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MEDICAL ATTRITION OF BATTLEFIELD AIRMEN TRAINEES

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14. ABSTRACT The Air Education and Training Command (AETC), tasked to identify methods to provide preventive medicine oversight and reduce injury risk related to physical training of Battlefield Airmen trainees, requested the U.S. Air Force School of Aerospace Medicine/Epidemiology Consult Service to identify types of injuries and illnesses that occurred in each course by week of training and location of training, to identify the injuries/illnesses to determine cost of treatment, to identify the training cost linked to injuries/illnesses (e.g., lost training days), and to provide recommendations for preventive medicine countermeasures. We queried the Technical Training Production Analysis (TTPA) section of the AETC Decision Support System (ADSS) for all training-related events from 1 January 2004 to 20 April 2010 and obtained medical encounter and cost data from the Military Health System Mart for all inpatient and outpatient military treatment facility care and all inpatient care rendered in a civilian hospital. There were 38 unique course identifiers in ADSS for Battlefield Airmen representing 7,953 different individuals. The attrition rate since 2004 for all courses combined was 51%. Medical-related training events accounted for 15% of all attrition. The highest rates were found for <u>Special Operaton Weathermen Slection</u> [sic], <u>Tactical Air Command and Control Apprentice</u> , <u>Pararescue Indoctrination</u> , <u>Tactical Air Control Party Apprentice</u> , <u>Pararescue Indoctrination Course (Enlisted)</u> , and <u>Combat Control Apprentice</u> . For most courses, the most frequent types of medical encounters were for either musculoskeletal diagnoses or respiratory illnesses. We recommend the following: expand the current ADSS/TTPA surveillance to include all training sites, including non-Air Force installations; allow for better capture of medical events occurring during training; enable specific medical oversight of Battlefield Airmen pipeline training; and provide more detailed evaluation of events and attrition for the courses that carry a disproportionately high burden of cost mentioned above.					
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TABLE OF CONTENTS

Section	Page
LIST OF FIGURES	ii
LIST OF TABLES	iii
ACKNOWLEDGMENTS	iv
1.0 EXECUTIVE SUMMARY	1
2.0 INTRODUCTION	2
3.0 METHODS	2
4.0 RESULTS AND DISCUSSION	4
4.1 Overview	4
4.2 Medical Attrition	4
4.3 Medical Encounters	12
4.4 Medical Costs	17
4.5 Lost Training Days	22
5.0 CONCLUSIONS	33
5.1 Limitations	33
5.2 Summary Conclusions	34
6.0 RECOMMENDATIONS	34
7.0 REFERENCES	35
LIST OF ABBREVIATIONS AND ACRONYMS	36

LIST OF FIGURES

Figure		Page
1	Comparison of Attrition Rates for Pararescue Indoctrination, EOD Apprentice, TACP Apprentice, and Tactical Air Command and Control Apprentice Courses	8
2a	Attrition Associated with Medical-Related Training Events as a Percentage of Total Attrition (Includes Ongoing Courses)	11
2b	Attrition Associated with Medical-Related Training Events as a Percentage of Total Attrition (Excludes Ongoing Courses)	12
3	Lost Training Days Associated with Medical-Related Training Events	28
4	Number of Lost Training Days Per Medical-Related Training	29
5	Number of Lost Training Days Per Trainee Entry.....	32

LIST OF TABLES

Table		Page
1a	Courses Sorted by Attrition Rate (Includes Ongoing Courses)	5
1b	Courses Sorted by Attrition Rate (Excludes Ongoing Courses)	6
2a	Courses with the Highest Proportion of Attrition Associated with Medical-Related Training Events (Includes Ongoing Courses)	8
2b	Courses with the Highest Proportion of Attrition Associated with Medical-Related Training Events (Excludes Ongoing Courses)	10
3a	Courses Sorted by Number of Medical-Related Training Events Per 100 Matriculations (Includes Ongoing Courses)	13
3b	Courses Sorted by Number of Medical-Related Training Events Per 100 Matriculations (Excludes Ongoing Courses)	14
4	Types of Documented Medical Encounters During Training	16
5	Courses with the Highest Amount of Reported Concurrent Medical Costs	18
6	Courses with the Highest Associated Medical Cost Per Trainee Entry (Includes Ongoing Courses)	19
7	Courses with the Highest Medical Cost Per Medical-Related Training Event (Includes Ongoing Courses)	20
8	Lost Training Days Associated with Medical-Related Training Events (Includes Ongoing Courses)	23
9	Number of Lost Training Days Per Medical-Related Training Event (Includes Ongoing Courses)	24
10	Lost Training Days Associated with Medical-Related Training Events (Excludes Ongoing Courses)	25
11	Number of Lost Training Days Per Medical-Related Training Event (Excludes Ongoing Courses)	27
12a	Number of Lost Training Days Per Trainee Entry (Includes Ongoing Courses)	29
12b	Number of Lost Training Days Per Trainee Entry (Excludes Ongoing Courses)	31

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1.0 EXECUTIVE SUMMARY

The Command Surgeon of the Air Education and Training Command (AETC), tasked to identify methods to provide preventive medicine oversight and reduce injury risk related to physical training of Battlefield Airmen trainees, requested the U.S. Air Force School of Aerospace Medicine/Epidemiology Consult Service to identify types of injuries and illnesses that occurred in each course by week of training and location of training, to identify the injuries/illnesses to determine cost of treatment, to identify the training cost linked to injuries/illnesses (e.g., lost training days), and to provide recommendations for preventive medicine countermeasures.

