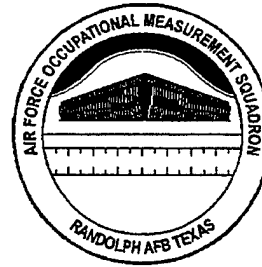




**UNITED STATES
AIR FORCE**



OCCUPATIONAL SURVEY REPORT



CARDIOPULMONARY LABORATORY

AFSC 4H0X1

OSSN: 2410

MAY 2000

**OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
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PREFACE

This report presents the results of an Air Force Occupational Survey of the Cardiopulmonary Laboratory career ladder, Air Force Specialty Code (AFSC) 4H0X1. Authority for conducting occupational surveys is contained in AFI 36-2623. Computer products used in this report are available for use by operations and training officials.

Mr. Scott Vap developed the survey instrument. Mr. Tyrone Hill provided computer programming support and Ms. Dolores Navarro provided administrative support. Captain Tegwin Cain analyzed the data and wrote the final report. This report has been reviewed and approved by Lt Col Roger W. Barnes, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS).

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to AFOMS/OMYXI, 1550 5th Street East, Randolph Air Force Base, Texas 78150-4449, or by calling DSN 487-5543. For information on the Air Force occupational survey process or other on-going projects, visit our web site at <http://www.omsq.af.mil>.

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SUMMARY OF RESULTS

1. **Survey Coverage:** The Cardiopulmonary Laboratory career ladder was surveyed to provide current job and task data for use in updating career ladder documents and training programs. Survey results are based on responses from 203 members accounting for 64 percent of the total population surveyed.
2. **Specialty Jobs:** Five jobs were identified in the career ladder structure analysis. Four of the jobs are technical specialties. These are the Respiratory Therapy Job, Pulmonary Laboratory Job, Non-invasive Cardiology Job and Invasive Cardiology Job. The fifth job identified was the Manager/Supervisor Job.
3. **Career Ladder Progression:** A somewhat typical pattern of progression is noted within the AFSC 4H0X1 career ladder. Personnel at the 3- and 5-skill levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents move up to the 7-skill level they begin to perform supervisory tasks, but still spend some of their time performing the technical tasks of the career ladder.
4. **Training Analysis:** The current STS warrants review of proficiency coding based on survey data. Some tasks with high percentages of members performing and high training emphasis are dashed in the STS. Both the STS and the POI have some tasks with high percentages of members performing that are unmatched.
5. **Job Satisfaction:** Job satisfaction among AFSC 4H0X1 personnel is higher for first-enlistment, second-enlistment, and career members than the comparative sample of like medical AFSCs. They also have slightly higher reenlistment intentions than the comparative sample. Current survey satisfaction ratings for job interest, perceived utilization of talents, perceived utilization of training, sense of accomplishment from work, and reenlistment intentions are rated lower than the previous survey for all TAFMS groups. A review of the job satisfaction ratings for the specialty jobs and clusters identified in this survey reveals very high satisfaction ratings job interest, perceived utilization of talents, and perceived utilization of training for all the jobs.
6. **Implications:** Survey results clearly indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed in this career ladder. Based on survey data, the career ladder training documents require review to ensure appropriate proficiency coding. The career ladder progression is typical, with the move from technical work at the 3- and 5-skill levels to supervisory and management tasks at the 7-skill level. Job satisfaction is higher for first-enlistment, second-enlistment and career members than the comparative sample of like medical AFSCs

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**OCCUPATIONAL SURVEY REPORT (OSR)
CARDIOPULMONARY LABORATORY
(AFSC 4H0X1)**

INTRODUCTION

This is a report of an occupational survey of the Cardiopulmonary Laboratory career ladder conducted by the Air Force Occupational Measurement Squadron (AFOMS). The current Cardiopulmonary Laboratory career ladder was created in November 1993. Survey data will be used to identify current utilization patterns among career ladder personnel and evaluate career ladder documents and training programs.

Background

As described in the AFMAN 36-2108, *Airman Classification, Specialty Description*, dated 30 April 1999, Cardiopulmonary Laboratory personnel perform and manage cardiopulmonary laboratory functions and activities for noninvasive diagnostic cardiac procedures, invasive diagnostic and interventional cardiac procedures, pulmonary function testing, diagnostic and therapeutic bronchoscopies, and respiratory therapy.

Personnel entering the AFSC 4H0X1 career ladder must attend the E3ABR4H031-002, Cardiopulmonary Laboratory Apprentice course at Sheppard AFB TX.

Entry into this career ladder currently requires an Armed Forces Vocational Aptitude Test Battery (ASVAB) score of General - 58; a strength factor of "G" (Weight lift of 40 lbs), and physical profile (PULHES) of 333233 is also required.

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SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Occupational Survey Study Number (OSSN) 2410, dated September 1999. A tentative task list was prepared after reviewing pertinent career ladder publications and directives, pertinent tasks from the previous survey instrument, and data from the last OSR. The preliminary task list was refined and validated through personal interviews with 33 subject-matter experts (SMEs) at the following training location and operational installations:

<u>BASE</u>	<u>UNIT VISITED</u>
Sheppard AFB TX	381 TRS
Luke AFB AZ	56 MDOS/SGOP
Elgin AFB FL	96 MDOS/SGOML
Travis AFB CA	60 MDOS/SGOML
Lackland AFB TX	59 MDOG/MMC

The resulting JI contains a comprehensive listing of 403 tasks grouped under 9 duty headings, and a background section requesting such information as grade, base, MAJCOM assigned, organizational level, job title, functional area, and work schedule. Some other background questions include average days on call, number of days reporting to duty while on call, blood gas samples and tests, equipment used or operated, medical facility assigned and number of personnel assigned to facility.

Survey Administration

From November 1999 through March 2000, base training offices at operational units worldwide administered the inventory to eligible AFSC 4H0X1 personnel. Job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Personnel Center, Randolph AFB TX. Each individual who completed the inventory first completed an identification and biographical information section and then checked each task performed in his or her current job. After checking all tasks performed, each member then rated each of these tasks on a 9-point scale, showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount time spent). To determine relative

time spent for each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across major commands (MAJCOM) and military paygrade groups. All eligible AFSC 4H0X1 personnel were mailed survey disks. Table 1 reflects the percentage distribution, by MAJCOM, of assigned AFSC 4H0X1 personnel as of November 1999. The 203 respondents in the final sample represent 62 percent of the total assigned personnel and 64 percent of the total personnel surveyed. Table 2 reflects the paygrade distribution for these AFSC 4H0X1 personnel.

TABLE 1

COMMAND DISTRIBUTION OF AFSC 4H0X1 PERSONNEL

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
AETC	37	27
AMC	28	35
ACC	9	8
AFMC	16	22
PACAF	3	3
USAFE	5	4
USAFA	2	1

TOTAL ASSIGNED* = 326

TOTAL SURVEYED** = 318

TOTAL IN SURVEY SAMPLE = 203

PERCENT OF ASSIGNED IN SAMPLE = 62%

PERCENT OF SURVEYED IN SAMPLE = 64%

* Assigned strength as of November 1999

** Excludes personnel in PCS, student, or hospital status, or less than 6 weeks on the job

TABLE 2
PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

GRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-1 - E-3	9	6
E-4	41	39
E-5	28	32
E-6	13	14
E-7	8	8
E-8	1	1

* Assigned strength as of November 1999

Both Command and Paygrade distribution of the survey sample are close to the percent assigned. This indicates the sample is a true representation of the career ladder population.

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 4H0X1 personnel (generally E-6 or E-7 craftsmen) also completed a second disk for either training emphasis (TE) or task difficulty (TD). These disks were processed separately from the JIs. This information is used in a number of different analyses discussed in more detail within the report.

Training Emphasis (TE): TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 38 senior NCOs who completed a TE disk were asked to select tasks they felt require some sort of structured training for entry-level personnel and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident training schools, field training detachments (FTD), mobile training teams (MTT), formal on-the-job-training (OJT), or any other organized training method. Interrater agreement for these 38 raters was acceptable. The average TE rating was 3.41, with a standard deviation of 2.00. Any task with a TE rating of 5.41 or above is considered to have high TE.

Task Difficulty (TD): TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 40 senior NCOs who completed TD disks were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was acceptable. Ratings were standardized so tasks have an average difficulty of 5.00 and a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered to be difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TE and TD ratings can provide insight into first-enlistment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting entry-level jobs.

SPECIALTY JOBS

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by the respondents. The Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group, or forms new groups based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the Job. When two or more jobs have a substantial degree of similarity, in tasks performed and time spent on tasks, they are grouped together and identified as a Cluster. The structure of the career ladder is then defined in terms of jobs and clusters of jobs.

Overview of Specialty Jobs

Based on the analysis of tasks performed and the amount of time spent performing each task, five independent jobs were identified within the career ladder. Figure 1 illustrates the jobs performed by AFSC 4H0X1 personnel.

A listing of these jobs and clusters is provided below. The stage (ST) number shown beside each title references computer printed information, the letter "N" indicates the number of personnel in each group.

