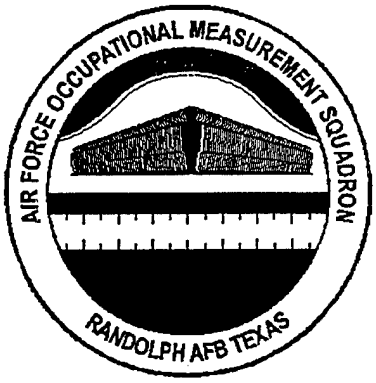

UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT

CARDIOPULMONARY LABORATORY

AFSC 4H0X1

AFPT 90-4H0-079

JANUARY 1997

OCCUPATIONAL MEASUREMENT SQUADRON
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375 MDOS/SGOML (310 W LOSER ROAD, STOP 23, SCOTT AFB IL 62225-5252, ATTENTION: MSGT BROWN)	1		1	1
381 TRS/XWBA (917 MISSILE ROAD, SHEPPARD AFB TX 76311-2246, ATTENTION: MR. JOE KAUFFMAN)	4	1	4	10
882 TRG/CCT (939 MISSILE ROAD, SHEPPARD AFB TX 76311-2245)	1		1	

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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.

The survey instrument was developed by Captain Carol A. Owen (CAF), Inventory Development Specialist, with computer programming support furnished by Mrs. Jeanie C. Guesman and administrative support provided by Mr. Richard G. Ramos. Second Lieutenant Diedre N. Presley, Occupational Analyst, analyzed the data and wrote the final report. This report has been reviewed and approved by Lieutenant Colonel 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, Attention: Chief, Occupational Analysis Flight (OMY), 1550 5th Street East, Randolph AFB Texas 78150-4449 (DSN 487-6623).

RICHARD C. OURAND, JR., Lt Col, USAF
Commander
Air Force Occupational Measurement Squadron

JOSEPH S. TARTELL
Chief, Occupational Analysis Flight
Air Force Occupational Measurement Squadron

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SUMMARY OF RESULTS

1. *Survey Coverage*: The Cardiopulmonary Lab career ladder was surveyed to obtain current task and equipment data for use in evaluating current training programs. Survey results are based on responses from 309 respondents (79 percent of the total assigned personnel). The survey sample satisfactorily represents the overall career ladder population.

2. *Specialty Jobs*: Five jobs were identified in the sample: Respiratory Therapy, Noninvasive Cardiology, Pulmonary Diagnosis, Invasive Cardiology, and Cardiopulmonary Laboratory Management. Seventy-seven percent of career ladder incumbents work in the Respiratory Therapy and Noninvasive Therapy jobs.

3. *Career Ladder Progression*: Skill-level progression for members of this AFSC is typical of most career ladders. Personnel at the 3- and 5-skill levels perform many tasks in common and both groups spend the vast majority of their relative job time performing common respiratory therapy, pulmonary, or cardiovascular tasks. At the 7-skill level, although members still perform a substantial amount of routine day-to-day technical cardiopulmonary tasks, a shift toward supervisory functions is evident. Personnel at the 9-skill level and Chief Enlisted Managers (CEMs) spend their relative job time exclusively on managing cardiopulmonary lab programs and facilities.

4. *AFMAN 36-2108 Specialty Description*: The specialty description accurately depicts the nature of the respective jobs.

5. *Training Analysis*: A comprehensive review of the Specialty Training Standard (STS) found that most paragraphs were supported by the survey data. However, a few areas in the STS display tasks with less than the recommended percent members performing. These areas should be reviewed to determine any modifications required to improve the effectiveness or efficiency of training. The Plan of Instruction was not covered in this report due to recent changes being worked at the technical school.

6. *Job Satisfaction Analysis*: Job satisfaction for respondents in this study and members of similar AFSCs surveyed in 1995 were compared. Data show AFSC 4H0X1 personnel have somewhat higher satisfaction indicators than their counterparts in other medical AFSCs. Overall satisfaction has improved over the years. Members of most jobs find their work interesting and feel their talents and training are well used. Only Pulmonary Diagnosis personnel showed major problems related to their sense of accomplishment from their job.

7. *Implications*: Overall, survey data for the Cardiopulmonary Lab Career Ladder reflect a well functioning career ladder. The Cardiopulmonary Laboratory Career Ladder has seen only minor changes in career structure since the previous survey in 1990. The basic premise of performing respiratory therapy, cardiopulmonary, and cardiovascular activities has remained constant. Personnel in the Noninvasive Cardiology and Respiratory Therapy jobs make up the bulk of the career ladder. Members of the Cardiopulmonary Laboratory specialty appear to be

extremely satisfied with their jobs, with job satisfaction indicators generally higher than those in the 1990 survey. The most notable exception is the somewhat lower positive responses concerning reenlistment intentions by the current survey in the 49-96 months TAFMS group compared to those in 1990.

OCCUPATIONAL SURVEY REPORT (OSR)
CARDIOPULMONARY LAB CAREER LADDER
(AFSC 4H0X1)

INTRODUCTION

This is a report of an occupational survey of the Cardiopulmonary Laboratory (AFSC 4H0X1) career ladder completed by the Air Force Occupational Measurement Squadron (AFOMS). These data will be utilized to review the AFMAN 36-2108 *Specialty Description* and training documents. The last OSR was published in October 1990.

Background

As described in the AFMAN 36-2108 *Specialty Description*, dated 31 October 1993, personnel in this career ladder 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.

Entry into the career ladder currently requires an Armed Services Vocational Aptitude Battery Electronic score of 43. The sequence of technical training for this AFSC begins with attending a 57-day Cardiopulmonary Laboratory Apprentice Training (Phase I) Course conducted at Sheppard AFB TX. This course curriculum includes training in basic theory and skills to assist cardiologists and pulmonary physicians in examination, evaluation, and management of cardiovascular and pulmonary dysfunctions. Upon completion of Phase I, members proceed to Cardiopulmonary Laboratory Apprentice Training (Phase II). This 30-week course is conducted at designated hospitals around the country. Here, they provide assistance to cardiologists and pulmonary physicians in examination, evaluation, diagnosis, and management of cardiovascular and pulmonary dysfunction by performing a broad spectrum of diagnostic procedures. Upon successful completion of Phase II training, they are awarded the 3-skill level. The 5-skill level is awarded upon promotion to Senior Airman.

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Air Force Personnel Test (AFPT) 90-4H0-039, dated 8 May 1995. 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 25 subject-matter experts at the technical training location and at the following operational bases:

BASE	UNIT VISITED
Sheppard AFB TX	381 TRS/CSC
Travis AFB CA	60 MDOS/SGOML
Lackland AFB TX	59 MDW/PSMP
Kirtland AFB NM	377 MDOS/SGOMIC
Luke AFB AZ	56 MDG/SGOMCD
Nellis AFB NV	554 MDOS/SGOMC

The resulting JI contains a comprehensive listing of 313 tasks grouped under 8 duty headings and a background section requesting such information as grade, duty title, organizational level, type of facility where employed, testing and calibration equipment used, and equipment maintained.

Survey Administration

From April through July 1996, Base Training Offices administered the inventory to 393 eligible AFSC 4H0X1 personnel. To qualify for the survey, personnel were required to hold a duty AFSC of 4H031, 4H051, 4H071, 4H091, or 4H000. Excluded from the survey were personnel in PCS, student, or hospital status, or with less than 6 weeks on the job. 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 spent 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 paygrade groups. All eligible AFSC 4H0X1 personnel were mailed survey booklets. Table 1 reflects the percentage distribution, by MAJCOM, of assigned AFSC 4H0X1 personnel as of April 1996. The 309 respondents in the final sample represent 74 percent of the total assigned personnel. Table 2 reflects the paygrade distribution for these AFSC 4H0X1 personnel. The survey sample is considered to be a satisfactory 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. While most participants in the survey process completed a USAF JI, selected senior AFSC 4H0X1 personnel were also asked to complete booklets rendering judgments on task training emphasis (TE) or task difficulty (TD). The TE and TD booklets were processed separately from the JIs. The information gained from these task factor data is used in various analyses and is a valuable part of the training decision process.

Training Emphasis (TE). TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 21 senior AFSC NCOs who completed a TE booklet were asked to select tasks they felt required 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 technical schools, field training detachments, mobile training teams, formal on-the-job-training (OJT), or any other organized training method. The interrater reliability was excellent, indicating very strong agreement among the 32 raters as to which tasks required some form of structured training and which did not. The average TE rating was 3.44, with a standard deviation of 2.16. Any task with a TE rating of 5.60 or above is considered to have high TE.

TABLE 1

MAJCOM DISTRIBUTION OF AFSC 4H0X1 PERSONNEL

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
AETC	38	30
AMC	24	29
AFMC	17	20
ACC	11	12
USAFE	4	4
PACAF	3	3
USAFA	2	2
OTHER	1	~

TOTAL ASSIGNED = 419*
TOTAL SURVEYED = 393**
TOTAL IN SURVEY SAMPLE = 309
PERCENT OF ASSIGNED IN SAMPLE = 74%
PERCENT OF SURVEYED IN SAMPLE = 79%

~ Less than 1 percent
* Assigned strength as of April 1996
** Excludes personnel in PCS, student, or hospital status, or less than 6 weeks on the job

TABLE 2

PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

PAYGRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-1 to E-3	25	21
E-4	31	32
E-5	23	26
E-6	12	13
E-7	7	7
E-8, E-9	2	1

* Assigned strength as of April 1996

Task Difficulty (TD). TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 27 senior NCOs who completed TD booklets were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was acceptable, with high agreement. 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
(Career Ladder Structure)

The occupational analysis process begins with an examination of the career ladder structure. The structure of jobs within the Cardiopulmonary Laboratory career ladder was examined on the basis of similarity of tasks performed and the relative percent of time spent ratings provided by job incumbents, independent of other specialty background factors.