We queried the Technical Training Production Analysis (TTPA) section of the AETC Decision Support System (ADSS) for all training-related events affecting trainees with Air Force Specialty Codes (AFSCs) 1C231, 1C431, 1T231, 1W032, and 3E831 from 1 January 2004 to 20 April 2010 and obtained medical encounter and cost data from the Military Health System Mart for all inpatient and outpatient military treatment facility care and all inpatient care rendered in a civilian hospital. The following descriptive statistics were obtained for each course: attrition rate, proportion of medical attrition, proportional distribution of the types of medical encounters occurring during the training period, total medical cost, medical cost per trainee matriculation, medical cost per medical-related training event, number of lost training days, training days lost per trainee matriculation, and training days lost per medical-related training event.

There were 38 unique course identifiers in ADSS for Battlefield Airmen AFSCs representing 7,953 different individuals. The attrition rate since 2004 for all courses combined was 51%. Medical-related training events accounted for 15% of all attrition. The highest rates were found for Special Operaton Weathermen Slection [sic], Tactical Air Command and Control Apprentice, Pararescue Indoctrination, Tactical Air Control Party Apprentice, Pararescue Indoctrination Course (Enlisted), and Combat Control Apprentice. For most courses, the most frequent types of medical encounters were for either musculoskeletal diagnoses or respiratory illnesses. The total reported cost to the Department of Defense health care system for trainees was \$6.9 million, with the following courses incurring medical costs consistently above the mean for all measures (total cost, cost per matriculation, and cost per medical-related training event): Combat Control Orientation Course, Combat Control Selection Course, Explosive Ordnance Disposal (EOD) Preliminary, Pararescue Preparatory Course, and Special Forces Combat Diver Qualification. The courses tracked in ADSS had a combined total of 120,797 lost training days due to attrition and recycling since 2004 associated with medical-related training events. A few courses appear to carry a disproportionately high burden of cost in terms of lost training days or of direct medical costs, including the Explosive Ordnance Disposal apprentice, Tactical Air Control apprentice, and Pararescue Indoctrination courses.

We recommend the following: expand the current ADSS/TTPA surveillance to include all training sites, including non-Air Force installations; allow for better capture of medical events occurring during training; enable specific medical oversight of Battlefield Airmen pipeline training; and provide more detailed evaluation of events and attrition for the courses that carry a disproportionately high burden of cost mentioned above.

2.0 INTRODUCTION

The Commander, Headquarters, Air Education and Training Command (HQ AETC) recently commissioned a team to review the Battlefield Airmen training pipeline and identify program elements that negatively affect performance outcomes, e.g., attrition rates that in some courses are over 90%. The HQ AETC Command Surgeon was tasked to identify methods to provide preventive medicine oversight and reduce injury risk related to physical training. In April 2010, the U.S. Air Force School of Aerospace Medicine/Epidemiology Consult Service (USAFSAM/PHR) was consulted to evaluate available databases of Battlefield Airmen in Air Force Specialty Codes (AFSCs) 1C231 (Combat Controller), 1C431 (TAC-P), 1T231 (Para-Rescue), 1W032 (Special Operations Weather), and 3E831 (Explosive Ordnance Disposal) pipeline trainees. The specific requests were to identify types of injuries and illnesses that occurred in each course by week of training and location of training, to identify the injuries/illnesses to determine cost of treatment, to identify the training cost linked to injuries/illnesses (e.g., lost training days), and to provide recommendations for preventive medicine countermeasures.

Prior studies have identified trained, enlisted Battlefield Airmen among all active duty Air Force as being among the most consistently at increased risk of requiring medical care for injuries or injury-related musculoskeletal disorders (Ref 1). Tactical Air Control Party (TACP) apprentices have been studied more closely: of those who began TACP training, 17% did not complete due to medical reasons including training injuries, with another 7% attrition due to physical performance failure (Ref 2). Some work has been accomplished to identify personally modifiable characteristics (e.g., body mass index, strength training, and dietary supplement use) associated with successful TACP training (Ref 3). Outside of these studies, little is known about the overall incidence of injury or other medical reasons for training failure among Battlefield Airmen trainees.