- I. RESPIRATORY THERAPY JOB (ST019, N=77)
- II. PULMONARY LABORATORY JOB (ST018, N=11)
- III. MANAGER/SUPERVISOR JOB (ST009, N=49)
- IV. NON-INVASIVE CARDIOLOGY JOB (ST011, N=54)
- V. INVASIVE CARDIOLOGY JOB (ST042, N=7)

The respondents forming these jobs and clusters account for 97.5 percent of the survey sample. The remaining 2.5 percent, for one reason or another, did not group into one of these jobs. Examples of job titles for these personnel include Sleep Lab Technician, NCOIC Health Promotions, and NCOIC Cardiopulmonary Administration.

**AFSC 4H0X1 CAREER LADDER SPECIALTY JOBS
(N = 203)**

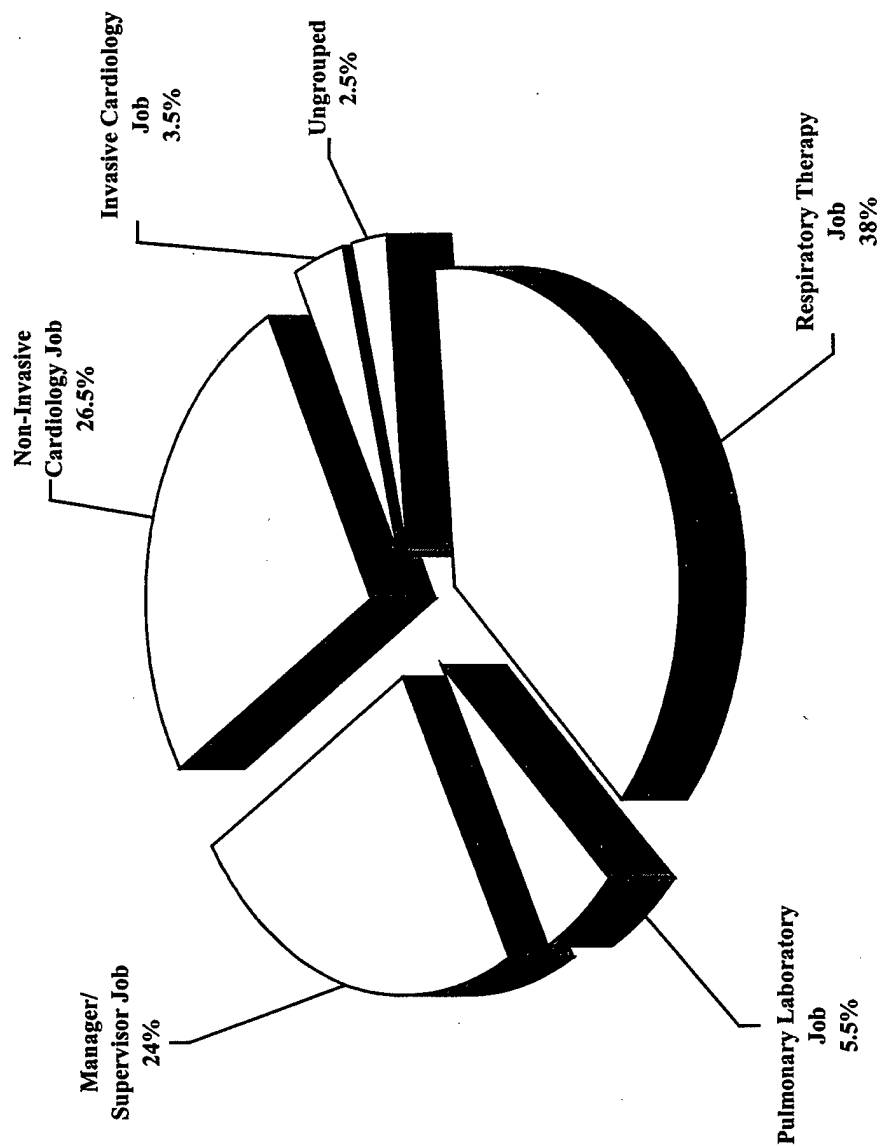


FIGURE 1

Group Descriptions

The following paragraphs contain brief descriptions of the jobs identified through the career ladder structure analysis. Table 3 presents the relative time spent on duties by members of these specialty jobs. Selected background data for these jobs are provided in Table 4. Representative tasks for all the groups are contained in Appendix A.

I. RESPIRATORY THERAPY JOB (ST019). The 77 airmen performing within this job (38 percent of the survey sample) spend 56 percent of their time performing Respiratory Therapy tasks of Duty E and another 23 percent of their time performing the common tasks of the career field of Duty A (Table 3). They perform an average of 122 tasks. Distinctive tasks performed include:

- Set up nebulizers
- Assist physicians in weaning patients from ventilators
- Perform routine ventilator checks
- Perform endotracheal suctioning procedures
- Set up respiratory therapy alarms
- Record patient respiratory therapy results
- Set up or calibrate volume ventilators
- Set up continuous positive airway pressure (CPAP) devices
- Assist physicians in performing extubation procedures
- Connect flow meters

Fifty-five percent of these airmen hold the 5-skill level and 35 percent the 3-skill level. These members average almost 5 years in the career field and 6 years in the service. The predominant paygrade is E-4. Forty-seven percent of these airmen are in their first enlistment, revealing a job that is performed by a very young and somewhat inexperienced group of the career ladder.

II. PULMONARY LABORATORY JOB (ST018). The 11 airmen forming this job perform an average of 104 tasks and are distinguished by the 32 percent of their time spent performing the Pulmonary Laboratory tasks of Duty D (see Table 3). They spend another 31 percent of their time performing Common Respiratory Therapy, Pulmonary, Cardiovascular, or Sleep Laboratory tasks of Duty A. Typical of the pulmonary laboratory tasks performed include:

- Perform routine spirometry tests
- Perform flow/ volume loop tests
- Perform pulmonary function studies
- Perform body plethysmograph tests
- Perform exercise desaturation studies

- Set up bronchoscopy equipment
- Perform home oxygen evaluations
- Assist physicians in performing bronchoscopies
- Perform exercise induced asthma tests

The predominant paygrade of this job is E-5 (Table 4), averaging over 7 years in the career field and 9 ½ years in the service. Fifty-five percent are at the 7-skill level. Only 18 percent are in their first enlistment.

III. MANAGER/SUPERVISOR JOB (ST009). The 49 airmen forming this job (24 percent of the survey sample) are distinguished by the 60 percent of their time spent performing the Management and Supervisory tasks of Duty I and the Training tasks of Duty H (Table 3). They perform an average of 130 tasks. Representative tasks performed by these incumbents include:

- Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting.
- Determine or establish work assignments or priorities
- Evaluate personnel for compliance with performance standards
- Establish performance standards for subordinates
- Interpret policies, directives, or procedures for subordinates
- Inspect personnel for compliance with military standards
- Conduct general meetings, such as staff meetings, conferences, or workshops
- Counsel subordinates concerning personal matters
- Conduct supervisory performance feedback sessions
- Evaluate work schedules

The predominant paygrade is E-6 with 88 percent reporting they supervise others. Seventy-one percent hold the 7-skill level (Table 4). The members of this job average over 10 years in the career field and almost 16 years in the service.

IV. NON-INVASIVE CARDIOLOGY JOB (ST011). Comprising 26.5 percent of the survey sample, these 54 airmen report 41 percent of their time performing Non-invasive Cardiology tasks of Duty C. They also spend 28 percent of their time performing the Common Respiratory Therapy, Pulmonary, Cardiovascular, or Sleep Laboratory tasks of Duty A (Table 3). The members of this job perform an average of only 85 tasks, indicating their specialization in non-invasive cardiology duties. Representative of these limited tasks are:

- Prepare patients for exercise stress tests
- Assist physicians in performing treadmill tests
- Prepare patients for treadmill tests
- Prepare patients for Holter monitoring tests
- Perform Holter monitoring tests
- Perform exercise stress tests
- Set up Holter monitoring equipment
- Assess and report ECG test results to physicians
- Set up exercise stress test equipment and materials
- Scan Holter monitoring tapes for abnormalities
- Assess and report Holter monitoring test results to physicians

Sixty-nine percent of these job incumbents hold the 5-skill level, with 20 percent holding the 3-skill level (Table 4). These members average about 7 years in the career field and 7 1/2 years in the service. The predominant paygrade is E-4.

V. INVASIVE CARDIOLOGY JOB (ST042). Comprising 3.5 percent of the survey sample, these 7 airmen report 49 percent of their time performing Invasive Cardiology tasks of Duty B. They also spend 32 percent of their time performing the Common Respiratory Therapy, Pulmonary, Cardiovascular, or Sleep Laboratory tasks of Duty A (Table 3). The members of this job perform an average of only 72 tasks, indicating their specialization in invasive cardiology duties. Representative of these limited tasks are:

- Assist physicians in performing hemodynamic monitoring
- Set up sterile fields
- Prepare sites for catheter insertions
- Set up injectors
- Prepare injector solutions
- Monitor electrocardiographic (ECG) recordings
- Assist physicians in performing angiographs
- Connect or disconnect transducers to equipment\
- Set up x-ray equipment
- Set up cardiac catheterization trays
- Perform user maintenance on digital equipment

One hundred percent of these job incumbents hold the 5-skill level (Table 4). These members average 7 years in the career field and almost 8 years in the service. The predominant paygrades are E-4 and E-5.