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. Comprehensive Occupational Data Analysis Programs (CODAP) assist by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on the 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 then combines them to form a composite job description. In successive stages, new members are added to the initial group or new groups are formed based on the similarity of tasks performed 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. The resulting job structure information can be used to evaluate the accuracy of career ladder documents (i.e., AFMAN 36-2108 *Specialty Descriptions*, the Career Field Education and Training Plan, and Specialty Training Standards (STS)) and to gain a better understanding of current utilization patterns. The above terminology will be used in the discussion of the AFSC 4H0X1 career ladder structure.

Overview of Specialty Jobs

Structure analysis identified five jobs within the survey sample. Based on task similarity and relative time spent, the jobs performed by AFSC 4H0X1 personnel are illustrated in Figure 1. A listing of those jobs is provided below. The stage (ST) number shown beside each title is a reference to computer-printed information; the number of personnel in each stage (N) is also shown.

I. RESPIRATORY THERAPY JOB (ST016, N=118)

II. NONINVASIVE CARDIOLOGY JOB (ST013, N=121)

III. PULMONARY DIAGNOSIS JOB (ST012, N=16)

IV. INVASIVE CARDIOLOGY JOB (ST017, N=17)

V. CARDIOPULMONARY LABORATORY MANAGEMENT JOB (ST015, N=25)

The respondents forming these jobs account for 96 percent of the survey sample. The remaining 4 percent are performing tasks or a series of tasks that did not group with any of the defined jobs. Job titles given by respondents representative of these personnel include: NCOIC Sleep Disorder, Medical Flight NCOIC, Polysomnography Technician, Special Projects NCO, Superintendent Neonatal ICU, and ABG Quality Monitor/Cardiology.

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 jobs are contained in Appendix A.

I. RESPIRATORY THERAPY JOB (ST016). The 118 respondents in this job account for 38 percent of the survey sample. They were identified separately as having this job because they perform a number of tasks dealing specifically with respiratory therapy functions. Members with this job spend 51 percent of their duty time performing respiratory therapy functions (Table 3, Duty E), and 32 percent performing tasks common to respiratory therapy, pulmonary, or cardiovascular functions (Table 3, Duty A). They perform an average of 82 tasks and are distinguished by the time they spend performing the following tasks:

CARDIOPULMONARY LABORATORY SPECIALTY JOBS (N = 309)

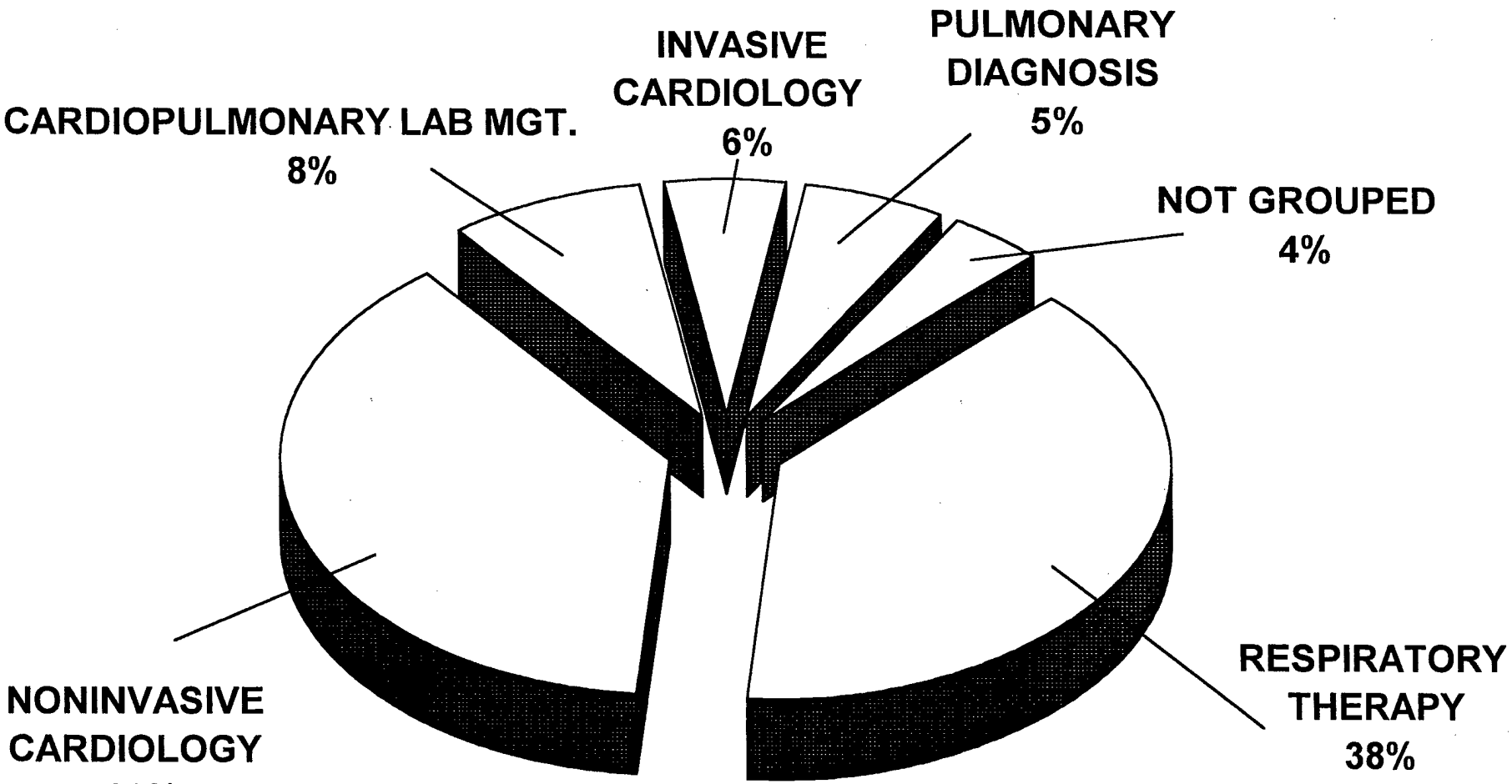

FIGURE 1

TABLE 3

RELATIVE PERCENT TIME SPENT PERFORMING DUTIES BY SPECIALTY JOBS

DUTIES	RESPIRATORY THERAPY (ST016, N=118)	NONINVASIVE CARDIOLOGY (ST013, N=121)	PULMONARY DIAGNOSIS (ST012, N=16)	INVASIVE CARDIOLOGY (ST017, N=17)	CARDIO-PULMONARY LAB MGT (ST015, N=25)
A PERFORMING COMMON RESPIRATORY THERAPY, PULMONARY, CARDIOVASCULAR ACTIVITIES	32	30	39	31	8
B PERFORMING INVASIVE CARDIOVASCULAR ACTIVITIES	*	*	*	35	*
C PERFORMING NONINVASIVE CARDIOVASCULAR ACTIVITIES	*	29	2	2	9
D PERFORMING PULMONARY LAB. ACTIVITIES	3	8	32	2	2
E PERFORMING RESPIRATORY THERAPY ACTIVITIES	51	12	5	2	*
F PERFORMING ADMINISTRATIVE OR SUPPLY ACTIVITIES	5	9	11	6	7
G PERFORMING TRAINING ACTIVITIES	3	4	6	6	16
H PERFORMING MANAGEMENT & SUPERVISORY ACTIVITIES	6	8	7	14	58

* Denotes less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding

TABLE 4

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS

	RESPIRATORY THERAPY JOB	NONINVASIVE CARDIOLOGY JOB	PULMONARY DIAGNOSIS JOB	INVASIVE CARDIOLOGY JOB	CARDIO-PULMONARY LAB MGT JOB
NUMBER IN GROUP	118	121	16	17	25
PERCENT OF SAMPLE	38%	39%	5%	6%	8%
PERCENT IN CONUS	92%	88%	100%	88%	96%
DAFSC DISTRIBUTION:					
4H031	36%	21%	13%	0%	0%
4H051	44%	55%	63%	65%	20%
4H071	20%	25%	25%	35%	68%
4H091	0%	0%	0%	0%	8%
4H001	0%	0%	0%	0%	4%
PREDOMINANT GRADE(S)	E-4/E-3	E-4/E-5	E-4/E-5	E-5	E-6/E-7
AVERAGE MONTHS IN CAREER FIELD	47	59	79	87	121
AVERAGE MONTHS IN SERVICE	79	87	106	120	200
PERCENT IN FIRST ENLISTMENT (1-48 MOS TAFMS)	50%	33%	12%	0%	0%
PERCENT SUPERVISING	36%	31%	25%	53%	88%
AVERAGE NUMBER OF TASKS PERFORMED	82	107	79	77	97

perform routine ventilator checks
record patient respiratory therapy results
adjust ventilator settings
perform suctioning procedures
set up respiratory therapy alarms
record progress of respiratory therapy treatment
assist physician in performing extubation procedures
set up continuous positive airway pressure (CPAP) devices
assist physician in performing intubation procedures

Forty-four percent of these individuals hold the 5-skill level while 36 percent have a 3-skill level. Thirty-six percent are in the paygrade E-4 with an additional 29 percent in paygrade E-3. The average time in the career field is 4 years with an average of 6.5 years total time in service. This job contains the highest number of members in their first enlistment (50 percent). Eighty-three percent report working in a unit that has 13 or more personnel and 80 percent are assigned to a medical center.