3.0 METHODS

We queried the Technical Training Production Analysis (TTPA) section of the Air Education and Training Command Decision Support System (ADSS) for all training-related events affecting trainees with AFSCs 1C231, 1C431, 1T231, 1W032, and 3E831 from 1 January 2004 to 20 April 2010. The data fields obtained included name, date of birth, Social Security number, gender, AFSC, course name, course identifier (ID) and class number, class start and end dates, date of event, status code (i.e., type of event), and training base name. We also obtained medical encounter data from the Military Health System Mart (M2) for all inpatient and outpatient military treatment facility (MTF) care and all inpatient network care, i.e., care rendered in a civilian hospital.

We used course ID as the unit of analysis. We counted each trainee matriculation as a distinct event in the analysis. That is, if a trainee entered or reentered three different offerings of a course due to prior elimination, that trainee would account for three trainee matriculations.

We retained the exact spelling, wording, and formatting of course names as found in ADSS despite several spelling errors to avoid inadvertently altering the identification of any particular course. The only editing was the addition of missing closed-parentheses where unpaired open-parentheses existed in ADSS. The course ID number was added to the tables to further reduce any confusion.

Events recorded in ADSS reflect significant changes to training status, e.g., entry into a course, graduation from a course, elimination from a course, etc. Our analysis considered any ADSS entry that included the term “medical” as a *medical-related training event*. For purposes of this report, any attrition associated with a medical-related training event will be termed *medical attrition*.

Medical cost data were obtained from M2 Healthcare Services for both Direct Care Professional Encounters (SADR – outpatient visits) and Direct Care Inpatient Admissions (SIDR – care received in an MTF). Data captured included demographics, patient category, service date (appointment date/admission date), site of care (treatment Defense Medical Information System ID), diagnoses (four codes for outpatient, eight codes for inpatient), and the full cost of care.

We obtained the following descriptive statistics for each course:

1. Attrition rate, defined as the percent of trainee matriculations that did not have a graduation entry in ADSS.
2. Proportion of *medical attrition*, defined as the number of *medical-related training events* divided by the number of trainee matriculations without graduation, expressed as a percentage.
3. Proportional distribution of the types of medical encounters occurring during the training period, grouped by International Classification of Disease, Ninth Revision (ICD-9) for encounters and diagnoses coded in M2.
4. Total medical cost, defined as the total cost for all medical care rendered concurrently with a course for all trainees regardless of graduation or attrition status.
5. Medical cost per trainee matriculation.
6. Medical cost per *medical-related training event*.
7. Number of lost training days, defined by the difference between the date the course was scheduled to finish and the date of the medical event. For example, if the course was scheduled to last 28 days, and the event occurred on day 20, then the number of lost training days was 8.
8. Training days lost per trainee matriculation.
9. Training days lost per medical-related training event.

As some of the ADSS data query covered courses that were still in progress at the time of analysis, we opted to conduct parallel analyses for some measures such as attrition rate and lost training days. We conducted one analysis including all trainee matriculations that identified all medical and nonmedical attrition but overestimated attrition due to absence of completion dates for ongoing courses. We conducted a second analysis censoring all matriculations for courses still ongoing that more accurately characterized true attrition but missed any attrition events for ongoing courses.

Statistical analyses were performed using Microsoft Excel 2007, SAS 9.1, and Stata/SE 9.2.

4.0 RESULTS AND DISCUSSION

4.1 Overview

There were 38 unique course IDs in ADSS for Battlefield Airmen AFSCs representing 7,953 different individuals. The attrition rate since 2004 for all courses combined was 51% (8,563 graduations out of 17,423 trainee matriculations), ranging from 0% for Scuba Diver and for Explosive Ordnance Disposal Apprentice, AF to 100% for Special Operations Weather and 86% for Pararescue Indoctrination (Table 1a). The mean attrition rate for courses was 40% with a median attrition of 33%. Seventeen courses exceeded the mean attrition rate.

When eliminating trainee matriculations (including attritions) for courses whose completion date was later than the data query, the overall attrition rate was 49% (8,560 graduations out of 16,685 expected), ranging from 0% for Scuba Diver and for Explosive Ordnance Disposal Apprentice, AF to 85% for Pararescue Indoctrination (Table 1b). The mean attrition rate per course was 35% (median 30%), with 15 courses exceeding the mean. Figure 1 compares attrition rates for Pararescue Indoctrination, Explosive Ordnance Disposal (EOD) Apprentice, Tactical Air Control Party Apprentice, and Tactical Air Command and Control Apprentice courses.