One hundred percent of these job incumbents hold the 5-skill level (Table 4). These members average 7 years in the career field and almost 8 years in the service. The predominant paygrades are E-4 and E-5.

Comparison to Previous Study

The results of the specialty job analysis were compared to those of the previous OSR dated January 1997. All of the jobs matched the jobs identified in the 1997 survey. The percentages of the sample in the jobs were also very similar to the previous survey. The only difference was the increase in the number of personnel grouped under the Manager/Supervisor Job. The previous survey only showed 8 percent of the sample in the Lab Management while the current survey shows 24 percent in the Manager/Supervisor Job.

TABLE 3

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS

DUTIES	Respiratory Therapy Job ST019 (N=77)	Pulmonary Laboratory Job ST018 (N=11)	Manager Supervisor Job ST009 (N=49)	Non- invasive Cardiology Job ST011 (N=54)	Invasive Cardiology Job ST042 (N=7)
A PERFORMING COMMON RESPIRATORY THERAPY, PULMONARY, CARDIOVASCULAR, OR SLEEP LABORATORY ACTIVITIES	23	31	11	28	32
B PERFORMING INVASIVE CARDIOVASCULAR ACTIVITIES	*	2	*	*	49
C PERFORMING NON-INVASIVE CARDIOVASCULAR ACTIVITIES	3	2	8	41	4
D PERFORMING PULMONARY LABORATORY ACTIVITIES	3	32	2	9	*
E PERFORMING RESPIRATORY THERAPY ACTIVITIES	56	14	7	6	*
F PERFORMING SLEEP LABORATORY ACTIVITIES	2	2	1	*	0
G PERFORMING ADMINISTRATIVE OR SUPPLY ACTIVITIES	5	7	10	7	3
H PERFORMING TRAINING ACTIVITIES	3	4	16	2	2
I PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	4	6	44	6	9

* less than 1 percent

TABLE 4

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS

	Respiratory Therapy Job ST019	Pulmonary Laboratory Job ST018	Manager Supervisor Job ST009	Non-invasive Cardiology Job ST011	Invasive Cardiology Job ST042
NUMBER IN GROUP	77	11	49	54	7
PERCENT OF SAMPLE	38%	5.5%	24%	26.5%	3.5%
PERCENT IN CONUS	92%	100%	90%	91%	86%
DAFSC DISTRIBUTION:					
4H031	35%	27%	0%	20%	0%
4H051	55%	55%	22%	69%	100%
4H071	10%	18%	73%	11%	0%
4H091	0%	0%	5%	0%	0%
PAYGRADE DISTRIBUTION					
E-1 to E-3	14%	0%	0%	0%	14%
E-4	51%	36%	2%	54%	43%
E-5	30%	46%	27%	35%	43%
E-6	4%	18%	35%	11%	0%
E-7	1%	0%	32%	0%	0%
E-8	0%	0%	4%	0%	0%
AVERAGE MONTHS IN CAREER FIELD	57	86	122	83	85
AVERAGE MONTHS IN SERVICE	70	113	189	92	93
PERCENT IN FIRST ENLISTMENT (1-48 MOS TAFMS)	47%	18%	0%	29%	14%
PERCENT SUPERVISING	38%	45%	88%	24%	43%
AVERAGE NUMBER OF TASKS PERFORMED	122	104	130	85	72

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as the AFMAN 36-2108 *Airman Classification*, Specialty Description and the Career Field Education and Training Plan (CFETP), reflect what career ladder personnel are actually doing in the field.

The distribution of skill-level groups across the career ladder jobs is displayed in Table 5, while Table 6 offers another perspective by displaying the relative percent time spent on each duty across skill-level groups. A somewhat typical pattern of progression is noted within the AFSC 4H0X1 career ladder. Personnel at the 3- and 5-skill levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents move up to the 7-skill level they begin to perform supervisory tasks, but still spend some of their time performing the technical tasks of the career ladder.

Skill-Level Descriptions

DAFSC 4H031. Representing 21 percent of the survey sample, these 43 airmen perform an average of 85 tasks. Sixty-three percent of this group work in the Respiratory Therapy Job (Table 5), with 25 percent performing in the Non-Invasive Cardiology Job.

Table 6 reflects the percent time spent on duties by DAFSC 4H031 personnel. At the 3-skill level, 42 percent of their time is spent performing the technical tasks of Duty E, Respiratory Therapy and 27 percent on Duty A, the common tasks of the career ladder. They also spend 13 percent of their time performing Non-Invasive Cardiovascular tasks of Duty C. Representative tasks performed by these members are listed in Table 7.

DAFSC 4H051. Representing 52 percent of the survey sample, these 105 airmen perform an average of 106 tasks. Forty percent work in the Respiratory Therapy Job and 35 percent work in the Non-Invasive Cardiology Job (Table 5).

Table 6 provides a comparison of the relative time spent on duties at the 5-skill level. This table reflects a pattern similar to the 3-skill level, with members spending about 69 percent of their time performing the technical tasks of the career ladder. As shown in this table, 5-skill level personnel begin to perform some of the supervisory tasks of Duty I.

Table 8 lists representative tasks performed by these DAFSC 4H051 personnel. Table 9 reflects those tasks which best differentiate the 3-skill levels from the 5-skill levels. This table shows the 3-skill levels perform the technical tasks of Duty E, Respiratory Therapy, more frequently than the 5-skill levels, while the 5-skill levels perform some of the supervisory tasks of Duty I not performed at the 3-skill level.

DAFSC 4H071. Representing 26 percent of the survey sample, these 52 members perform an average of 138 tasks. Sixty-seven percent of the members are in the Manager / Supervisor Job.

Table 6 reflects the percent time spent on duties by DAFSC 4H071 members. The main point of this table is the decrease in the amount of time spent by members performing the technical tasks of Duties A-F, compared to the 3- and 5-skill level members, while increasing the time spent performing management and supervisory tasks of Duty I.

Representative tasks performed by 7-skill level members are reflected in Tables 10. Table 11 reflects tasks which best differentiate between 5- and 7-skill levels. This table clearly shows the much higher devotion to management and supervisory tasks at the 7-skill level than the 5-skill level.

Summary

Progression in the Cardiopulmonary Laboratory career ladder follows a regular pattern of highly technical job focus at the lower skill levels, with a broadening into supervision and management at the 7-skill level. An emphasis is clearly seen performing primarily the core job duties of the career ladder at the 3- and 5-skill levels, with broadening into supervisory functions at the 7-skill level.

TABLE 5

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS
(PERCENT RESPONDING)

<u>SPECIALTY JOBS</u>	4H031 (N=43)	4H051 (N=105)	4H071 (N=52)
I. RESPIRATORY THERAPY JOB	63	40	15
II. PULMONARY LABORATORY JOB	7	6	4
III. MANAGER / SUPERVISOR JOB	0	10	67
IV. NON-INVASIVE CARDIOLOGY JOB	25	35	12
V. INVASIVE CARDIOLOGY JOB	0	7	0
NOT GROUPED	5	2	2

TABLE 6

RELATIVE PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS

DUTIES	4H031	4H051	4H071
	(N=43)	(N=105)	(N=52)
A PERFORMING COMMON RESPIRATORY THERAPY, PULMONARY, CARDIOVASCULAR, OR SLEEP LABORATORY ACTIVITIES	27	24	13
B PERFORMING INVASIVE CARDIOVASCULAR ACTIVITIES	*	4	*
C PERFORMING NON-INVASIVE CARDIOVASCULAR ACTIVITIES	13	18	8
D PERFORMING PULMONARY LABORATORY ACTIVITIES	6	7	5
E PERFORMING RESPIRATORY THERAPY ACTIVITIES	42	27	12
F PERFORMING SLEEP LABORATORY ACTIVITIES	2	2	*
G PERFORMING ADMINISTRATIVE OR SUPPLY ACTIVITIES	6	6	9
H PERFORMING TRAINING ACTIVITIES	1	4	14
I PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	8	38

* less than 1 percent

TABLE 7
REPRESENTATIVE TASKS PERFORMED BY 4H031 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=43)
A0023	Perform arterial punctures	88
E0200	Instruct patients in use of metered dose inhalers (MDIs)	86
A0034	Perform universal precaution procedures	86
A0001	Administer medications	86
A0015	Collect blood gas samples	84
A0033	Perform pulse oximeter tests	81
A0031	Perform peak flows	79
A0025	Perform blood gas analyses	74
E0247	Set up nebulizers	72
E0198	Instruct patients in use of handheld or updraft nebulizers	72
E0252	Set up oxygen delivery devices	72
E0197	Instruct patients in specialized breathing	72
A0027	Perform cardiopulmonary resuscitation (CPR)	72
E0234	Record patient respiratory therapy results	70
A0014	Clean and disinfect nondisposable cardiopulmonary equipment or components	70
E0243	Set up humidifiers	70
E0199	Instruct patients in use of incentive spirometers	70
A0053	Take and record vital signs	67
E0206	Monitor bronchodilator therapies	67
E0238	Set up continuous positive airway pressure (CPAP) devices	67
A0020	Interpret arterial blood gas data	67
E0195	Connect flow meters	67
A0054	Transport or change gas cylinders	67
E0224	Perform routine ventilator checks	65
E0235	Record progress of respiratory therapy treatments	65
E0254	Set up respiratory therapy alarms	65
E0181	Adjust ventilator settings or alarms	65
E0251	Set up or calibrate volume ventilators	65
E0236	Set up bi-level positive airway pressure (BiPAP) devices	65
E0203	Maintain open airways	65
A0040	Prepare cardiopulmonary equipment for sterilization	65
E0215	Perform endotracheal suctioning procedures	63
E0190	Assist physicians in weaning patients from ventilators	63
E0204	Monitor BiPAP devices	63
E0256	Transport and monitor patients within facility	63

