on call</i>		.728	-.115	.543	*
<b><u>Personal Experience</u></b>					
<i>Number elements</i>	7				
<i>Mean Element</i>	4.44				
<i>Standard Deviation</i>	0.71				
<i>Range: [min, max]</i>	[1.00, 5.00]				
<i>Cronbach's Alpha</i>	0.930				
<i>Intraclass Correlation – single measure</i>	0.103 [0.086, 0.119]				
<i>Intraclass Correlation – average measure</i>	0.187 [0.159, 0.213]				
<i>Eigenvalue</i>		4.970	.812	*	*
<i>% of variance</i>		70.933	11.597	*	*

**TABLE 7**  
**Psychometric Properties of LPS Domain Satisfaction Ratings**

Domains / Elements	Overall	Components			
		First	Second	Third	Fourth
<i>Personal reward from work</i>	.847	.196	*	*	
<i>Balance of personal and professional life</i>	.857	-.295	*	*	
<i>Level of job stress</i>	.861	-.408	*	*	
<i>Level of fatigue</i>	.842	-.444	*	*	
<i>Continuity of relationship with patients</i>	.808	.262	*	*	
<i>Ownership / personal responsibility for respondent's patient's care</i>	.842	.370	*	*	
<i>Enhancement of respondent's clinical knowledge and skills</i>	.841	.342	*	*	

**Clinical Environment**

<i>Number elements</i>	7				
<i>Mean Element</i>	4.35				
<i>Standard Deviation</i>	0.74				
<i>Range: [min, max]</i>	[1.00, 5.00]				
<i>Cronbach's Alpha</i>	0.927				
<i>Intraclass Correlation – single measure</i>	0.142				
	[0.126, 0.158]				
<i>Intraclass Correlation – average measure</i>	0.249				
	[0.223, 0.274]				
<i>Eigenvalue</i>	4.887	.652	.576	*	
<i>% of variance</i>	69.817	9.309	8.232	*	
<i>Hours at work</i>	.815	-.324	.151	*	
<i>Number of inpatients admitted for respondent's care</i>	.842	-.365	.131	*	
<i>Number of outpatients / clinic patients seen</i>	.846	-.294	.074	*	
<i>How well physicians and nurses</i>	.851	.114	-.442	*	

**TABLE 7**  
**Psychometric Properties of LPS Domain Satisfaction Ratings**

Domains / Elements	Overall	Components			
		First	Second	Third	Fourth
<i>work together</i>					
<i>How well physicians and other clinical staff work together</i>		.857	.104	-.430	*
<i>Ease of getting patient records</i>		.808	.408	.292	*
<i>Backup system for electronic health records</i>		.829	.369	.256	*
<u><i>Staff and Services Timeliness and Availability</i></u>					
<i>Number elements</i>	13				
<i>Mean Element</i>	4.14				
<i>Standard Deviation</i>	0.83				
<i>Range: [min, max]</i>	[1.00, 5.00]				
<i>Cronbach's Alpha</i>	0.958				
<i>Intraclass Correlation – single measure</i>	0.261 [0.234, 0.287]				
<i>Intraclass Correlation – average measure</i>	0.414 [0.380, 0.446]				
<i>Eigenvalue</i>		8.790	1.078	.712	*
<i>% of variance</i>		67.616	8.291	5.474	*
<i>Attending / supervisory staff: weekdays</i>		.705	.624	-.004	*
<i>Attending / supervisory staff: nights and weekends</i>		.725	.532	.038	*
<i>Outpatient nursing staff: weekdays</i>		.826	.113	-.284	*
<i>Inpatient nursing staff: weekdays</i>		.849	-.122	-.402	*
<i>Inpatient nursing staff: nights and weekends</i>		.850	-.220	-.332	*
<i>Ancillary / support staff: weekdays</i>		.875	-.148	-.192	*

**TABLE 7**  
**Psychometric Properties of LPS Domain Satisfaction Ratings**

Domains / Elements	Overall	Components			
		First	Second	Third	Fourth
<i>Ancillary / support staff: nights and weekends</i>		.824	-.346	-.016	*
<i>Pharmacy services: weekdays</i>		.848	.210	.063	*
<i>Pharmacy services: nights and weekends</i>		.825	.042	.188	*
<i>Radiology services: weekdays</i>		.848	.050	.238	*
<i>Radiology services: nights and weekends</i>		.766	-.283	.393	*
<i>Laboratory services: weekdays</i>		.880	-.060	.114	*
<i>Laboratory services: nights and weekends</i>		.847	-.235	.241	*
<b><u>Staff and Services Quality</u></b>					
<i>Number elements</i>	6				
<i>Mean Element</i>	4.19				
<i>Standard Deviation</i>	0.82				
<i>Range: [min, max]</i>	[1.00, 5.00]				
<i>Cronbach's Alpha</i>	0.911				
<i>Intraclass Correlation – single measure</i>	0.264 [0.238, 0.290]				
<i>Intraclass Correlation – average measure</i>	0.418 [0.384, 0.450]				
<i>Eigenvalue</i>		4.194	.627	*	*
<i>% of variance</i>		69.896	10.454	*	*
<i>Attending / supervisory staff</i>		.712	.571	*	*
<i>Nursing staff</i>		.829	-.385	*	*
<i>Ancillary / support staff</i>		.865	-.323	*	*
<i>Pharmacy services</i>		.849	.207	*	*
<i>Radiology services</i>		.868	.063	*	*
<i>Laboratory services</i>		.882	-.044	*	*

**TABLE 7**  
**Psychometric Properties of LPS Domain Satisfaction Ratings**

Domains / Elements	Overall	Components			
		First	Second	Third	Fourth
<i><u>Process Medical Errors</u></i>					
<i>Number elements</i>	6				
<i>Mean Element</i>	4.17				
<i>Standard Deviation</i>	0.91				
<i>Range: [min, max]</i>	[1.00, 5.00]				
<i>Cronbach's Alpha</i>	0.979				
<i>Intraclass Correlation – single measure</i>	0.182 [0.154, 0.210]				
<i>Intraclass Correlation – average measure</i>	0.308 [0.267, 0.346]				
<i>Eigenvalue</i>	5.434	*	*	*	*
<i>% of variance</i>	90.574	*	*	*	*
<i>Prevent / reduce medical errors</i>	.941	*	*	*	*
<i>Assure medication safety</i>	.944	*	*	*	*
<i>Report medical / medication errors</i>	.955	*	*	*	*
<i>Assure confidentiality of error reporting</i>	.950	*	*	*	*
<i>Facilitate discussion of medical / medication errors</i>	.959	*	*	*	*
<i>Facilitate analysis of medical / medication errors as a learning experience</i>	.961	*	*	*	*



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