II. NONINVASIVE CARDIOLOGY JOB (ST013). The 121 respondents in this job account for 39 percent of the survey sample. The responsibilities of these respondents differ from those with other cardiopulmonary jobs in that, while they perform many of the same general tasks, they spend more time on tasks related specifically to echocardiograms, Holter-monitoring tests, treadmill tests, and stress tests. Members with this job spend 29 percent of their duty time performing noninvasive cardiovascular activities (Table 3, Duty C), and 30 percent performing tasks common to respiratory therapy, pulmonary, or cardiovascular functions (Table 3, Duty A). They perform an average of 107 tasks, which is a higher average than for any other job within the survey sample. Typical tasks include:

perform ECG
assist physician in performing treadmill tests
perform exercise stress tests
prepare patients for treadmill tests
set up exercise stress test equipment and materials
prepare patients for exercise stress tests
set up treadmill equipment
perform Holter-monitoring tests
prepare patients for Holter-monitoring tests
set up thermodilution syringes

Fifty-five percent of these individuals hold the 5-skill level, while 25 percent have a 7-skill level. Thirty-six percent of these members are in paygrade E-4, with an additional 28 percent in paygrade E-5. The average time in the career field is 5 years (second least experienced) with an average of 7 years total time in service. Thirty-six percent report working in a unit that has between 4-6 personnel and 54 percent are assigned to a hospital.

III. PULMONARY DIAGNOSIS JOB (ST012). These 16 respondents account for 6 percent of the survey sample (smallest of all groups). The members in this job are distinguished by the time they spend performing tasks related specifically to performing flow/volume loop tests, performing routine spirometry tests, and performing user maintenance on pulmonary function systems. They perform an average of 79 tasks and spend 32 percent of their relative job time performing pulmonary functions (Table 3, Duty D). Thirty-nine percent of their relative job time is spent performing tasks common to respiratory therapy, pulmonary, or cardiovascular functions (Table 3, Duty A). Typical tasks include:

perform routine spirometery tests
perform flow/volume loop tests
perform body plethesmograph tests
set up lung diffusion equipment
perform home oxygen evaluations
perform exercise induced asthma tests
perform postbronchodialator tests
perform lung diffusion tests
perform user maintenance on pulmonary function systems

Sixty-three percent of these individuals hold the 5-skill level while 25 percent have a 7-skill level. Thirty-eight percent of these members are in paygrade E-5, with an additional 31 percent in paygrade E-4. The average time in the career field is 6.5 years (second least experienced) with an average of 9 years total time in service. Forty-four percent report working in a unit that has 13 or more personnel and 88 percent are assigned to a hospital. One-hundred percent of the members report they are assigned to units within the CONUS.

IV. INVASIVE CARDIOLOGY JOB (ST017). These 17 respondents account for 6 percent of the survey sample. They perform a number of tasks dealing specifically with invasive cardiology. They are involved with cardiac catheterizations and cineangiography. Members with this job spend 35 percent of their duty time performing invasive cardiology functions (Table 3, Duty B), 31 percent performing tasks common to respiratory therapy, pulmonary, or cardiovascular functions (Table 3, Duty A), and 14 percent performing management and supervisory functions (Table 3, Duty H). They perform an average of 77 tasks and are distinguished by the time they spend performing the following tasks:

set up cardiac catheterization trays
set up sterile fields
prepare site for catheter insertions
set up x-ray equipment
set up injectors
connect transducers to equipment
set up balloon pump equipment
set up video equipment
perform user maintenance on cineangiographic equipment
set up thermodilution syringes

This is a very specialized job performed mainly in medical centers. Sixty-five percent report working in a unit that has 4-6 personnel assigned. Fifty-three percent of the respondents reported supervising other subordinates (the second largest percentage). Members with this job are somewhat more senior, as they average 10 years total time in service and 7 years average time in the career field. Fifty-nine percent of these members are in paygrade E-5 with an additional 24 percent in paygrade E-4. Sixty-five percent of these individuals hold the 5-skill level while 35 percent have the 7-skill level. There are no first-enlistment personnel assigned in this job.

V. CARDIOPULMONARY LABORATORY MANAGEMENT JOB (ST015). The 25 respondents in this job are responsible for managing cardiopulmonary laboratories, functions, and activities. To accomplish these goals, these members spend 58 percent of their relative job time performing cardiopulmonary laboratory management functions (Table 3, Duty H), 15 percent performing training activities (Table 3, Duty G), and 9 percent performing common respiratory therapy, pulmonary, or cardiovascular activities (Table 3, Duty A). They perform an average of 97 tasks, which is the second highest within the 4H0X1 career ladder. Tasks characteristic of the work performed include:

direct administrative functions
counsel subordinates concerning personal matters
conduct general meetings, such as staff meetings, briefings, conferences, or workshops
plan or schedule work assignments or priorities
evaluate personnel for promotion, demotions, reclassification, or special awards
develop self-inspection or self-assessment program checklists
direct training functions
write job or position descriptions

Members with this job are senior, as they average 17 years total time in service, 10 years average time in the career field, and make up only 8 percent of the survey sample. Sixty-eight percent of these individuals hold the 7-skill level, while 20 percent have the 5-skill level. Forty-four percent of these members are in paygrade E-6 and E-7. Sixty-eight percent report working in a medical center and supervise between 4-13 personnel assigned to an office. There are no first-enlistment personnel assigned to this job.

Comparison of Current Jobs to Previous Survey Findings

The results of the specialty job analysis were compared to those of OSR AFPT 90-904-926, Cardiopulmonary Laboratory, dated October 1990. After reviewing the jobs identified in 1990, all of the groups with substantial numbers of personnel could be matched to similar jobs in the current study (see Table 5). Even though some comparable groups from 1990 to 1996 reflect different percentages of the sample, this variation could generally be attributed to modifications in the task list or to the analysis approach used.

There were two jobs (accounting for about 30 percent of the survey sample) identified in the 1990 career ladder structure that did not have a direct match in the current study. These jobs include Cardiopulmonary Laboratory Job and Instructor Job. Tasks performed by personnel in these jobs, not identified in the current survey, are still being performed but not at a level which resulted in these members forming distinct jobs. Differences in job names reflect how tasks were grouped. Aside from these minor variations involving small numbers of personnel, the vast majority of the current sample were found to be performing jobs identified in 1990, thus displaying a relatively stable career ladder over time.

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 *Specialty Description* and the STS reflect what career ladder personnel are actually doing in the field and what is required of their members.

The distribution of skill-level groups across the career ladder specialty jobs is displayed in Table 6, while Table 7 offers another perspective by displaying the relative percent time spent on each duty across the skill-level groups. The Cardiopulmonary Laboratory career ladder has 69 percent of the sample holding either the 3- or 5-skill level. A typical pattern of progression is present, with personnel spending more of their relative time on duties involving supervisory,

TABLE 5

SPECIALTY JOB COMPARISONS BETWEEN CURRENT AND 1990 SURVEYS

CURRENT SURVEY (N=309)	PERCENT OF SAMPLE	1990 SURVEY (N=202)	PERCENT OF SAMPLE
RESPIRATORY THERAPY (N=118)	38%	RESPIRATORY THERAPY (N=43)	21%
-		CARDIOPULMONARY FUNCTIONS CLUSTER	
-		Cardiopulmonary Laboratory Job (N=54)	27%
PULMONARY DIAGNOSIS (N=16)	5%	Pulmonary Laboratory Job (N=13)	6%
NONINVASIVE CARDIOLOGY (N=121)	39%	Noninvasive Cardiology Job (N=16)	8%
-		NCOIC Job (N=34))	17%
INVASIVE CARDIOLOGY (N=17)	6%	CARDIAC CATHETERIZATION LABORATORY JOB (N=14)	7%
-		INSTRUCTOR JOB (N=6)	3%
CARDIOPULMONARY LAB MANAGEMENT (N=25)	8%	SUPERINTENDENT JOB (N=7)	3%

- Indicates no match in report

NOTE: Columns may not add to 100 percent due to rounding

TABLE 6

DISTRIBUTION OF AFSC 4H0X1 GROUP MEMBERS ACROSS SPECIALTY JOBS
(PERCENT)

SPECIALTY JOBS	DAFSC 4H031 (N=70)	DAFSC 4H051 (N=150)	DAFSC 4H071 (N=86)	DAFSC 4H091/4H000 (N=3)
I. RESPIRATORY THERAPY JOB (N=118)	60	35	28	-
II. NONINVASIVE CARDIOLOGY JOB (N=121)	36	44	35	-
III. PULMONARY DIAGNOSIS JOB (N=16)	3	7	5	-
IV. INVASIVE CARDIOLOGY JOB (N=17)	~	7	7	-
V. CARDIOPULMONARY LAB MANAGEMENT JOB (N=5)	~	3	20	100
VI. NOT GROUPED	1	4	5	-

- Denotes duty not performed
~ Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

TABLE 7

AVERAGE PERCENT TIME SPENT PERFORMING DUTIES BY AFSC 4H0X1 GROUPS
(RELATIVE PERCENT OF JOB TIME)

DUTIES	DAFSC 4H031 (N=70)	DAFSC 4H051 (N=150)	DAFSC 4H071 (N=86)	DAFSC 4H091/4H000 (N=3)
A PERFORMING COMMON RESPIRATORY THERAPY, PULMONARY, OR CARDIOVASCULAR ACTIVITIES	37	31	20	5
B PERFORMING INVASIVE CARDIOVASCULAR ACTIVITIES	1	3	2	-
C PERFORMING NONINVASIVE CARDIOVASCULAR ACTIVITIES	10	17	11	2
D PERFORMING PULMONARY LABORATORY ACTIVITIES	7	6	5	-
E PERFORMING RESPIRATORY THERAPY ACTIVITIES	40	24	14	-
F PERFORMING ADMINISTRATIVE OR SUPPLY ACTIVITIES	4	7	8	5
G PERFORMING TRAINING ACTIVITIES	1	4	12	14
H PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	1	7	28	73

- Indicates no members or nonresponse

NOTE: Columns may not add up to 100 percent due to rounding.

managerial, and training tasks as they move upward toward the 7- or 9-skill level, or the CEM code. It is also obvious, though, that 7-skill level personnel are still involved with technical task performance, as will be pointed out in the specific skill-level group discussions below.