* Average Number of Tasks Performed - 85

TABLE 8

REPRESENTATIVE TASKS PERFORMED BY 4H051 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=105)
A0034	Perform universal precaution procedures	83
A0053	Take and record vital signs	79
A0027	Perform cardiopulmonary resuscitation (CPR)	79
A0018	Inspect cardiopulmonary equipment	77
A0015	Collect blood gas samples	77
A0001	Administer medications	74
A0014	Clean and disinfect nondisposable cardiopulmonary equipment or components	73
A0023	Perform arterial punctures	72
A0054	Transport or change gas cylinders	72
E0200	Instruct patients in use of metered dose inhalers (MDIs)	70
A0041	Prepare medications	70
A0031	Perform peak flows	69
E0195	Connect flow meters	69
A0017	Dispose of contaminated materials	68
E0247	Set up nebulizers	67
E0252	Set up oxygen delivery devices	64
E0198	Instruct patients in use of handheld or updraft nebulizers	63
A0033	Perform pulse oximeter tests	63
A0021	Monitor electrocardiographic (ECG) recordings	62
A0002	Analyze pulse oximeter test results	60
C0092	Assess and report ECG test results to physicians	59
A0003	Assemble or disassemble nondisposable cardiopulmonary equipment components	59
E0199	Instruct patients in use of incentive spirometers	58
E0256	Transport and monitor patients within facility	58
I0377	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	57
A0022	Obtain patient histories	57
E0234	Record patient respiratory therapy results	57
E0181	Adjust ventilator settings or alarms	57
E0212	Obtain sputum samples	57
E0235	Record progress of respiratory therapy treatments	56
A0030	Perform code cart checks	55
E0203	Maintain open airways	55
A0025	Perform blood gas analyses	55
E0224	Perform routine ventilator checks	54

* Average Number of Tasks Performed - 106

TABLE 9

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC's 4H031 AND 4H051 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 4H031 (N=43)	DAFSC 4H051 (N=105)	DIFFERENCE
A0025 Perform blood gas analyses	74	55	19
A0033 Perform pulse oximeter tests	81	63	19
E0236 Set up bi-level positive airway pressure (BiPAP) devices	65	47	18
E0243 Set up humidifiers	70	51	18
E0204 Monitor BiPAP devices	63	45	18
E0197 Instruct patients in specialized breathing	72	54	18
E0216 Perform extubations	58	41	17
E0186 Administer pentamidine nebulizer treatments	47	30	17
E0205 Monitor blood gas monitoring equipment	60	44	17
E0200 Instruct patients in use of metered dose inhalers (MDIs)	86	70	17
E0238 Set up continuous positive airway pressure (CPAP) devices	67	51	16
A0023 Perform arterial punctures	88	72	16
I0387 Schedule work assignments or priorities	2	21	-19
C0124 Perform two-dimensional echocardiograms	12	30	-18
I0344 Determine or establish logistics requirements, such as personnel, equipment, supplies, or workspace	*	18	-18
D0154 Calibrate pulmonary function testing equipment	21	39	-18
C0137 Scan Holter monitoring tapes for abnormalities	26	44	-18
C0134 Prepare patients for exercise stress tests	30	49	-18
C0138 Set up echocardiograph machines	14	32	-18
G0290 Initiate requisitions for equipment or supplies	19	35	-17
A0018 Inspect cardiopulmonary equipment	60	77	-17
C0115 Perform ECG tests, other than signal-average	23	40	-17
D0164 Perform lung diffusion tests	23	40	-17

TABLE 10

REPRESENTATIVE TASKS PERFORMED BY 4H071 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=52)
I0343	Counsel subordinates concerning personal matters	94
I0377	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	90
I0346	Determine or establish work assignments or priorities	90
I0342	Conduct supervisory performance feedback sessions	88
I0357	Establish performance standards for subordinates	87
I0366	Evaluate personnel for compliance with performance standards	85
I0374	Inspect personnel for compliance with military standards	85
I0370	Evaluate work schedules	85
I0349	Develop or establish work schedules	85
I0375	Interpret policies, directives, or procedures for subordinates	83
G0302	Prepare requests for issue or turn-in of equipment or supplies	83
I0337	Conduct general meetings, such as staff meetings, conferences, or workshops	81
H0321	Evaluate personnel to determine training needs	81
I0387	Schedule work assignments or priorities	81
I0391	Write recommendations for awards or decorations	81
I0339	Conduct self-inspections or self-assessments	81
I0367	Evaluate personnel for promotion, demotion, reclassification, or special awards	79
H0313	Counsel trainees on training progress	79
I0372	Initiate actions required due to substandard performance of personnel	79
I0344	Determine or establish logistics requirements, such as personnel, equipment, supplies, or workspace	77
H0326	Maintain training records or files	77
I0371	Evaluate workload requirements	77
H0322	Evaluate progress of trainees	77
H0314	Determine training requirements	77
H0311	Conduct OJT	77
I0348	Develop or establish work methods or procedures	77
A0034	Perform universal precaution procedures	77
A0027	Perform cardiopulmonary resuscitation (CPR)	77
I0388	Write or indorse performance reports or supervisory appraisals	75
I0335	Assign personnel to work areas or duty positions	75
I0385	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	75
H0330	Schedule personnel for training	75
I0362	Evaluate job hazards or compliance with Air Force Occupational Safety and Health (AFOSH) program	75
G0294	Maintain general correspondence, files, records, or laboratory reports	73
I0363	Evaluate job or position descriptions	73

* Average Number of Tasks Performed - 138

TABLE 11

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC's 4H051 AND 4H071 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 4H051 (N=105)	DAFSC 4H071 (N=52)	DIFFERENCE
C0091 Assess and report ambulatory blood pressure monitoring to physicians	42	17	25
E0207 Monitor continuous nebulizer treatments	48	27	21
E0212 Obtain sputum samples	57	37	21

I0336 Assign sponsors for newly assigned personnel	8	58	-50
I0355 Establish administrative files, such as correspondence files or classified files	8	58	-50
H0309 Brief organizational personnel concerning training	11	62	-50
G0304 Research official or commercial publications	15	65	-50
I0341 Conduct supervisory orientations for newly assigned personnel	17	67	-50
I0390 Write job or position descriptions	14	63	-49
I0368 Evaluate procedures for storage, inventory, or inspection of property items	19	67	-48
I0335 Assign personnel to work areas or duty positions	27	75	-48
H0321 Evaluate personnel to determine training needs	32	81	-48
I0347 Develop inputs to mobility, contingency, disaster preparedness, or unit emergency or alert plans	5	52	-47
H0329 Procure training aids, space, or equipment	14	62	-47
H0320 Evaluate effectiveness of training programs, plans, or procedures	16	63	-47
I0358 Establish procedures for accountability of equipment or supplies	16	62	-45
H0317 Develop training materials or aids	24	67	-44
I0393 Write staff studies, surveys, or routine reports, other than training or inspection reports	4	48	-44
I0392 Write replies to inspection reports	6	50	-44
I0373 Initiate personnel action requests	6	50	-44
H0308 Assign formal course instructors or on-the-job training (OJT) trainers or certifiers	11	56	-44

TRAINING ANALYSIS

Occupational survey data are one of many sources of information that can be used to assist in the development of a training program relevant to the needs of personnel in their first enlistment. Factors which may be used in evaluating training include the overall description of the work being performed by first-enlistment personnel and their overall distribution across career ladder jobs, percentages of first-enlistment (1-48 months TAFMS) members performing specific tasks, as well as TE and TD ratings (previously explained in the **SURVEY METHODOLOGY** section).

First-Enlistment Personnel

In this study there are 57 members in their first-enlistment (1-48 months TAFMS), representing 28 percent of the total survey sample. Figure 2 reflects the distribution of first-enlistment personnel within the career ladder. Table 12 displays the relative percent of time spent on duties by first-enlistment personnel. Reviewing the table, first-enlistment personnel spend 43 percent of their time performing the Respiratory Therapy tasks of Duties E. First-enlistment personnel are primarily employed in the Respiratory Therapy Job, with representative tasks performed displayed in Table 13.

Table 14 reflects the Medical Equipment used by first-enlistment respondents. Over 80 percent of surveyed first-enlistment personnel used stethoscopes, pulse oximeters, and flow meters in their jobs.