4.2 Medical Attrition

There were 1,317 *medical-related training events* (1,292 for completed courses) (note: *medical-related training events* emphasized in italics denote events categorized in the ADSS and do not necessarily have a corresponding medical event in the military health system), accounting for 15% of all attrition (16% among completed courses) (Tables 2a and 2b). Pararescue Indoctrination accounted for the most *medical-related training events* (271), followed by Tactical Air Control Party Apprentice (266) and Pararescue Indoctrination Course (Enlisted) (118) (Table 2a). Excluding the two courses with zero attrition, the mean and median proportions of *medical attrition* per course were 15% each, ranging from 0% (for Pararescue Emergency Medical Technician Basic and for Special Operations Weather) to 39% (for Combat Control Orientation Course).

When eliminating trainee matriculations (including attritions) for courses whose completion date was later than the data query, the mean proportion per course of *medical attrition* among all-cause attrition was 19% (median 18%), ranging from 0% (for Pararescue Emergency Medical Technician Basic) to 67% (for Tactical Air Control Party (TACP) Preparatory Course). The Combat Control Orientation Course had the next highest proportion (39%), followed by four other courses with more than 30% of their attrition as *medical attrition* (Table 2b). Figures 2a and 2b compare total attrition with attrition associated with medical-related training events for Pararescue Indoctrination, EOD Apprentice, TACP Apprentice, and Tactical Air Command and Control Apprentice courses.

Table 1a. Courses Sorted by Attrition Rate (Includes Ongoing Courses)^a

Course/Course ID	Entry	Graduated	% Attrition
Special Operations Weather/E3AQR1W032 0A1B	11	0	100.00
Pararescue Indoctrination/L3AQR1T231 0P1A	1,675	233	86.09
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	531	114	78.53
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	697	162	76.76
EXPLOSIVE ORDNANCE DISPOSAL APPRENTICE/J5ABN3E831 002	727	194	73.31
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	646	179	72.29
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	826	231	72.03
Combat Control Operator/E3AQR1C231 00AA	386	138	64.25
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	1,785	668	62.58
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	5	2	60.00
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	29	14	51.72
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	61	30	50.82
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	490	245	50.00
Combat Control Selection Course/L3AQR1C231 0C0A	1,337	673	49.66
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	679	376	44.62
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	1,758	987	43.86
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	237	140	40.93
Combat Control Operator Tower/E3AQR1C231 00TB	341	223	34.60
Pararescue Apprentice Course/L3ABP1T231 0P4C	149	99	33.56
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	285	190	33.33
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	1,004	675	32.77
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	383	259	32.38
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	300	205	31.67
Combat Control Operator Fundamentals/E3AQR1C231 00FC	353	245	30.59
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	262	184	29.77
Combat Control Opertor Tower/E3AQR1C231T 001	149	107	28.19
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	103	76	26.21
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	257	194	24.51
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	194	148	23.71
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	243	188	22.63
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	190	153	19.47
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	301	245	18.60

**Table 1a. Courses Sorted by Attrition Rate (Includes Ongoing Courses)^a
(Continued)**

Course/Course ID	Entry	Graduated	% Attrition
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	81	70	13.58
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	282	261	7.45
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	147	138	6.12
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	203	201	0.99
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	314	314	0.00
SCUBA DIVER/L5AZN1T231 000	2	2	0.00
Total	17,423	8,563	50.85

^aThe shaded areas reflect the courses that exceeded the mean.

Mean: 40.20%

Median: 33.45%

Table 1b. Courses Sorted by Attrition Rate (Excludes Ongoing Courses)^a

Course/Course ID	Entry	Graduated	% Attrition
Pararescue Indoctrination/L3AQR1T231 0P1A	1,571	233	85.17
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	727	194	73.31
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	415	114	72.53
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	646	179	72.29
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	826	231	72.03
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	497	162	67.40
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	1,710	668	60.94
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	5	2	60.00
Combat Control Operator/E3AQR1C231 00AA	300	138	54.00
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	29	14	51.72
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	490	245	50.00
Combat Control Selection Course/L3AQR1C231 0C0A	1,337	673	49.66
EXPLOSIVE ORDINANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	679	376	44.62
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	1,742	987	43.34
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	237	140	40.93
Combat Control Operator Tower/E3AQR1C231 00TB	341	223	34.60
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	285	190	33.33
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	1,004	675	32.77
Combat Control Operator Fundamentals/E3AQR1C231 00FC	353	245	30.59
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	262	184	29.77
Combat Control Opertor Tower/E3AQR1C231T 001	149	107	28.19

**Table 1b. Courses Sorted by Attrition Rate (Excludes Ongoing Courses)^a
(Continued)**

Course/Course ID	Entry	Graduated	% Attrition
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	355	259	27.04
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	103	76	26.21
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	257	194	24.51
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	194	148	23.71
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	243	188	22.63
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	263	205	22.05
Pararescue Apprentice Course/L3ABP1T231 0P4C	125	99	20.80
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	190	153	19.47
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	301	245	18.60
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	81	70	13.58
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	33	30	9.09
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	147	138	6.12
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	272	261	4.04
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	203	201	0.99
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	311	311	0.00
SCUBA DIVER/L5AZN1T231 000	2	2	0.00
Special Operations Weather/E3AQR1W032 0A1B	0	0	N/A
Total	16,685	8,560	48.70

^aThe shaded areas reflect the courses that exceeded the mean.