Skill-Level Descriptions

DAFSC 4H031. The 70 airmen in the 3-skill level group represent 23 percent of the survey sample. Sixty percent of the 3-skill level members are in the Respiratory Therapy Job and 36 percent are in the Noninvasive Cardiology Job (see Table 6). They perform an average of 82 tasks, with 37 tasks accounting for over 50 percent of their relative job time. Performing a highly technical job, 95 percent of their relative duty time is devoted to technical duties such as, performing respiratory therapy, noninvasive cardiovascular, and cardiovascular activities (see Table 7). Table 8 displays representative tasks performed by the highest percentages of these airmen.

DAFSC 4H051. The 150 airmen in the 5-skill level group constitute 49 percent of the survey sample (largest DAFSC group of the survey) and perform an average of 107 tasks, with 50 tasks accounting for over half of their relative job time. Forty-four percent of these 5-skill level members are in the Noninvasive Cardiology Job and 35 percent are in the Respiratory Therapy Job (see Table 6). Performing a highly technical job, 81 percent of their relative job time is devoted to duties covering respiratory therapy, pulmonary, and cardiovascular activities (see Table 7, Duties A through E). Table 9 displays representative tasks performed by the highest percentages of these airmen. Table 10 displays those tasks that reflect differences between the 3- and 5-skill level groups. A review of the tasks reveals that 5-skill level airmen perform virtually the same technical tasks as do the 3-skill level members. However, a higher percentage of 3-skill level members perform these tasks. The 5-skill level members are primarily differentiated in that they perform some management or supervisory functions, although to a limited degree.

DAFSC 4H071. The 86 NCOs in this 7-skill level group constitute 28 percent of the survey sample and perform an average of 97 tasks. Thirty-five percent of these 7-skill level members are in the Noninvasive Cardiology Job, 20 percent are in the Cardiopulmonary Laboratory Management Job, and 28 percent are in the Respiratory Therapy Job (see Table 6). Forty-eight percent of their relative job time is spent on the usual supervisory, management, and training duties and 52 percent is spent performing respiratory therapy, pulmonary, and cardiovascular activities (see Table 7). The display of tasks in Table 11 clearly shows these members performing both supervisory and some technical responsibilities. This is a reflection of the range and scope of their job. Table 12 displays those tasks that differentiate between the 5- and 7-skill level groups. The data show that the 5- and 7-skill level groups are essentially performing many of the same tasks. The only exception is that the tasks performed by a higher percentage of 5-skill level personnel are technical and operational in nature, whereas higher percentages of 7-skill level personnel perform supervisory and management functions.

TABLE 8

REPRESENTATIVE TASKS PERFORMED
BY DAFSC 4H031 PERSONNEL
(N=70)

SELECTED TASKS		PERCENT MEMBERS PERFORMING
A24	Perform arterial punctures	94
A1	Administer medications	90
E167	Instruct patients in use of handheld or updraft nebulizers	89
E194	Set up nebulizers	89
E178	Perform routine ventilator checks	86
A13	Clean and disinfect nondisposable cardiopulmonary equipment or components	86
A31	Perform universal precaution procedures	84
E195	Set up oxygen delivery devices	84
A30	Perform pulse oximeter tests	84
A37	Practice infection control procedures	83
E185	Record patient respiratory therapy results	83
E179	Perform suctioning procedures	83
E170	Monitor bronchodialator therapies	81
A29	Perform blood-gas analyses	81
E155	Adjust ventilator settings	80
E164	connect flow meters	80
E199	Set up volume ventilators	80
A39	Prepare medications	79
A2	Assemble or disassemble nondisposable cardiopulmonary equipment components	79
A20	Interpret arterial blood-gasses	79
A17	Dispose of contaminated materials	79
E198	Set up respiratory therapy alarms	77
E154	Adjust respiratory therapy alarms	77
E183	Perform user maintenance on volume ventilators	77
A27	Perform blood-gas quality control procedures	76
E186	Record progress of respiratory therapy treatment	74
A11	Calibrate blood-gas analyzers	74
A12	Calibrate CO-oximeters	70
A50	take and record vital signs	70

Average number of tasks performed = 77

TABLE 9

REPRESENTATIVE TASKS PERFORMED
BY DAFSC 4H051 PERSONNEL
(N=150)

	SELECTED TASKS	PERCENT MEMBERS PERFORMING
A31	Perform universal precaution procedures	83
A37	Practice infection control procedures	83
A18	Inspect cardiopulmonary equipment	80
A30	Perform pulse oximeter tests	80
A24	Perform arterial punctures	77
A13	Clean and disinfect nondisposable cardiopulmonary equipment or components	77
A50	Take and record vital signs	73
A1	Administer medications	73
A17	Dispose of contaminated materials	72
A2	Assemble or disassemble nondisposable cardiopulmonary equipment components	71
A20	Interpret arterial blood-gasses	68
E194	Set up nebulizers	67
A39	Prepare medications	67
E164	Connect flow meters	67
E195	Set up oxygen delivery devices	65
A26	Perform blood-gas analyses	64
E167	Instruct patients in use of handheld or updraft nebulizers	62
E155	Adjust ventilator settings	62
A16	Compile physiological data for computer input, such as height, weight, and age	60
A19	Interpret arrhythmias	60
A21	Monitor electrocardiographic (ECG) tests	59
E178	Perform routine ventilator checks	59
C98	Perform ECG tests	57
E185	Record patient respiratory therapy results	57
C80	Assess and report ECG test results to physician	55
A14	Clean patient treatment or examination rooms	54
A45	Set up treadmill equipment	53
A8	Assist physician in performing treadmill tests	52
A41	Prepare patients for treadmill tests	52
C118	Set up exercise stress test equipment and materials	49
C112	Prepare patients for exercise stress tests	49

Average number of tasks performed = 84

TABLE 10

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

SELECTED TASKS		DAFSC 4H031 (N=70)	DAFSC 4H051 (N=150)	DIFF
E183	Perform user maintenance on volume ventilators	77	46	31
E182	Perform user maintenance on pressure ventilators	70	41	29
E184	Perform user maintenance on Wright respirometers	60	33	27
E169	Maintain open airways	71	45	26
E162	Calculate dosage and strengths of respiratory therapy medications	71	45	26
E167	Instruct patients in use of handheld or updraft nebulizers	89	62	27
E166	Instruct patients in specialized breathing	79	52	27
E178	Perform routine ventilator checks	86	59	27
E185	Record patient respiratory therapy results	83	57	26
F210	Maintain general correspondence, files, records, or laboratory reports	17	49	-32
A46	Set up video equipment	4	35	-31
F220	Schedule patients for treatments	14	41	-27
H295	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	10	37	-27
F211	Maintain patient appointment records	10	37	-27
G227	Counsel trainees on training progress	4	31	-27
F204	Coordinate purchase of special equipment or medical supplies with medical material personnel or vendors	4	31	-27
G225	Conduct OJT	16	41	-25
H257	Conduct supervisory performance feedback sessions	0	25	-25

TABLE 11

REPRESENTATIVE TASKS PERFORMED
BY DAFSC 4H071 PERSONNEL
(N=86)

	SELECTED TASKS	PERCENT MEMBERS PERFORMING
A31	Perform universal precaution procedures	85
A37	Practice infection control procedures	83
H258	Counsel subordinates concerning personal matters	77
A18	Inspect cardiopulmonary equipment	77
H307	Supervise military personnel	76
F210	Maintain general correspondence, files, records, or laboratory reports	76
H257	Conduct supervisory performance feedback sessions	76
H295	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	74
G236	Evaluate progress of trainees	73
G227	Counsel trainees on training progress	73
A24	Perform arterial punctures	73
G225	Conduct OJT	72
H310	Write performance reports or supervisory appraisals	67
H283	Evaluate personnel for compliance with performance standards	67
H261	Determine or establish work assignments or priorities	67
A50	Take and record vital signs	67
H259	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	65
A19	Interpret arrhythimias	65
G235	Evaluate personnel to determine training needs	63
H293	Interpret policies, directives, or procedures for subordinates	63
H254	Conduct self-inspections or self-assessments	62
H264	Develop or establish work schedules	62
G228	Determine training requirements	62
H249	Assign personnel to work areas or duty positions	60
F207	Initiate requisitions for equipment or supplies	59
A21	Monitor electrocardiographic (ECG) tests	58
F214	Maintain stock levels of general supplies or forms	57
F211	Maintain patient appointment records	47

Average number of tasks performed = 112

TABLE 12

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

SELECTED TASKS		DAFSC 4H051 (N=150)	DAFSC 4H071 (N=86)	DIFF
A15	Collect gas samples	50	36	14
E179	Perform suctioning procedures	60	48	12
E192	Set up IPPB equipment	25	13	12
A30	Perform pulse oximeter tests	77	66	11
A13	Clean and disinfect nondisposable cardiopulmonary equipment or components	49	38	11
E188	Set up continuous positive airway pressure (CPAP) devices	67	56	11
E194	Set up nebulizers	72	62	10
E198	Set up respiratory therapy alarms	57	48	9
A29	Perform CO-oximeter tests	52	44	8
E196	Set up positive end expiratory pressure (PEEP) devices	49	42	7
H258	Counsel subordinates concerning personal matters	25	77	-52
H257	Conduct supervisory performance feedback sessions	25	76	-51
H259	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	16	65	-49
H256	Conduct supervisory orientations for newly assigned personnel	14	63	-49
H293	Interpret policies, directives, or procedures for subordinates	14	63	-49
H283	Evaluate personnel for compliance with performance standards	19	67	-48
H292	Inspect personnel for compliance with military standards	17	65	-48
G228	Determine training requirements	15	62	-47
H307	Supervise military personnel	29	76	-47
H274	Establish performance standards for subordinates	13	58	-45

DAFSC 4H091/4H000. The 3 senior NCOs in this 9-skill level/CEM group constitute 1 percent of the survey sample and perform an average of 82 tasks. One-hundred percent of these 9-skill level/CEM members are in the Cardiopulmonary Laboratory Management Job (see Table 6). Table 7 shows that 86 percent of their relative job time is spent in the supervisory, management, and training duties (i.e., Duties G, and H). An additional 7 percent of their relative job time is spent on administrative functions. Table 13 clearly shows the breadth of supervisory and management functions 9-skill level and CEMs perform. It also reflects that these senior NCOs perform limited technical AFSC-specific tasks, accounting for only 9 percent of their relative job time. Table 14 displays those tasks that clearly show the differences between the 7-skill level and the 9-skill level/CEM groups. It also clearly reflects the upper-level management responsibilities' incumbent to the 9-skill levels/CEMs.