**DISTRIBUTION OF 4H0X1 FIRST-ENLISTMENT PERSONNEL
ACROSS SPECIALTY JOBS
(N = 57)**

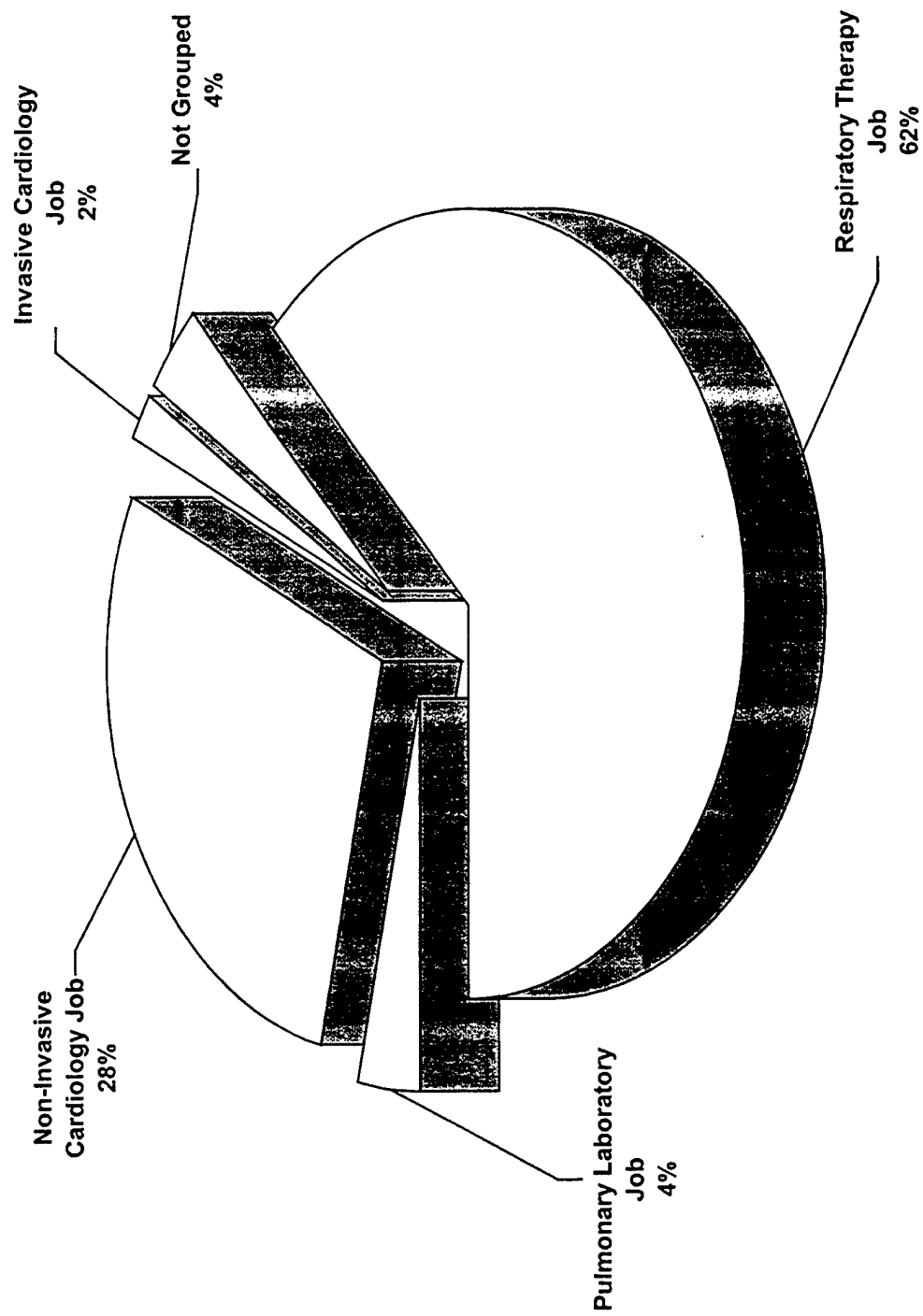


FIGURE 2

TABLE 12

RELATIVE TIME SPENT ON DUTIES BY FIRST-ENLISTMENT PERSONNEL
(N=57)

TASKS		RELATIVE PERCENT TIME SPENT
A	PERFORMING COMMON RESPIRATORY THERAPY, PULMONARY, CARDIOVASCULAR, OR SLEEP LABORATORY ACTIVITIES	27
B	PERFORMING INVASIVE CARDIOVASCULAR ACTIVITIES	1
C	PERFORMING NON-INVASIVE CARDIOVASCULAR ACTIVITIES	14
D	PERFORMING PULMONARY LABORATORY ACTIVITIES	5
E	PERFORMING RESPIRATORY THERAPY ACTIVITIES	43
F	PERFORMING SLEEP LABORATORY ACTIVITIES	2
G	PERFORMING ADMINISTRATIVE OR SUPPLY ACTIVITIES	5
H	PERFORMING TRAINING ACTIVITIES	1
I	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2

TABLE 13

REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=57)
A0034 Perform universal precaution procedures	89
A0023 Perform arterial punctures	86
A0015 Collect blood gas samples	84
A0001 Administer medications	82
E0200 Instruct patients in use of metered dose inhalers (MDIs)	81
A0031 Perform peak flows	79
A0033 Perform pulse oximeter tests	77
A0027 Perform cardiopulmonary resuscitation (CPR)	77
E0247 Set up nebulizers	74
E0252 Set up oxygen delivery devices	74
A0054 Transport or change gas cylinders	74
E0234 Record patient respiratory therapy results	72
E0198 Instruct patients in use of handheld or updraft nebulizers	72
E0199 Instruct patients in use of incentive spirometers	72
A0025 Perform blood gas analyses	70
A0014 Clean and disinfect nondisposable cardiopulmonary equipment or components	70
E0243 Set up humidifiers	70
E0224 Perform routine ventilator checks	68
E0235 Record progress of respiratory therapy treatments	68
E0254 Set up respiratory therapy alarms	68
E0236 Set up bi-level positive airway pressure (BiPAP) devices	68
E0190 Assist physicians in weaning patients from ventilators	68
E0188 Assist physicians in performing extubation procedures	68
E0189 Assist physicians in performing intubation procedures	68
E0195 Connect flow meters	68
E0197 Instruct patients in specialized breathing	68
E0251 Set up or calibrate volume ventilators	67
E0203 Maintain open airways	67
E0238 Set up continuous positive airway pressure (CPAP) devices	67
E0181 Adjust ventilator settings or alarms	67
A0053 Take and record vital signs	65
E0215 Perform endotracheal suctioning procedures	65
E0206 Monitor bronchodilator therapies	65
E0204 Monitor BiPAP devices	65
A0041 Prepare medications	63

* Average Number of Tasks Performed -85

TABLE 14

EQUIPMENT USED BY
FIRST-ENLISTMENT AFSC 4H0X1 PERSONNEL
(PERCENT MEMBERS PERFORMING)

EQUIPMENT	1ST ENL (N=57)
Stethoscopes	86
Pulse Oximeters	82
Flow Meters	81
Nebulizers / Small Volume (SVNs)/ Handheld (HHNs)	79
Suction Machines	79
Metered-Dose Inhalers (MDIs)	77
Resuscitation Bags	75
Oxygen (O2) Humidification (Bubble) Devices	74
Incentive Spirometer Devices	72
Humidification Devices	72
CPAP Equipment	72
Volume Ventilators	68
Pressure Ventilators	67
Cuff Manometers	67
Negative Inspiratory Force (NIF) Meters	65
CO-Oximeters	63
Oxygen Blenders	63
BiPAP Equipment	61
Blood Gas Analyzer	60
Monitors, Ventilator Mechanics	60
Transportable-Volume Ventilators	54
Intubation Equipment	54
Electrocardiographic Machines	51
Percussors	54

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary factors that can assist technical school personnel in deciding which tasks should be emphasized in entry-level training. These ratings, based on the judgments of senior career ladder NCOs working at operational units in the field, are collected to provide training personnel with a rank-ordering of those tasks in the JI considered important for first-enlistment personnel training (see Table 15) or the top-rated tasks, along with a measure of the difficulty of the JI tasks (see high rated tasks presented in Table 16). When combined with data on the percentages of first-enlistment personnel performing tasks, comparisons can then be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors, accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings, but low percentages performing, may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-enlistment personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist technical school personnel, AFOMS has developed a computer program that incorporates these secondary factors and the percentage of first-enlistment personnel performing each task to produce an Automated Training Indicator (ATI) for each task. These indicators correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 2, AETCI 36-2601, and allows course personnel to quickly focus their attention on those tasks which are most likely to qualify for initial resident course consideration.

Table 15 presents tasks with the highest TE ratings for AFSC 4H0X1 first-enlistment airmen, while Table 16 displays those tasks AFSC 4H0X1 raters judged to be most difficult to learn. For example, TE raters (refer to Table 15) reported that tasks such as administering medications and performing arterial punctures require a high degree of training emphasis and, from the data; most airmen in their first enlistment are performing these tasks.