Mean: 34.90%

Median: 30.18%

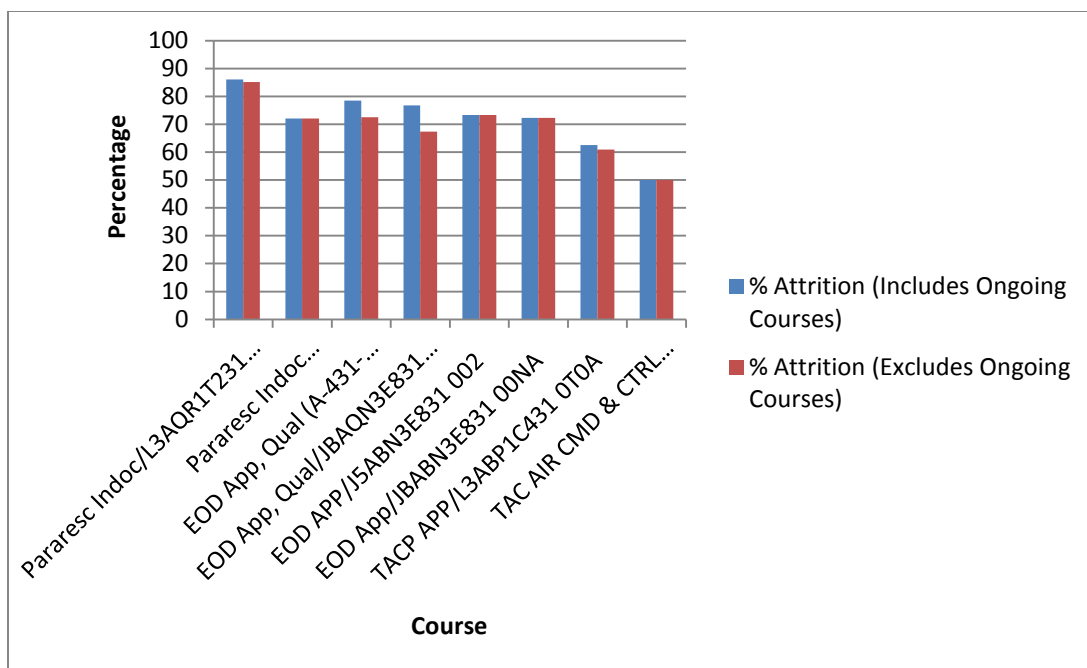


Figure 1. Comparison of Attrition Rates for Pararescue Indoctrination, EOD Apprentice, TACP Apprentice, and Tactical Air Command and Control Apprentice Courses

Table 2a. Courses with the Highest Proportion of Attrition Associated with Medical-Related Training Events (Includes Ongoing Courses)^a

Course/Course ID	Entry	Did Not Graduate	Medical-Related Training Event	% Attrition Associated with Medical-Related Training Event
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	301	56	22	39.29
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	490	245	88	35.92
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	5	3	1	33.33
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	243	55	18	32.73
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	237	97	25	25.77
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	383	124	31	25.00
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	190	37	9	24.32
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	1,785	1117	266	23.81
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	147	9	2	22.22
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	103	27	6	22.22
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	826	595	118	19.83
Combat Control Operator Tower/E3AQR1C231 00TB	341	118	24	19.49

Table 2a. Courses with the Highest Proportion of Attrition Associated with Medical-Related Training Events (Includes Ongoing Courses)^a (Continued)

Course/Course ID	Entry	Did Not Graduate	Medical-Related Training Event	% Attrition Associated with Medical-Related Training Event
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	285	95	18	18.95
Pararescue Indoctrination/L3AQR1T231 0P1A	1,675	1442	271	18.79
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	81	11	2	18.18
Combat Control Operator Fundamentals/E3AQR1C231 00FC	353	108	19	17.59
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	257	63	10	15.87
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	194	46	7	15.22
Combat Control Selection Course/L3AQR1C231 0C0A	1,337	664	98	14.76
Combat Control Operator Tower/E3AQR1C231T 001	149	42	5	11.90
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	646	467	51	10.92
Combat Control Operator/E3AQR1C231 00AA	386	248	27	10.89
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	1,004	329	35	10.64
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	282	21	2	9.52
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	697	535	49	9.16
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	531	417	30	7.19
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	29	15	1	6.67
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	61	31	2	6.45
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	300	95	5	5.26
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	262	78	4	5.13
EXPLOSIVE ORDNANCE DISPOSAL APPRENTICE/J5ABN3E831 002	727	533	26	4.88
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	1,758	771	35	4.54
Pararescue Apprentice Course/L3ABP1T231 0P4C	149	50	2	4.00
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	679	303	8	2.64
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	203	2	0	0.00
Special Operations Weather/E3AQR1W032 0A1B	11	11	0	0.00
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	314	0	0	N/A
SCUBA DIVER/L5AZN1T231 000	2	0	0	N/A
Total	17,423	8,860	1,317	14.85

^aThe shaded areas reflect the courses that exceeded the mean.