Summary

Progression in this career ladder follows a regular pattern of highly technical tasks focused at the lower skill levels, with a broadening into supervisory and management tasks. The 3-, 5-, and 7-skill level airmen perform many tasks in common and each group spends the vast majority of their relative job time on common respiratory therapy, pulmonary, and cardiovascular activities. The 5- and 7-skill level groups are performing similar technical tasks, with the exception of the 7-skill level members who perform some supervisory and management tasks. The 9-skill level/CEM group reflects upper level supervisory and management responsibilities.

ANALYSIS OF AFMAN 36-2108 *SPECIALTY DESCRIPTION*

Survey data were compared to the AFMAN 36-2108 *Specialty Description* for Cardiopulmonary Laboratory Apprentice, Cardiopulmonary Laboratory Journeyman, Cardiopulmonary Laboratory Craftsman, and Cardiopulmonary Laboratory Superintendent, all dated 31 October 1993.

The 3-/5-skill level specialty description appears complete and accurately portrays the range and technical nature of the job. The description for the Cardiopulmonary Laboratory Craftsman (AFSC 4H071) accurately reflects both the supervisory and the previously discussed technical nature of the job. The 9-skill level/CEM specialty description accurately reflects the dominance of supervisory and management activities performed by these members.

TABLE 13

REPRESENTATIVE TASKS PERFORMED
BY DAFSC 4H091/4H000 PERSONNEL
(N=3)

SELECTED TASKS		PERCENT MEMBERS PERFORMING
H268	Direct administrative functions	100
H306	Supervise civilian employees	100
H307	Supervise military personnel	100
H295	Participate in general meetings, such as staff meetings, briefings, conferences, or workshops, other than conducting	100
H258	Counsel subordinates concerning personal matters	100
G228	Determine training requirements	100
H311	Write recommendations for awards or decorations	100
H310	Write performance reports or supervisory appraisals	100
H293	Interpret policies, directives, or procedures for subordinates	100
H274	Establish performance standards for subordinates	100
H259	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	100
H300	Plan or schedule work assignments or priorities	100
H252	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	100
H257	Conduct supervisory performance feedback sessions	100
H273	Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	100
H296	Plan briefings, conferences, or workshops	100
G222	Assign formal course instructions or on-the-job training (OJT) trainers or certifiers	100
H289	Indorse performance reports or supervisory appraisals	100
H309	Write job or position descriptions	100
H263	Develop or establish work methods or procedures	100
H261	Determine or establish work assignments or priorities	100
H270	Draft agenda for general meetings, such as staff meetings, briefings, conferences, or workshops	100
H249	Assign personnel to work areas or duty positions	100
H269	Direct training functions	100
H304	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	100
H291	Initiate personnel action requests	100
F210	Maintain general correspondence, files, records, or laboratory reports	67
G227	Counsel trainees on training progress	67
G234	Evaluate effectiveness of training programs, plans, or procedures	67
H253	Conduct safety inspections of equipment or facilities	67

Average number of tasks performed: 82

TABLE 14

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 4H071 AND DAFSC 4H091/4H000 PERSONNEL
(PERCENT MEMBERS PERFORMING)

	SELECTED TASKS	DAFSC 4H071 (N=86)	DAFSC 4H091/4H000 (N=3)	DIFF
G236	Evaluate progress of trainees	73	0	73
A2	Assemble or disassemble nondisposable cardiopulmonary	72	0	72
A38	Prepare cardiopulmonary equipment for sterilization	67	0	67
A50	Take and record vital signs	67	0	67
A19	Interpret arrhythmias	65	0	65
E164	Connect flow meters	60	0	60
A16	Compile physiological data for computer input, such as height, weight, and age	58	0	58
G240	Maintain training records or files	58	0	58
F214	Maintain stock levels of general supplies or forms	57	0	57
A31	Instruct patients in use of handheld or updraft nebulizers	56	0	56
H308	Write inspection reports	15	100	-85
H265	Develop organizational or functional charts	20	100	-80
H270	Draft agenda for general meetings, such as staff meetings, briefings, conferences, or workshops	24	100	-76
H262	Develop inputs to mobility, contingency, disaster preparedness, or unit emergency or alert plans	27	100	-73
H291	Initiate personnel action requests	29	100	-71
H306	Supervise civilian employees	29	100	-71
H296	Plan briefings, conferences, or workshops	33	100	-67
H276	Evaluate accident or incident reports	34	100	-66
H250	Assign sponsors for newly assigned personnel	34	100	-66
H289	Indorse performance reports or supervisory appraisals	35	100	-65

ANALYSIS OF MAJCOMs

The tasks and background data for personnel of the seven MAJCOMs with the largest AFSC 4H0X1 populations were compared to determine whether job content varied as a function of command assignment. Generally, the jobs performed across the commands were similar, with only minor differences noted. The largest percentage of relative job time in each command is committed to tasks covering the performance of common respiratory therapy, pulmonary, or cardiovascular activities (see Table 15).

TRAINING ANALYSIS

One of the 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 is the OSR. Factors which may be used in evaluating training include the overall description of the job being performed by first-enlistment personnel and their overall distribution across career ladder jobs, percentages of first-job (1-24 months TAFMS) or first-enlistment (1-48 months TAFMS) members performing specific tasks, or using certain equipment or tools, as well as TE and TD ratings (previously explained in the **SURVEY METHODOLOGY** section).

To assist specifically in evaluation of the STS, technical school personnel from the 381 TRS/CSC matched JI tasks to appropriate sections and subsections of the Cardiopulmonary Laboratory STS for course J3AQR4H031 (Phase I) dated July 1995. It was this matching upon which comparison to those documents was based. A complete computer listing displaying the percent members performing tasks, TE and TD ratings for each task, along with the STS matching, has been forwarded to the technical school for the use in further detailed reviews of appropriate training documents. A summary of this information is presented below.

First-Enlistment Personnel

In this study, there are 101 members in their first enlistment (1-48 months TAFMS), representing 33 percent of the total survey sample. The activities performed by these personnel are highly technical in nature, accounting for approximately 94 percent of their relative duty time (see Table 16). Reviewing Table 16, it is clearly evident that first-enlistment personnel are spending most of their time performing tasks under Duty A (Performing Common Respiratory Therapy, Pulmonary, or Cardiovascular Activities) and Duty E (Performing Respiratory Therapy Activities). Distribution of first-enlistment personnel across the career ladder jobs is displayed in Figure 2, which shows that the largest percentage of first-enlistment airmen work in the Respiratory Therapy Job (58 percent). Table 17 lists representative tasks performed by these members and shows that most tasks relate to respiratory therapy activities.

TABLE 15

PERCENT TIME SPENT ON DUTIES BY MAJCOM GROUPS

DUTIES	USAFE (N=11)	USAFA (N=5)	AETC (N=93)	PACAF (N=10)	ACC (N=36)	AMC (N=90)	AFMC (N=61)
A PERFORMING COMMON RESPIRATORY THERAPY, PULMONARY, OR CARDIOVASCULAR ACTIVITIES	32	28	27	23	29	33	28
B PERFORMING INVASIVE CARDIOVASCULAR ACTIVITIES	2	-	4	*	*	*	2
C PERFORMING NONINVASIVE CARDIOVASCULAR ACTIVITIES	9	23	10	18	21	12	15
D PERFORMING PULMONARY LABORATORY ACTIVITIES	9	10	5	8	7	6	6
E PERFORMING RESPIRATORY THERAPY ACTIVITIES	24	19	30	19	16	27	21
F PERFORMING ADMINISTRATIVE OR SUPPLY ACTIVITIES	5	8	6	9	9	7	6
G PERFORMING TRAINING ACTIVITIES	4	2	6	7	4	6	6
H PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	14	10	12	16	13	8	16

* Denotes less than 1 percent
\- Denotes duty not performed

NOTE: Columns may not add up to 100 percent due to rounding

TABLE 16

RELATIVE PERCENT OF TIME SPENT ACROSS DUTIES
BY FIRST-ENLISTMENT PERSONNEL

DUTIES	PERCENT TIME SPENT
A. PERFORMING COMMON RESPIRATORY THERAPY, PULMONARY, OR CARDIOVASCULAR ACTIVITIES	37
B. PERFORMING INVASIVE CARDIOVASCULAR ACTIVITIES	-
C. PERFORMING NONINVASIVE CARDIOVASCULAR ACTIVITIES	12
D. PERFORMING PULMONARY LABORATORY ACTIVITIES	7
E. PERFORMING RESPIRATORY THERAPY ACTIVITIES	38
F. PERFORMING ADMINISTRATIVE OR SUPPLY ACTIVITIES	5
G. PERFORMING TRAINING ACTIVITIES	-
H. PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	-

- Denotes less than 1 percent

NOTE: Columns may not add up to 100 percent due to rounding

CARDIOPULMONARY LABORATORY FIRST-ENLISTMENT JOBS (N=101)