Table 16 shows TD raters reported assisting physicians in performing stent insertions to be among the most difficult tasks to learn. However, due to the low numbers of individuals performing these types of tasks, they would be inappropriate for inclusion in a resident curriculum and are more appropriately taught as OJT items. Table 17 shows the tasks that are high in automated training indicators (ATI).

Various lists of tasks, accompanied by TE and TD ratings, and where appropriate, ATI information, are contained in the TRAINING EXTRACT package and should be reviewed in detail by training school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the **SURVEY METHODOLOGY** section of this report.)

TABLE 15

TASKS RATED HIGHEST IN TRAINING EMPHASIS

TASKS	TNG EMP	PERCENT MEMBERS PERFORMING		TASK DIFF
		4H0X1 1ST ENL		
A0001 Administer medications	7.08	82		4.05
A0020 Interpret arterial blood gas data	7.03	61		6.66
A0023 Perform arterial punctures	7.03	86		6.28
A0027 Perform cardiopulmonary resuscitation (CPR)	6.97	77		5.08
E0182 Administer emergency treatment for adverse reactions to respiratory medications	6.92	46		5.73
A0041 Prepare medications	6.92	63		5.01
E0191 Calculate dosage and strengths of respiratory therapy medications	6.92	58		6.20
E0181 Adjust ventilator settings or alarms	6.74	67		5.53
A0025 Perform blood gas analyses	6.71	70		5.61
A0015 Collect blood gas samples	6.63	84		6.17
E0190 Assist physicians in weaning patients from ventilators	6.47	68		5.78
A0019 Interpret arrhythmias, other than associated with polysomnograms	6.42	28		6.53
E0233 Perform weaning parameters	6.39	63		5.66
A0006 Assist physicians in performing administration of emergency medications	6.37	47		5.81
E0254 Set up respiratory therapy alarms	6.34	68		4.91
A0021 Monitor electrocardiographic (ECG) recordings	6.32	51		5.07
A0032 Perform pulmonary function studies	6.29	30		5.45
E0189 Assist physicians in performing intubation procedures	6.29	68		6.24
E0224 Perform routine ventilator checks	6.24	68		5.05
D0153 Calculate routine spirometry test results	6.24	18		5.37
E0188 Assist physicians in performing extubation procedures	6.21	68		5.77
D0160 Perform flow/volume loop tests	6.21	23		5.06
E0251 Set up or calibrate volume ventilators	6.21	67		5.72

* Mean TE Rating is 3.41, and Standard Deviation is 2.00 (High TE = 5.41)

** Average TD Rating is 5.00

TABLE 16

TASKS RATED HIGHEST IN TASK DIFFICULTY

PERCENT MEMBERS PERFORMING						
TASKS	TASK DIFF	4H0X1				TNG EMP
		1ST				
		ENL (N=57)	4H031	4H051	4H071	
B0069	7.64	2	0	5	4	2.00
B0059	7.64	2	0	9	2	2.53
B0058	7.58	2	0	5	4	1.89
B0060	7.58	2	0	10	2	2.16
B0062	7.55	2	0	3	0	2.03
B0061	7.52	2	0	7	2	2.32
B0057	7.50	2	0	6	4	2.11
B0063	7.40	0	0	6	2	2.18
B0066	7.34	2	0	5	2	2.11
B0064	7.33	2	2	5	4	2.11
B0056	7.30	2	0	10	4	2.37
B0067	7.23	2	0	8	2	2.39
B0071	7.20	4	2	8	4	1.55
E0187	7.16	12	14	16	12	4.18
C0122	7.11	4	7	10	12	4.53
B0070	7.08	2	0	8	6	2.08
C0114	7.06	12	9	20	19	5.08
C0116	6.94	9	9	22	21	5.68
C0124	6.94	14	12	30	27	6.08
C0118	6.93	9	7	20	15	5.00
B0065	6.90	4	5	12	4	3.16
E0218	6.84	30	21	31	33	5.55
C0113	6.80	12	12	28	27	5.68

* Mean TE Rating is 3.41, and Standard Deviation is 2.00 (High TE = 5.41)

** Average TD Rating is 5.00

TABLE 17

EXAMPLE TASKS HIGH IN AUTOMATED TRAINING INDICATOR (ATI) RATINGS

TASKS		PERCENT 1ST ENL (N=57)	TNG EMP*	TASK DIFF**	ATI
A0001	Administer medications	82	7.08	4.05	18
A0002	Analyze pulse oximeter test results	58	4.47	2.81	18
A0003	Assemble or disassemble nondisposable cardiopulmonary equipment components	54	4.66	3.25	18
E0196	Connect pressure regulators	56	5.37	3.27	18
E0197	Instruct patients in specialized breathing	68	5.61	4.29	18
E0198	Instruct patients in use of handheld or updraft nebulizers	72	5.74	3.92	18
E0199	Instruct patients in use of incentive spirometers	72	5.50	3.79	18
E0200	Instruct patients in use of metered dose inhalers (MDIs)	81	5.79	3.93	18
A0041	Prepare medications	63	6.92	5.01	18
E0234	Record patient respiratory therapy results	72	5.82	4.25	18
A0011	Calibrate blood gas analyzers	63	5.71	5.47	18
E0204	Monitor BiPAP devices	65	5.68	4.87	18
E0189	Assist physicians in performing intubation procedures	68	6.29	6.24	18
A0014	Clean and disinfect nondisposable cardiopulmonary equipment or components	70	4.34	2.35	18
A0015	Collect blood gas samples	84	6.63	6.17	18
E0224	Perform routine ventilator checks	68	6.24	5.05	18
A0017	Dispose of contaminated materials	53	3.76	2.16	18
A0018	Inspect cardiopulmonary equipment	60	4.29	3.43	18
E0243	Set up humidifiers	70	5.63	4.09	18
A0020	Interpret arterial blood gas data	61	7.03	6.66	18
A0021	Monitor electrocardiographic (ECG) recordings	51	6.32	5.07	18
A0054	Transport or change gas cylinders	74	5.11	2.57	18
A0023	Perform arterial punctures	86	7.03	6.28	18

* Average TE Rating is 3.41 with a Standard Deviation of 2.00 (High TE = 5.41)

** Average TD Rating is 5.00 with a Standard Deviation of 1.00

Specialty Training Standard (STS)

A comprehensive review of STS 4H0X1, dated April 1998, compared STS items to survey data (based on the previously mentioned assistance from subject-matter experts in matching JI tasks to STS elements). STS elements containing general knowledge information, mandatory entries, subject-matter-knowledge-only requirements, or basic supervisory responsibilities were not examined. Task knowledge and performance elements of the STS were compared against the standard set forth in AETCI 36-2601 and AFI 36-2623 (i.e., include tasks performed or knowledge required by 20 percent or more of the personnel in a skill level [criterion group] of the AFS).

The STS analysis identified some elements with 20 percent of TAFMS group members performing that are dashed and are suggested for review to determine if formal training is required. Table 18 is a sample of some of these elements performed by a large percentage of the members and dashed in the STS.

Tasks not referenced to any element of the STS are listed at the end of the STS computer listing of the Training Extract. These tasks were reviewed to determine if there were any tasks concentrated around any particular function or job. Table 19 lists the tasks that were performed by 30 percent or more of the personnel and were not matched to the STS. Training personnel and SMEs should review these unreferenced tasks to determine if inclusion in the STS is justified.

Plan Of Instruction (POI)

Tasks not referenced to any element of the POI are listed at the end of the POI computer listing. These tasks were reviewed to determine if there were any tasks concentrated around any particular function or job. Those technical tasks performed by 30 percent or more respondents of the POI target groups, but which were not referenced to any POI element, are displayed in Table 20. Training personnel and SMEs should review these unreferenced tasks to determine if inclusion in the POI is justified.

TABLE 18

EXAMPLES OF TECHNICAL TASKS PERFORMED BY AFSC 4H0X1 GROUP MEMBERS
SUGGESTED FOR PROFICIENCY CODE REVIEW TO PERFORMANCE CODING
(PERCENT MEMBERS PERFORMING)

TASKS		TNG	PERCENT MEMBERS PERFORMING					TASK	ATI	
			3-SKL		5-SKL		7-SKL			
			LVL (N=43)	LVL (N=105)	LVL (N=52)	LVL (N=105)	LVL (N=52)			
10	RESPIRATORY CARE									
10u	Team functions during long/short term ventilation	-	b	-						
10u(3)	Operate high frequency ventilators									
E0181	Adjust ventilator settings or alarms	6.74	65	57	46	5.53	18			
E0224	Perform routine ventilator checks	6.24	65	54	40	5.05	18			
E0242	Set up high frequency ventilators	4.74	26	26	21	6.72	14			
E0253	Set up positive and expiratory pressure (PEEP) devices	5.66	60	50	46	4.94	18			
E0254	Set up respiratory therapy alarms	6.34	65	53	48	4.91	18			
10u(7)	Clean Equipment									
A0003	Assemble or disassemble nondisposable cardiopulmonary equipment components	4.66	56	59	65	3.25	18			
A0014	Clean and disinfect nondisposable cardiopulmonary equipment or components	4.34	70	73	63	2.35	18			