Mean (excluding courses with no attrition): 15.36%

Median (excluding courses with no attrition): 14.99%

Table 2b. Courses with the Highest Proportion of Attrition Associated with Medical-Related Training Events (Excludes Ongoing Courses)^a

Course/Course ID	Entry	Did Not Graduate	Medical-Related Training Events	% Attrition Associated with Medical-Related Training Event
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	33	3	2	66.67
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	301	56	22	39.29
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	490	245	88	35.92
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	5	3	1	33.33
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	243	55	18	32.73
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	355	96	31	32.29
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	237	97	25	25.77
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	1,710	1,042	262	25.14
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	190	37	9	24.32
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	147	9	2	22.22
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	103	27	6	22.22
Combat Control Operator Tower/E3AQR1C231 00TB	341	118	24	20.34
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	826	595	118	19.83
Pararescue Indoctrination/L3AQR1T231 0P1A	1,571	1,338	264	19.73
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	285	95	18	18.95
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	81	11	2	18.18
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	272	11	2	18.18
Combat Control Operator Fundamentals/E3AQR1C231 00FC	353	108	19	17.59
Combat Control Operator/E3AQR1C231 00AA	300	162	26	16.05
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	257	63	10	15.87
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	194	46	7	15.22
Combat Control Selection Course/L3AQR1C231 0C0A	1,337	664	98	14.76
Combat Control Opertor Tower/E3AQR1C231T 001	149	42	5	11.90
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	497	335	38	11.34
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	646	467	51	10.92
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	1,004	329	35	10.64
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	415	301	28	9.30
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	263	58	5	8.62
Pararescue Apprentice Course/L3ABP1T231 0P4C	125	26	2	7.69

Table 2b. Courses with the Highest Proportion of Attrition Associated with Medical-Related Training Events (Excludes Ongoing Courses)^a (Continued)

Course/Course ID	Entry	Did Not Graduate	Medical-Related Training Events	% Attrition Associated with Medical-Related Training Event
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	29	15	1	6.67
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	262	78	4	5.13
EXPLOSIVE ORDNANCE DISPOSAL APPRENTICE/J5ABN3E831 002	727	533	26	4.88
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	1,742	755	35	4.64
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	679	303	8	2.64
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	203	2	0	0.00
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	311	0	0	N/A
SCUBA DIVER/L5AZN1T231 000	2	0	0	N/A
Special Operations Weather/E3AQR1W032 0A1B	0	0	0	N/A
Total	16,685	8,125	1,292	15.90

^aThe shaded areas reflect the courses that exceeded the mean.
Mean (excluding courses with no attrition): 18.54%
Median (excluding courses with no attrition): 17.59%