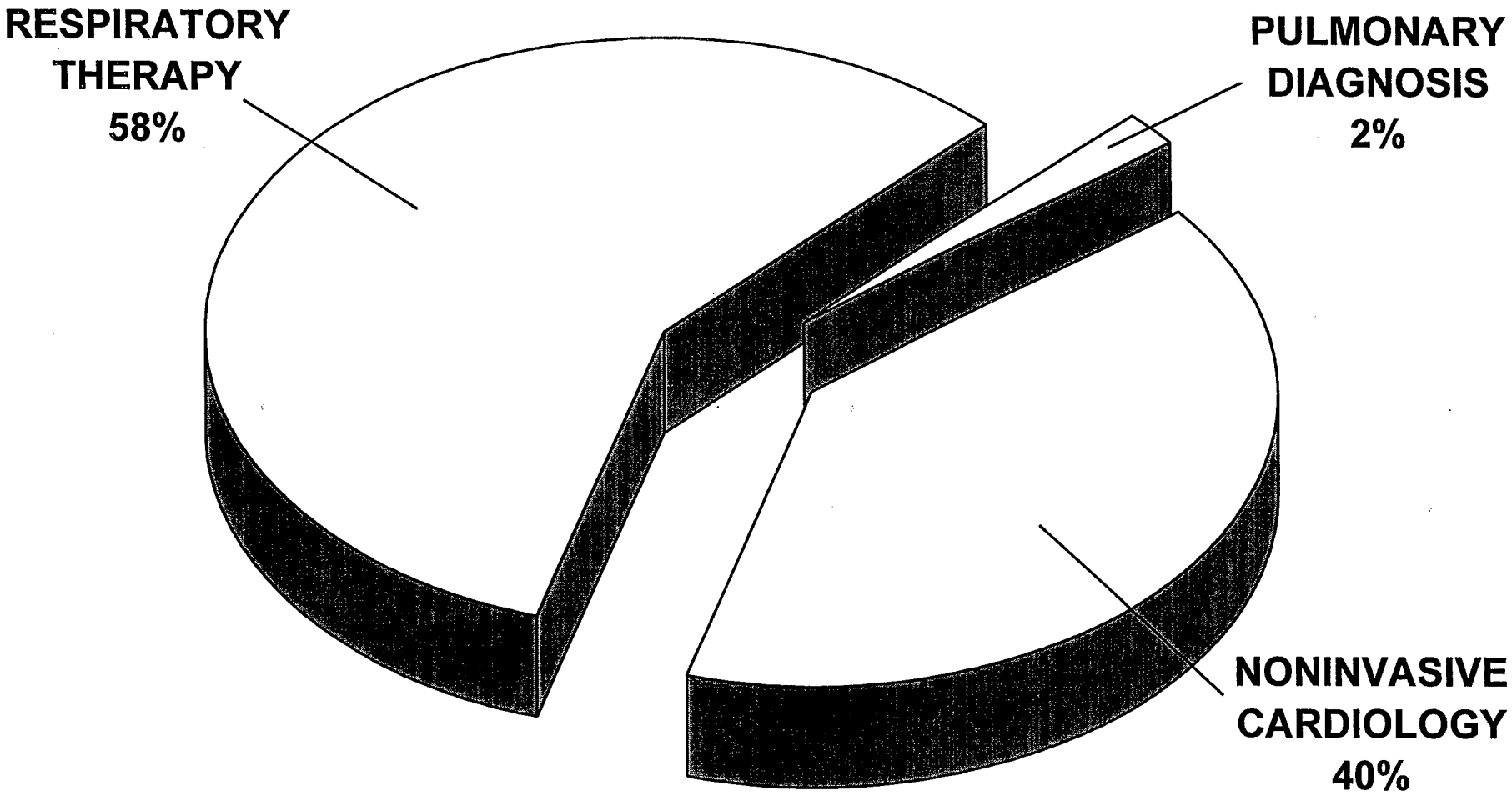

FIGURE 2

TABLE 17

REPRESENTATIVE TASKS PERFORMED BY
FIRST-ENLISTMENT PERSONNEL

SELECTED TASKS		PERCENT MEMBERS PERFORMING (N=101)
A24	Perform arterial punctures	94
A1	Administer medications	89
A31	Perform universal precautions procedures	86
E194	Set up nebulizers	86
E167	Instruct patients in use of handheld or updraft nebulizers	86
E178	Perform routine ventilator checks	83
A30	Perform pulse oximeter tests	83
A37	Practice infection control procedures	81
A39	Prepare medications	80
E185	Record patient respiratory therapy results	80
E195	Set up oxygen delivery devices	80
A26	Perform blood-gas analyses	80
A13	Clean and disinfect nondisposable cardiopulmonary equipment or components	80
A20	Interpret arterial blood-gasses	80
E155	Adjust ventilator settings	79
E179	Perform suctioning procedures	79
E164	Connect flow meters	79
E199	Set up volume ventilators	78
E170	Monitor bronchodialator therapies	77
E190	Set up humidifiers	77
E198	Set up respiratory therapy alarms	76
E154	Adjust respiratory therapy alarms	76
A2	Assemble or disassemble nondisposable cardiopulmonary equipment components	76
A27	Perform blood-gas quality control procedures	73
A50	Take and record vital signs	73
E196	Set up positive end expiratory pressure (PEEP) devices	72
A11	Calibrate blood-gas analyzers	71
E186	Record progress of respiratory therapy treatment	70

Average number of tasks performed = 76

One of the objectives of this survey project was to gather data for the training wing pertaining to the various types of equipment used, operated, or maintained. Accordingly, Table 18 presents percentages of first-enlistment airmen responding to this question concerning their activities involving these items. Information was gathered on 71 different types of equipment. Thirty-nine different types of equipment had responses of greater than 50 percent members performing. This table illustrates the large variety of equipment by a large percentage of these members to perform their job. This type of information is useful for both technical school and MAJCOM training personnel to assist them in focusing limited training time or other resources on the most utilized items.

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 training (TE) (see Table 19 for the top-rated tasks) along with a measure of the difficulty (TD) of the JI tasks (see top rated tasks presented in Table 20). A total of 23 tasks were rated high in TE, having a rating of over 5.60, with 100 percent of these tasks matched to the STS. Tasks rated highest in TE are technical tasks which include: performing cardiopulmonary resuscitation, performing arterial punctures, preparing medications, adjusting ventilator settings, setting up volume ventilators, and performing universal precaution procedures. Although these tasks are rated high in TE and viewed as necessary for training of first-enlistment personnel, many of these tasks are for the most part not viewed as difficult to learn. Technical tasks receiving highest TD ratings relate to: Duty B, Invasive Cardiovascular Activities. 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, Occupational Analysis Program, and allows course personnel to quickly focus their attention on those tasks which are most likely to qualify for initial resident course consideration.

TABLE 18

EQUIPMENT ITEMS USED BY MORE THAN 50 PERCENT OF FIRST-JOB OR FIRST-ENLISTMENT AFSC 4H0X1 PERSONNEL

EQUIPMENT	PERCENT MEMBERS USING 1ST JOB (N=55)	1ST ENL (N=101)
Analyzers, Blood-Gas	80	82
Analyzers, Computerized Pulmonary Function	51	49
Analyzers, Gas, Other than Blood-Gas	58	55
Barometers	36	37
Bi-Level Postitive Airway Pressure (BiPAP) Equipment	64	65
Bronchoscopy Light Sources	36	36
Calculators	75	72
Compressors	64	64
Continuous Positive Airway Pressure (CPAP) Equipment	71	75
Co-Oximeters	78	79
Defibrillators	40	46
Devices, Humidification	87	86
Devices, Incentive Spirometer	87	88
Diffusing Capacity Measurement Systems	36	39
Echocardiography Systems, Doppler	33	31
Echocardiography Systems, M-Mode	36	33
Echocardiography Systems, Two Dimensional	31	30
Electrocardiographic Machines	55	53
Equipment Dryers	44	39
Flow Meters	87	88
Holter Monitor Equipment	45	46
Monitors, End Tidal C02	38	41
Nebulizers, Handheld	96	93
Nebulizers, Ultrasonic	47	46
Negative Inspiratory Force Meters	73	75
Oximeters	75	75
Oxygen Blenders	78	74
02 Concentrators	56	48
Pressure Regulators	47	49
Programmable Computers	36	33
Respirometers	38	43
Resuscitation Bags	78	87
Small Particle Aerosol Generators (SPAGs)	40	37
Spirometers	67	67
Suction Machines	84	85
Treadmills	47	48
Ventilators, High Frequency	55	47
Ventilators, Pressure	80	79
Ventilators, Volume	87	86

TABLE 19

DAFSC 4H0X1 TASKS WITH HIGHEST TRAINING EMPHASIS RATINGS

		TNG EMP*	% MBRS PERFORMING 1ST JOB (N=55)	% MBRS PERFORMING 1ST ENL (N=101)	TASK DIFF**
A28	Perform cardiopulmonary resuscitation (CPR)	8.48	67	73	5.16
A24	Perform arterial punctures	8.05	95	94	5.59
A19	Interpret arrhythmias	7.90	51	55	6.78
A39	Prepare medications	7.81	78	80	4.06
E155	Adjust ventilator settings	7.62	76	79	5.01
A20	Interpret arterial blood-gasses	7.57	76	80	6.58
E199	Set up volume ventilators	7.48	76	78	5.76
A26	Perform blood-gas analyses	7.38	80	80	4.94
E197	Set up pressure ventilators	7.29	75	73	5.74
A31	Perform universal precaution procedures	7.29	84	86	3.03
C114	Scan Holter-monitoring tapes for abnormalities	7.19	42	40	5.89
E198	Set up respiratory therapy alarms	7.10	73	76	5.04
E179	Perform suctioning procedures	7.10	78	79	5.27
E162	Calculate dosage and strengths of respiratory therapy medications	7.00	65	62	5.77
E154	Adjust respiratory therapy alarms	7.00	73	76	4.31
A37	Practice infection control procedures	6.95	80	81	3.55
E156	Administer emergency treatment for adverse reactions to respiratory medications	6.95	36	43	5.38
A27	Perform blood-gas quality control procedures	6.86	75	73	5.08
A1	Administer medications	6.81	91	89	4.25
C102	Perform Holter-monitoring tests	6.81	44	43	4.74
C98	Perform ECG tests	6.76	53	52	4.15
E161	Assist physician in weaning patients from ventilators	6.67	76	77	6.41
E178	Perform routine ventilator checks	6.67	84	83	5.03