* Mean TE Rating is 3.41, and Standard Deviation is 2.00 (High TE = 5.41)

** Average TD Rating is 5.00

TABLE 19

TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE AD
GROUP MEMBERS AND NOT REFERENCED TO THE STS

TASKS	PERCENT MEMBERS PERFORMING				TASK DIFF
	3-SKL LVL (N=43)	5-SKL LVL (N=105)	7-SKL LVL (N=52)		
E0185	Administer intra pulmonary ventilators (IPVs)	42	28	21	5.91
E0202	Instruct patients on IPVs	37	28	21	4.66
E0255	Transport and monitor patients to another facility	40	44	42	6.08
E0256	Transport and monitor patients within facility	63	58	44	5.74
F0271	Perform user maintenance on C-PAP / BiPAP equipment	44	30	37	4.95
G0305	Review medical records of patients	51	52	48	4.08

TABLE 20

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE 4H0X1 FIRST-ENLISTMENT
GROUP MEMBERS AND NOT REFERENCED BY POI
(PERCENT MEMBERS PERFORMING)

TASKS	PERCENT MEMBERS PERFORMING		
	TNG EMP	1 ST ENL (N=57)	TSK DIF
A0001 Administer medications	7.08	82	4.05
A0002 Analyze pulse oximeter test results	4.47	58	2.81
A0003 Assemble or disassemble nondisposable cardiopulmonary equipment components	4.66	54	3.25
A0011 Calibrate blood gas analyzers	5.71	63	5.47
A0012 Calibrate CO-oximeters	5.66	49	5.17
A0014 Clean and disinfect nondisposable cardiopulmonary equipment or components	4.34	70	2.35
A0018 Inspect cardiopulmonary equipment	4.29	60	3.43
A0020 Interpret arterial blood gas data	7.03	61	6.66
A0023 Perform arterial punctures	7.03	86	6.28
A0026 Perform blood gas quality control procedures	5.95	61	5.27
A0031 Perform peak flows	4.92	79	3.08
A0034 Perform universal precaution procedures	5.32	89	2.98
A0035 Perform user maintenance on blood gas machines	4.92	60	5.32
A0039 Perform user maintenance on oxygen analyzers	4.63	49	4.03
A0040 Prepare cardiopulmonary equipment for sterilization	4.37	58	3.13
A0041 Prepare medications	6.92	63	5.01
A0054 Transport or change gas cylinders	5.11	74	2.57
E0185 Administer intra pulmonary ventilators (IPVs)	4.42	46	5.91
E0186 Administer pentamidine nebulizer treatments	4.45	42	5.00
E0209 Monitor IPVs	4.18	44	4.70
E0214 Perform chest physiotherapies	5.37	53	4.93
E0221 Perform postural drainage	5.26	54	5.16
E0255 Transport and monitor patients to another facility	5.39	46	6.08
E0256 Transport and monitor patients within facility	5.71	63	5.74

JOB SATISFACTION ANALYSIS

An examination of the job satisfaction indicators of various groups can give career ladder managers a better understanding of some of the factors that may affect the job performance of airmen in the career ladder. Attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey disk to provide indications of job satisfaction.

Table 21 presents job satisfaction data for AFSC 4H0X1 TAFMS groups, together with TAFMS data for a comparative sample of Medical career ladders surveyed in 1999. First-enlistment personnel rated perception of job interest, utilization of talents, utilization of training and sense of accomplishment gained from work higher than the comparative sample. They also have slightly higher reenlistment intentions than the comparative sample. Second-enlistment personnel rated all areas higher than the comparative sample, except for reenlistment intentions, which were much lower. Career airmen (those over 8 years TAFMS), rated all areas equal to or higher than the comparative sample, except for reenlistment intentions, which were slightly lower.

An indication of how job satisfaction perceptions have changed over time is provided in Table 22, where again TAFMS data for the current survey respondents are presented, along with data from the last occupational survey report. Reviewing this table, current survey satisfaction ratings for job interest, perceived utilization of talents, perceived utilization of training, sense of accomplishment from work, and reenlistment intentions are rated lower than the previous survey for all TAFMS groups.

In Table 23, a review of the job satisfaction ratings for the specialty jobs and clusters identified in this survey reveals very high satisfaction ratings job interest, perceived utilization of talents, and perceived utilization of training. The Invasive Cardiology Job was the only job that reported a high sense of accomplishment gained from work. The Respiratory Therapy Job, The Manager / Supervisor Job, and the Non-Invasive Cardiology Job all have low reenlistment intentions. The Pulmonary Laboratory Job and the Invasive Cardiology Job have high reenlistment intentions.

TABLE 21

COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	2000 4H0X1 (N=57)	COMP SAMPLE* (N=1,365)	2000 4H0X1 (N=48)	COMP SAMPLE* (N=898)	2000 4H0X1 (N=98)	COMP SAMPLE* (N=1,981)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	88	68	81	70	80	75
SO-SO	8	16	13	18	11	14
DULL	4	16	6	12	9	11
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	82	76	85	80	81	82
LITTLE OR NOT AT ALL	18	24	15	20	19	18
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	88	80	83	79	79	74
LITTLE OR NOT AT ALL	12	20	17	21	21	26
<u>SENSE OF ACCOMPLISHMENT GAINED</u>						
<u>FROM WORK:</u>						
SATISFIED	70	66	75	69	70	70
NEUTRAL	18	12	6	12	11	11
DISSATISFIED	12	22	19	19	19	19
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	49	46	44	54	65	67
NO, OR PROBABLY NO	51	54	56	46	7	13
PLAN TO RETIRE	0	0	0	0	28	20

* Comparative sample of Medical career ladders surveyed in 1999 include the 4D0X1, 4F0X1, 4M0X1, 4N1X1/B/C/D, 4T0X1, 4T0X2, and 4Y0X1 AFSCs.

TABLE 22

COMPARISON OF CURRENT SURVEY AND PREVIOUS SURVEY BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	2000 4H0X1 (N=57)	1997 4H0X1 (N=101)	2000 4H0X1 (N=48)	1997 4H0X1 (N=69)	2000 4H0X1 (N=98)	1997 4H0X1 (N=139)
<u>EXPRESSED JOB INTEREST:</u> INTERESTING SO-SO DULL	88 8 4	96 3 1	81 13 6	90 8 2	80 11 9	93 6 1
	82 18	94 6	85 15	90 10	81 19	93 7
	88 12	96 4	83 17	88 12	79 21	91 9
<u>PERCEIVED UTILIZATION OF TALENTS:</u> FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	70 18 12	90 6 4	75 6 19	81 13 6	70 11 19	81 6 13
	49 51 0	53 47 0	44 56 0	53 47 0	65 7 28	76 8 16

EXPRESSED JOB INTEREST:

INTERESTING

SO-SO

DULL

PERCEIVED UTILIZATION OF TALENTS:

FAIRLY WELL TO PERFECTLY

LITTLE OR NOT AT ALL

PERCEIVED UTILIZATION OF TRAINING:

FAIRLY WELL TO PERFECTLY

LITTLE OR NOT AT ALL

SENSE OF ACCOMPLISHMENT GAINEDFROM WORK:

SATISFIED

NEUTRAL

DISSATISFIED

REENLISTMENT INTENTIONS:

YES, OR PROBABLY YES

NO, OR PROBABLY NO

PLAN TO RETIRE

TABLE 23

COMPARISON OF JOB SATISFACTION INDICATORS BY SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

	Respiratory Therapy Job (ST019) (N=77)	Pulmonary Laboratory Job (ST018) (N=11)	Manager / Supervisor Job (ST009) (N=49)	Non-Invasive Cardiology Job (ST011) (N=54)	Invasive Cardiology Job (ST042) (N=7)
EXPRESSED JOB INTEREST:					
INTERESTING	84	82	82	82	100
SO-SO	10	9	12	9	0
DULL	6	9	6	9	0
PERCEIVED UTILIZATION OF TALENTS:					
FAIRLY WELL TO PERFECTLY	82	91	88	91	100
LITTLE OR NOT AT ALL	18	9	12	9	0
PERCEIVED UTILIZATION OF TRAINING:					
FAIRLY WELL TO PERFECTLY	90	82	84	74	71
LITTLE OR NOT AT ALL	10	18	16	26	29
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:					
SATISFIED	73	73	76	61	100
NEUTRAL	10	8	12	13	0
DISSATISFIED	17	19	12	26	0
REENLISTMENT INTENTIONS:					
YES, OR PROBABLY YES	52	82	53	54	86
NO, OR PROBABLY NO	45	18	6	39	14
WILL RETIRE	3	0	41	7	0

IMPLICATIONS

This survey was initiated to provide current job and task data for use in evaluating the AFMAN 36-2108 *Specialty Description* and appropriate training documents.

Survey results clearly indicate that the present classification structure, as described in the latest specialty description, accurately portrays the jobs performed in this career ladder. Based on survey data, the career ladder training documents require review to ensure appropriate proficiency coding. The career ladder progression is typical, with the move from technical work at the 3- and 5-skill levels to supervisory and management tasks at the 7-skill level. Job satisfaction is higher for first-enlistment, second-enlistment and career members than the comparative sample of like medical AFSCs.