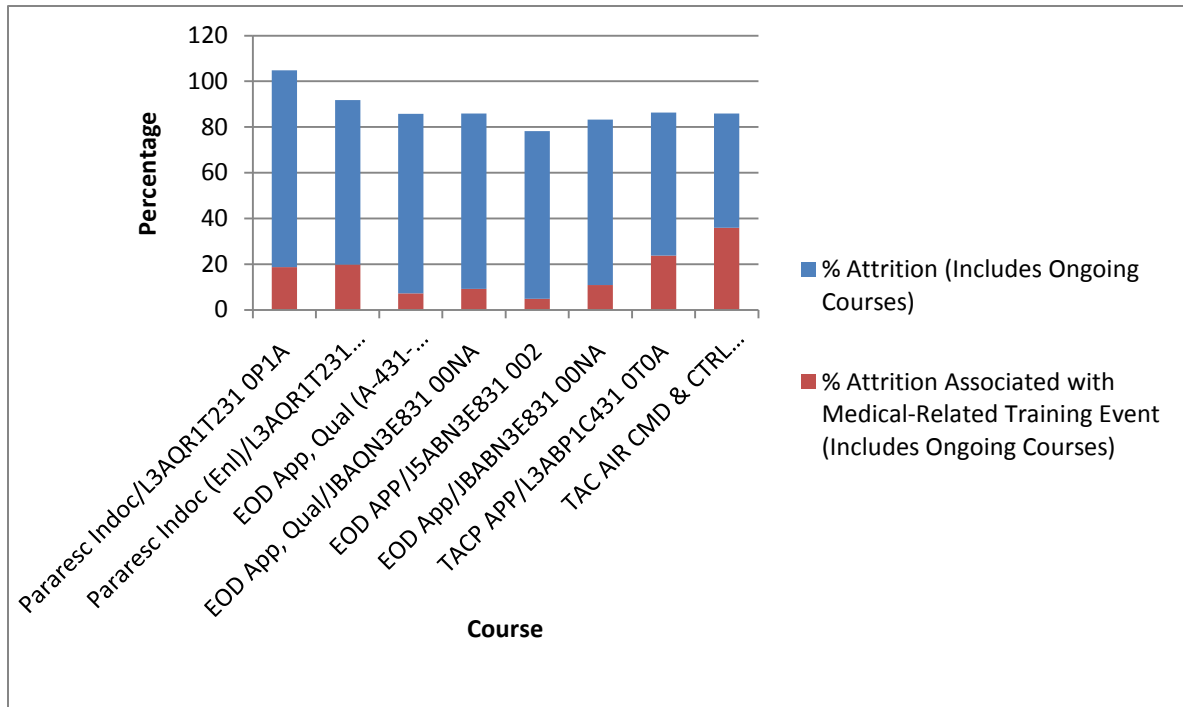


Figure 2a. Attrition Associated with Medical-Related Training Events as a Percentage of Total Attrition (Includes Ongoing Courses)

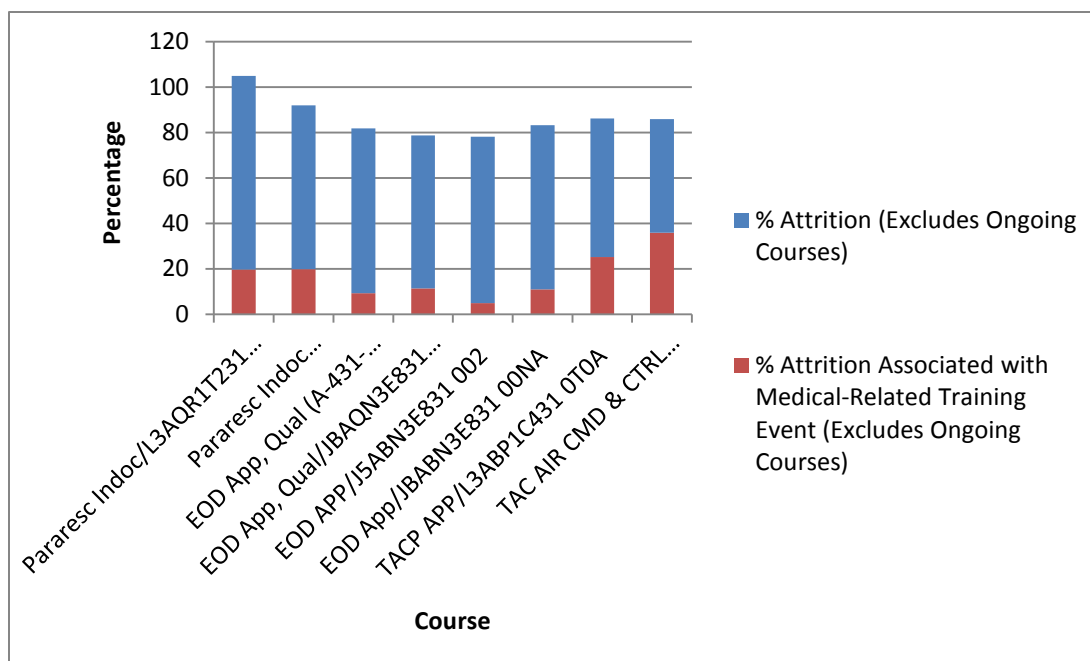


Figure 2b. Attrition Associated with Medical-Related Training Events as a Percentage of Total Attrition (Excludes Ongoing Courses)

Overall there were slightly fewer than eight *medical-related training events* for every 100 trainee matriculations (Tables 3a and 3b). The highest rates, regardless of inclusion or exclusion of ongoing course iterations, were found for Special Operaton Weathermen Slection [sic] (one event for every five matriculations), Tactical Air Command and Control Apprentice, Pararescue Indoctrination, Tactical Air Control Party Apprentice, Pararescue Indoctrination Course (Enlisted), and Combat Control Apprentice (each with more than 1 event for every 10 matriculations).

4.3 Medical Encounters

Table 4 describes the types of medical encounters occurring during each course. These numbers reflect actual health care visits for all trainees in a course regardless of the presence or absence of a *medical-related training event* (as an ADSS event) for that trainee and irrespective of eventual graduation or attrition. The number of inpatient encounters in SIDR was small and therefore negligible for the overall results. Purchased care inpatient data were not meaningful for valid analysis due to the extremely broad distribution of location and patient category identifiers.