* TE MEAN = 3.44; SD = 2.16

** TD MEAN =5.00; SD = 1.00

TABLE 20

DAFSC 4H0X1 TASKS WITH HIGHEST TASK DIFFICULTY RATINGS

			PERCENT MEMBERS PERFORMING				
		TASK DIFF*	1ST JOB (N=55)	1ST ENL (N=101)	DAFSC 4H051	DAFSC 4H071	TNG EMP
B55	Assist physician in performing balloon pump insertions	7.53	0	0	8	7	1.71
B57	Assist physician in performing coronary arteriographs	7.49	0	0	9	6	1.71
B60	Assist physician in performing electrophysiology (EP) studies	7.38	0	0	4	7	1.62
B53	Assist physician in performing angioplasties	7.37	0	0	5	7	1.86
B58	Assist physician in performing coronary atherectomy procedures	7.37	0	0	3	1	1.14
B62	Assist physician in performing stent insertions	7.35	0	0	5	8	1.57
B54	Assist physician in performing atrioventricular (AV) nodal ablations	7.33	0	0	4	3	1.19
B56	Assist physician in performing cardiac pacemaker insertions	7.33	0	0	8	6	1.43
B52	Assist physician in performing angiographs	7.32	0	0	8	8	1.90
B59	Assist physician in performing coronary ultrasound procedures	7.29	0	0	3	3	1.29
B61	assist physician in performing shunt detections	7.28	4	2	9	6	1.62
C100	Perform exercise echocardiograms	7.26	20	12	16	20	5.38
C96	Perform cardiac-doppler echocardiograms	7.03	25	23	28	26	5.67
B63	Assist physician in performing thrombolytic therapy	7.01	0	0	4	2	1.52
B74	Set up AV nodal ablations	6.90	0	0	3	3	1.14
B64	Calculate results of catheterization procedures	6.90	0	0	7	7	1.62
C97	Perform color-doppler echocardiograms	6.90	29	25	29	26	5.76
C88	Assist physician in performing transesophageal echocardiograph studies	6.87	18	13	19	14	4.33
C81	Assess and report echocardiogram test results to physician	6.84	24	23	33	26	5.48

TD MEAN = 5.00 SD = 1.00
TE MEAN = 3.44 SD = 2.16

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 technical school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the **SURVEY METHODOLOGY** section of this report.)

Specialty Training Standard (STS)

A comprehensive review of STS 4H0X1, dated July 1995, compared survey data to STS items. STS paragraphs containing general knowledge information, mandatory entries, and subject-matter-knowledge elements were not reviewed. Elements with performance objectives were compared against the standard set forth in AETCI 36-2601, paragraph 2.2. Typically, STS sections and subsections matched to tasks which have sufficiently high TE and TD ratings, and are performed by at least 20 percent of personnel in appropriate experience or skill-level groups (such as first-enlistment (1-48 months TAFMS) and 5- and 7-skill level groups), are considered to be supported and should be considered for inclusion in the STS. Likewise, paragraphs having tasks with less than 20 percent performing across all of the criterion groups should be considered for deletion from the STS.

Using this criterion, STS 4H0X1 was found to be well supported by occupational survey data. Overall, the STS captures the work performed by this career ladder as identified by the career ladder structure analysis of this AFSC. Even though some elements did not have high percentages of personnel performing matched tasks, the fact that the supporting tasks were part of an identifiable job being performed in the career ladder supports the retention of the STS element involving those tasks.

Tasks not matched to any entry of the STS are listed at the end of the STS computer listing. These were reviewed extensively to determine if there were any technical tasks concentrated around any critical functions or jobs. The data show all unreferenced tasks centered around performing management and supervisory activities (Duty H).

Plan of Instruction (POI)

An analysis of the POI for course J3AQR4H031 was not conducted for this report due to the recent revisions being worked at the technical training school.

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 which may affect the job performance of airmen in the career ladder. Questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey booklet 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 1995. This data can give a relative measure of how the job satisfaction of AFSC 4H0X1 personnel compares with other similar Air Force specialties. Review of Table 24 reflects that responses from AFSC 4H0X1 TAFMS groups regarding job interest, use of talents, use of training, and sense of accomplishment gained from work are all positive (81 percent or more). For one group (1-48 months TAFMS) in the current study, lower positive responses were noted in reenlistment intentions than for the comparative sample.

An indication of how job satisfaction perceptions have changed over time is provided in Table 22, where again TAFMS data for 1996 survey respondents are presented, along with data from respondents in the last OSR involving this career ladder, published in 1990 (AFSC 904X0). Comparison of job satisfaction indicator responses of the current survey TAFMS groups to those in the 1990 survey indicates that current job satisfaction responses are somewhat higher than those in 1990. The most notable exception is the somewhat lower positive responses concerning reenlistment intentions by the current survey in the 49-96 months TAFMS group compared to those in 1990. Expressed job interest for the 1-48 months TAFMS group and 97+ TAFMS group are significantly higher, along with perceived use of talents for the 1-48 months TAFMS, 97+ months TAFMS, and perceived use of training for all TAFMS groups.

Finally, Table 23 presents job satisfaction responses from personnel in the specialty jobs discussed in the **SPECIALTY JOBS** section of this report. An examination of these data can show how overall job satisfaction may be influenced by the type of job performed. Review of the job satisfaction data for the Cardiopulmonary Laboratory career ladder reveals generally positive responses in the five job satisfaction indicators across all jobs.

A few jobs within this study revealed low ratings for some of the five job satisfaction indicators. Personnel in the Pulmonary Diagnosis Job revealed only 69 percent responding positively to sense of accomplishment from their job. Personnel in the Respiratory Therapy and Noninvasive Cardiology jobs show low reenlistment intentions, while the Invasive Cardiology and Pulmonary Diagnosis jobs show high reenlistment intentions.

TABLE 21

JOB SATISFACTION INDICATORS FOR AFSC 4H0X1 TAFMS GROUPS
IN CURRENT STUDY TO A COMPARATIVE SAMPLE
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	AFSC 4H0X1 (N=101)	COMP SAMPLE (N=518)	AFSC 4H0X1 (N=69)	COMP SAMPLE (N=427)	AFSC 4H0X1 (N=139)	COMP SAMPLE (N=725)
EXPRESSED JOB INTEREST:						
INTERESTING	96	86	90	87	93	84
SO-SO	3	10	7	8	6	11
DULL	*	4	1	5	1	5
NONRESPONSE	-	-	1	-	-	-
PERCEIVED USE OF TALENTS:						
FAIRLY WELL TO VERY WELL	94	88	89	91	93	88
NONE TO VERY LITTLE	6	11	10	8	6	11
NONRESPONSE	-	-	-	1	-	-
PERCEIVED USE OF TRAINING:						
FAIRLY WELL TO PERFECT	96	90	88	91	91	82
NONE TO VERY LITTLE	4	9	12	9	9	17
SENSE OF ACCOMPLISHMENT FROM JOB:						
SATISFIED	90	51	81	63	81	69
NEUTRAL	6	49	13	36	6	9
DISSATISFIED	4	0	6	1	13	22
REENLISTMENT INTENTIONS:						
YES OR PROBABLY YES	53	51	53	81	76	77
NO OR PROBABLY NO	45	49	45	9	8	9
WILL RETIRE	1	0	1	10	16	14

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding or nonresponse
Comparative data are from AFSCs 4A2X1, 4T0X1, and 4T0X2 surveyed in 1995

TABLE 22

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 4H0X1
TAFMS GROUPS IN CURRENT STUDY TO PREVIOUS STUDY FOR
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	CURRENT 4H0X1 (N=101)	1990 (N=56)	CURRENT 4H0X1 (N=69)	1990 (N=61)	CURRENT 4H0X1 (N=139)	1990 (N=88)
EXPRESSED JOB INTEREST:						
INTERESTING	96	84	90	92	93	80
SO-SO	3	5	7	3	6	14
DULL	*	11	1	5	*	5
NONRESPONSE	-	-	1	-	-	
PERCEIVED USE OF TALENTS:						
FAIRLY WELL TO PERFECT	94	84	89	90	93	83
NONE TO VERY LITTLE	6	16	10	10	6	17
PERCEIVED USE OF TRAINING:						
FAIRLY WELL TO PERFECT	96	82	88	90	91	86
NONE TO VERY LITTLE	4	18	12	15	9	14
SENSE OF ACCOMPLISHMENT FROM JOB:						
SATISFIED	90	73	81	82	81	74
NEUTRAL	6	9	13	3	6	8
DISSATISFIED	4	18	6	15	13	15
NONRESPONSE	-	-	-	-	-	3
REENLISTMENT INTENTIONS:						
YES OR PROBABLY YES	53	54	53	62	76	52
NO OR PROBABLY NO	45	46	45	36	8	12
WILL RETIRE	1	0	1	2	16	35

* Less than 1 percent

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

TABLE 23

JOB SATISFACTION INDICATORS FOR AFSC 4H0X1 JOB GROUPS
(PERCENT MEMBERS RESPONDING)

	RESP THERAPY (ST016)	NON INVASIVE CARDIOLOGY (ST013)	PULMONARY DIAGNOSIS (ST012)	INVASIVE CARDIOLOGY (ST017)	CARDIO-PULMONARY LAB MGT (ST015)
EXPRESSED JOB INTEREST:					
INTERESTING	96	90	88	100	92
SO-SO	3	8	12	0	8
DULL	1	2	0	0	0
PERCEIVED USE OF TALENTS:					
FAIRLY WELL TO PERFECT	94	90	100	100	96
NONE TO VERY LITTLE	5	10	0	0	4
PERCEIVED USE OF TRAINING:					
FAIRLY WELL TO PERFECT	95	91	94	82	92
NONE TO VERY LITTLE	5	9	6	18	8
SENSE OF ACCOMPLISHMENT FROM JOB:					
SATISFIED	87	82	69	94	80
NEUTRAL	8	8	25	0	0
DISSATISFIED	5	10	6	6	20
REENLISTMENT INTENTIONS:					
YES OR PROBABLY YES	58	64	81	82	60
NO OR PROBABLY NO	33	32	6	18	8
WILL RETIRE	8	3	13	0	32

NOTE: Columns may not add to 100 percent due to rounding or nonresponse

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.