APPENDIX A

**SELECTED REPRESENTATIVE TASKS PERFORMED
BY SPECIALTY JOB GROUPS**

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TABLE A1
RESPIRATORY THERAPY JOB

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N=77)
E0247	Set up nebulizers	100
E0190	Assist physicians in weaning patients from ventilators	100
E0224	Perform routine ventilator checks	99
E0215	Perform endotracheal suctioning procedures	99
E0254	Set up respiratory therapy alarms	99
A0023	Perform arterial punctures	99
E0234	Record patient respiratory therapy results	97
E0251	Set up or calibrate volume ventilators	97
E0238	Set up continuous positive airway pressure (CPAP) devices	97
E0188	Assist physicians in performing extubation procedures	97
A0015	Collect blood gas samples	97
E0195	Connect flow meters	97
E0252	Set up oxygen delivery devices	96
E0235	Record progress of respiratory therapy treatments	96
E0200	Instruct patients in use of metered dose inhalers (MDIs)	96
E0181	Adjust ventilator settings or alarms	96
E0243	Set up humidifiers	96
A0001	Administer medications	95
E0206	Monitor bronchodilator therapies	95
E0198	Instruct patients in use of handheld or updraft nebulizers	95
E0203	Maintain open airways	95
E0256	Transport and monitor patients within facility	95
E0189	Assist physicians in performing intubation procedures	95
A0034	Perform universal precaution procedures	94
E0253	Set up positive end expiratory pressure (PEEP) devices	94
E0236	Set up bi-level positive airway pressure (BiPAP) devices	94
E0233	Perform weaning parameters	94
E0191	Calculate dosage and strengths of respiratory therapy medications	94
E0212	Obtain sputum samples	94

TABLE A2
PULMONARY LABORATORY JOB

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N= 11)
D0171	Perform routine spirometry tests	100
D0160	Perform flow/volume loop tests	100
A0032	Perform pulmonary function studies	100
D0155	Perform body plethysmograph tests	100
D0157	Perform exercise desaturation studies	100
D0178	Set up bronchoscopy equipment	100
D0163	Perform home oxygen evaluations	100
D0147	Assist physicians in performing bronchoscopies	100
A0033	Perform pulse oximeter tests	100
D0158	Perform exercise-induced asthma tests	100
A0002	Analyze pulse oximeter test results	100
A0023	Perform arterial punctures	100
A0053	Take and record vital signs	100
A0015	Collect blood gas samples	100
A0054	Transport or change gas cylinders	100
E0195	Connect flow meters	100
E0200	Instruct patients in use of metered dose inhalers (MDIs)	91
D0170	Perform pre-versus-post bronchodilator tests	91
D0164	Perform lung diffusion tests	91
D0179	Set up lung diffusion equipment	91
D0154	Calibrate pulmonary function testing equipment	91
D0177	Prepare patients for bronchoscopies	91
E0197	Instruct patients in specialized breathing	91
A0030	Perform code cart checks	91
A0025	Perform blood gas analyses	91
A0034	Perform universal precaution procedures	91
D0167	Perform maximum voluntary ventilations	91
D0176	Prepare biopsies for laboratories	91
A0027	Perform cardiopulmonary resuscitation (CPR)	91
D0153	Calculate routine spirometry test results	82
D0174	Perform user maintenance on pulmonary function systems	82
D0172	Perform user maintenance on body plethysmographs	82
A0014	Clean and disinfect nondisposable cardiopulmonary equipment or components	82
A0018	Inspect cardiopulmonary equipment	82
A0052	Sterilize nondisposable cardiopulmonary equipment components	82

TABLE A3
MANAGER/SUPERVISOR JOB

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N= 49)
I0377	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	96
I0346	Determine or establish work assignments or priorities	96
I0366	Evaluate personnel for compliance with performance standards	94
I0357	Establish performance standards for subordinates	94
I0375	Interpret policies, directives, or procedures for subordinates	92
I0374	Inspect personnel for compliance with military standards	92
I0337	Conduct general meetings, such as staff meetings, conferences, or workshops	92
I0343	Counsel subordinates concerning personal matters	90
I0342	Conduct supervisory performance feedback sessions	90
I0370	Evaluate work schedules	90
I0348	Develop or establish work methods or procedures	90
I0371	Evaluate workload requirements	88
H0313	Counsel trainees on training progress	88
I0335	Assign personnel to work areas or duty positions	86
I0391	Write recommendations for awards or decorations	86
H0321	Evaluate personnel to determine training needs	86
I0349	Develop or establish work schedules	86
H0314	Determine training requirements	86
I0385	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	86
I0344	Determine or establish logistics requirements, such as personnel, equipment, supplies, or workspace	84
I0387	Schedule work assignments or priorities	84
I0372	Initiate actions required due to substandard performance of personnel	84
I0368	Evaluate procedures for storage, inventory, or inspection of property items	84
G0302	Prepare requests for issue or turn-in of equipment or supplies	84
H0326	Maintain training records or files	82
I0367	Evaluate personnel for promotion, demotion, reclassification, or special awards	82
H0322	Evaluate progress of trainees	82
I0356	Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	82
I0363	Evaluate job or position descriptions	82
I0339	Conduct self-inspections or self-assessments	82
I0390	Write job or position descriptions	80
I0360	Evaluate budget requirements	80
G0304	Research official or commercial publications	80

TABLE A4
NON-INVASIVE CARDIOLOGY JOB

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N= 54)
C0134	Prepare patients for exercise stress tests	98
A0009	Assist physicians in performing treadmill tests	96
A0043	Prepare patients for treadmill tests	96
C0135	Prepare patients for Holter monitoring tests	96
A0048	Set up treadmill equipment	96
C0120	Perform Holter monitoring tests	94
C0119	Perform exercise stress tests	93
C0142	Set up Holter monitoring equipment	93
C0092	Assess and report ECG test results to physicians	93
C0141	Set up exercise stress test equipment and materials	91
C0137	Scan Holter monitoring tapes for abnormalities	91
C0095	Assess and report Holter monitoring test results to physicians	89
A0045	Record treadmill test results	85
A0053	Take and record vital signs	83
A0021	Monitor electrocardiographic (ECG) recordings	83
A0018	Inspect cardiopulmonary equipment	81
A0013	Clean patient treatment or examination rooms	80
A0030	Perform code cart checks	80
C0132	Prepare patient for ECG tests, other than signal-average	74
A0034	Perform universal precaution procedures	74
A0014	Clean and disinfect nondisposable cardiopulmonary equipment or components	74
C0115	Perform ECG tests, other than signal-average	72
A0032	Perform pulmonary function studies	70
E0200	Instruct patients in use of metered dose inhalers (MDIs)	67
A0031	Perform peak flows	67
A0001	Administer medications	67
D0171	Perform routine spirometry tests	65
D0160	Perform flow/volume loop tests	65
D0164	Perform lung diffusion tests	65
A0015	Collect blood gas samples	65
A0027	Perform cardiopulmonary resuscitation (CPR)	65
C0131	Prepare patients for echocardiograms	63
A0023	Perform arterial punctures	63
G0306	Schedule patients for evaluations, consultations, or procedures	61
C0093	Assess and report echocardiogram test results to physicians	59

TABLE A5
INVASIVE CARDIOLOGY JOB

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING (N= 7)
B0065	Assist physicians in performing hemodynamic monitoring	100
B0089	Set up sterile fields	100
B0081	Prepare sites for catheter insertions	100
B0087	Set up injectors	100
B0080	Prepare injector solutions	100
A0021	Monitor electrocardiographic (ECG) recordings	100
B0056	Assist physicians in performing angiographs	100
B0073	Connect or disconnect transducers to equipment	100
A0050	Set up x-ray equipment	100
B0086	Set up cardiac catheterization trays	100
B0079	Perform user maintenance on digital equipment	100
B0090	Set up thermodilution syringes	100
B0078	Perform user maintenance on cineangiographic equipment	100
B0088	Set up permanent pacemakers in sterile trays	100
A0034	Perform universal precaution procedures	100
B0075	Monitor intra-aortic balloon pumps	100
B0060	Assist physicians in performing cardiac pacemaker insertions	100
B0085	Set up balloon pump equipment	100
B0059	Assist physicians in performing balloon pump insertions	100
A0036	Perform user maintenance on cardiac monitors	100
A0014	Clean and disinfect nondisposable cardiopulmonary equipment or components	100
B0067	Assist physicians in performing non-echo guided pericardial centesis	100
A0019	Interpret arrhythmias, other than associated with polysomnograms	86
A0038	Perform user maintenance on defibrillators	86
A0053	Take and record vital signs	86
B0077	Perform quality control procedures for digital equipment	86
B0083	Record results using digital angiographies	86
B0071	Calculate results of catheterization procedures	86
A0013	Clean patient treatment or examination rooms	86
A0030	Perform code cart checks	86
A0049	Set up video equipment	86
C0091	Assess and report ambulatory blood pressure monitoring to physicians	86
A0018	Inspect cardiopulmonary equipment	86
B0070	Assist physicians in performing thrombolytic therapy	86
A0027	Perform cardiopulmonary resuscitation (CPR)	86