Overall, survey data for the Cardiopulmonary Laboratory career ladder reflects a well functioning career ladder. Personnel progress typically through the career ladder, with 3- and 5-skill level members performing technical tasks, 7-skill level members performing a mixture of technical and supervisory functions, and 9-/CEM skill level members performing career ladder management tasks. Survey data show the AFMAN 36-2108 Specialty Description accurately reflects the jobs and tasks currently being performed in the career ladder.

Survey results described in the **SPECIALTY JOB** section clearly suggest that the Cardiopulmonary Laboratory career ladder has seen only minor changes in career structure since the previous survey in 1990. The basic premise of performing respiratory therapy, cardiopulmonary, and cardiovascular activities has remained constant. Personnel in the Noninvasive Cardiology Job make up the bulk of the career ladder and perform a job broader in scope than any other job identified in the career ladder. STS 4H0XI is well supported by occupational survey data.

Members of the Cardiopulmonary Laboratory specialty appear to be extremely satisfied with their jobs, with job satisfaction indicators generally higher than those in the 1990 survey. The most notable exception is the somewhat lower positive responses concerning reenlistment intentions by the current survey in the 49-96 months TAFMS group compared to those in 1990.

APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY SPECIALTY JOB GROUPS

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TABLE I

RESPIRATORY THERAPY JOB
(ST016)

GROUP SIZE: 118
PERCENT OF SAMPLE: 38%
PREDOMINANT GRADE: E-4/3
AVERAGE NUMBER OF TASKS PERFORMED: 82

AVERAGE TICF: 47 MOS
AVERAGE TAFMS: 79 MOS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING
E178	Perform routine ventilator checks	100
E194	Set up nebulizers	99
E195	Set up oxygen delivery devices	99
E155	Adjust ventilator settings	99
E179	Perform suctioning procedures	99
E198	Set up respiratory therapy alarms	99
A24	Perform arterial punctures	99
A1	Administer medications	98
E185	Record patient respiratory therapy results	98
E199	Set up volume ventilators	98
E164	Connect flow meters	97
E154	Adjust respiratory therapy alarms	97
E190	Set up humidifiers	97
E196	Set up positive end expiratory pressure (PEEP) devices	96
E161	Assist physician in weaning patients form ventilators	96
E197	Set up pressure ventilators	96
E167	Instruct patients in use of handheld or updraft nebulizers	95
E170	Monitor bronchodialator therapies	95
E186	Record progress of respiratory therapy treatment	94
E188	Set up continuous positive airway pressure (CPAP) devices	93
E159	Assist physician in performing extubation procedures	92
A39	Prepare medications	91
E168	Instruct patients in use of incentive spirometers	89
A26	Perform blood-gas analyses	87
A37	Practice infection control procedures	83

TABLE II

NONINVASIVE CARDIOLOGY JOB
(ST013)

GROUP SIZE: 121
PERCENT OF SAMPLE: 39%
PREDOMINANT GRADE: E-4/5
AVERAGE NUMBER OF TASKS PERFORMED: 107
AVERAGE TICF: 59 MOS
AVERAGE TAFMS: 87 MOS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
C98	Perform ECG tests	100
C102	Perform Holter-monitoring tests	100
C113	Prepare patients for Holter-monitoring tests	100
A8	Assist physician in performing treadmill tests	99
A41	Prepare patients for treadmill tests	99
C118	Set up exercise stress test equipment and materials	99
A45	Set up exercise stress test equipment and materials	99
C101	Perform exercise stress tests	98
C112	Prepare patients for exercise stress tests	98
C119	Set up Holter-monitoring equipment	98
A21	Monitor electrocardiographic (ECG) tests	95
C114	Scan Holter-monitoring tapes for abnormalities	94
C80	Assess and report ECG test results to physician	93
C83	Assess and report Holter-monitoring test results to physician	93
A43	Record treadmill test results	92
A19	Interpret arrhythmias	91
A37	Practice infection control procedures	88
A16	Compile physiological data for computer input, such as height, weight, and age	88
A18	Inspect cardiopulmonary equipment	88
A31	Perform universal precaution procedures	84
A50	Take and record vital signs	82
D143	Perform routine spirometery tests	77
D135	Perform flow/volume loop tests	75
A14	Clean patient treatment or examination rooms	74
A4	Assess treadmill test results	72
F203	Complete treadmill report forms	68

TABLE III

PULMONARY DIAGNOSIS JOB
(ST012)

GROUP SIZE: 16
PERCENT OF SAMPLE: 5%
PREDOMINANT GRADE: E-4/5
AVERAGE NUMBER OF TASKS PERFORMED: 79
AVERAGE TICF: 79 MOS
AVERAGE TAFMS: 106 MOS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
D143	Perform routine spirometery tests	100
D135	Perform flow/volume loop tests	100
D142	Perform postbronchodialator tests	100
D138	Perform lung diffusion tests	100
A24	Perform arterial punctures	100
A37	Practice infection control procedures	94
A31	Perform universal precaution procedures	94
D130	Perform body plethesmorgraph tests	94
A16	Compile physiological data for computer input, such as height, weight, and age	94
D152	Set up lung diffusion equipment	94
A26	Perform blood-gas analyses	94
D137	Perform home oxygen evaluations	94
A13	Clean and disinfect nondisposable cardiopulmonary equipment or components	94
A30	Perform pulse oximeter tests	93
D148	Perform user maintenance on pulmonary function systems	88
A23	Obtain patient histories	88
F206	Initiate or annotate pulmonary request forms	88
D146	Perform user maintenance on body plethesmographs	88
D151	Set up bronchoscopy equipment	82
D123	Assist physician in performing bronchoscopies	81
D147	Perform user maintenance on fiber-optic bronchoscopes	81
D149	Prepare biopsies for laboratory	81
A18	Inspect cardiopulmonary equipment	81
F210	Maintain general correspondence, files, records, or laboratory reports	75
A44	Set up spirometers	75

TABLE IV

INVASIVE CARDIOLOGY JOB
(ST017)

GROUP SIZE: 17
PERCENT OF SAMPLE: 6%
PREDOMINANT GRADE: E-5
AVERAGE NUMBER OF TASKS PERFORMED: 77
AVERAGE TICF: 87 MOS
AVERAGE TAFMS: 120 MOS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
B76	Set up cardiac catheterization trays	100
B78	Set up sterile fields	100
B72	Prepare site for catheter insertions	100
A17	Dispose of contaminated materials	100
A22	Monitor patients while transporting within hospital	100
A31	Perform universal precaution procedures	94
A37	Practice infection control procedures	94
A16	Compile physiological data for computer input, such as height, weight, and age	94
A19	Interpret arrhythmias	94
A47	Set up x-ray equipment	94
B77	Set up injectors	94
B66	Connect transducers to equipment	94
B55	Assist physician in performing balloon pump insertions	94
B52	Assist physician in performing angiographs	88
B57	Assist physician in performing coronary arteriographs	88
B71	Prepare injector solutions	88
A14	Clean patient treatment or examination rooms	88
A18	Inspect cardiopulmonary equipment	88
B70	Perform user maintenance on cineangiographic equipment	88
A33	Perform user maintenance on cardiac monitors	88
B68	Monitor balloon pumps	88
B73	Process cineangiographic films	82
B53	Assist physician in performing angioplasties	82
A21	Monitor electrocardiographic (ECG) tests	82
B69	Perform quality control procedures for cineangiographic equipment	82

TABLE V

CARDIOPULMONARY LAB MGT JOB
(ST015)

GROUP SIZE: 25
PERCENT OF SAMPLE: 8%
PREDOMINANT GRADE: E-6/7
AVERAGE NUMBER OF TASKS PERFORMED: 97

AVERAGE TICF: 121 MOS
AVERAGE TAFMS: 200 MOS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING:

TASKS		PERCENT MEMBERS PERFORMING
H258	Counsel subordinates concerning personal matters	100
H307	Supervise military personnel	96
H310	Write performance reports or supervisory appraisals	96
H293	Interpret policies, directives, or procedures for subordinates	96
H268	Direct administrative functions	92
H295	Participate in general meetings, such as staff meetings, briefings, conferences or workshops, other than conducting	92
H252	Conduct general meetings, such a staff meetings, briefings, conferences, or workshops	92
H249	Assign personnel to work areas or duty positions	92
H261	Determine or establish work assignments or priorities	92
H283	Evaluate personnel for compliance with performance standards	92
H311	Write recommendations for awards or decorations	92
H257	Conduct supervisory performance feedback sessions	88
H264	Develop or establish work schedules	88
H254	Conduct self-inspections or self-assessments	88
H273	Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	88
H290	Initiate actions required due to substandard performance of personnel	88
H256	Conduct supervisory orientations for newly assigned personnel	88
H287	Evaluate work schedules	84
H253	Conduct safety inspections or equipment or facilities	84
H259	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	80
H274	Establish performance standards for subordinates	80
H300	Plan or schedule work assignments or priorities	80
H304	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	80
F210	Maintain general correspondence, files, records, or laboratory reports	76
G228	Determine training requirements	76