Table 3a. Courses Sorted by Number of Medical-Related Training Events Per 100 Matriculations (Includes Ongoing Courses)^a

Course/Course ID	Medical-Related Training Events Per 100 Matriculations
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	20.00
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	17.96
Pararescue Indoctrination/L3AQR1T231 0P1A	16.18
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	14.90
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	14.29
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	10.55
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	8.09
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	7.89
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	7.41
Combat Control Selection Course/L3AQR1C231 0C0A	7.33
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	7.31
Combat Control Operator Tower/E3AQR1C231 00TB	7.04
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	7.03
Combat Control Operator/E3AQR1C231 00AA	6.99
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	6.32
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	5.83
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	5.65
Combat Control Operator Fundamentals/E3AQR1C231 00FC	5.38
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	4.74
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	3.89
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	3.61
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	3.58
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	3.49
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	3.45
Combat Control Opertor Tower/E3AQR1C231T 001	3.36
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	3.28
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	2.47
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	1.99
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	1.67
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	1.53
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	1.36
Pararescue Apprentice Course/L3ABP1T231 0P4C	1.34
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	1.18

Table 3a. Courses Sorted by Number of Medical-Related Training Events Per 100 Matriculations (Includes Ongoing Courses)^a (Continued)

Course/Course ID	Medical-Related Training Events Per 100 Matriculations
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	0.71
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	0.00
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	0.00
SCUBA DIVER/L5AZN1T231 000	0.00
Special Operations Weather/E3AQR1W032 0A1B	0.00
Total	7.56

^aThe shaded areas reflect the courses that exceeded the mean.
Mean: 5.73%
Median: 4.31%

Table 3b. Courses Sorted by Number of Medical-Related Training Events Per 100 Matriculations (Excludes Ongoing Courses)^a

Course/Course ID	Medical-Related Training Events per 100 Matriculations
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	20.00
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	17.96
Pararescue Indoctrination/L3AQR1T231 0P1A	16.80
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	15.32
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	14.29
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	10.55
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	8.73
Combat Control Operator/E3AQR1C231 00AA	8.67
Explosive Ordnance Disposal Apprentice/JBASN3E831 00NA	7.89
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	7.65
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	7.41
Combat Control Selection Course/L3AQR1C231 0C0A	7.33
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	7.31
Combat Control Operator Tower/E3AQR1C231 00TB	7.04
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	6.75
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	6.32
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	6.06
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	5.83
Combat Control Operator Fundamentals/E3AQR1C231 00FC	5.38

Table 3b. Courses Sorted by Number of Medical-Related Training Events Per 100 Matriculations (Excludes Ongoing Courses)^a (Continued)

Course/Course ID	Medical-Related Training Events per 100 Matriculations
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	4.74
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	3.89
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	3.61
EXPLOSIVE ORDNANCE DISPOSAL APPRENTICE/J5ABN3E831 002	3.58
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	3.49
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	3.45
Combat Control Operator Tower/E3AQR1C231T 001	3.36
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	2.47
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	2.01
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	1.90
Pararescue Apprentice Course/L3ABP1T231 0P4C	1.60
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	1.53
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	1.36
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	1.18
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	0.74
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	0.00
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	0.00
SCUBA DIVER/L5AZN1T231 000	0.00
Special Operations Weather/E3AQR1W032 0A1B	N/A ^b
Total	7.74

^aThe shaded areas reflect the courses that exceeded the mean.

^bNo expected graduates at the time of analysis.

Mean: 6.11

Median: 5.38

For most courses, the most frequent types of medical encounters were for either musculoskeletal diagnoses (e.g., disorders of joint, soft tissues, and back) or for respiratory illnesses (e.g., acute upper respiratory illness, nasopharyngitis, or pharyngitis). Notable outliers include Combat Control Operator Tower [sic], where one trainee with a diagnosis of “neoplasm of unspecified behavior of other specified sites” accounted for all documented medical visits despite five different *medical-related training events*, and Pararescue Emergency Medical Technician-Basic Crse [sic], where one-third of documented visits were for cardiac dysrhythmia, one-third for abnormal electrocardiogram (categorized by ICD-9 as “Symptoms, Signs, and Ill-Defined Conditions”), and one-third for asymmetric hearing loss.

Table 4. Types of Documented Medical Encounters During Training

Course/Course ID	Medical-Related Training Events	Types of Medical Encounters
Pararescue Indoctrination/L3AQR1T231 0P1A	271	30.6% musculoskeletal, 23.9% respiratory system, 12.3% injury
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	266	20.8% respiratory system, 20.0% injury, 19.7% musculoskeletal
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	118	27.7% musculoskeletal, 21.5% injury, 17.4% respiratory system
Combat Control Selection Course/L3AQR1C231 0C0A	98	22.7% musculoskeletal, 21.3% respiratory system, 18.6% injury
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	88	28.9% musculoskeletal, 20.6% respiratory system, 18.0% injury
Explosive Ordnance Disposal Apprentice/JBASN3E831 00NA	51	45.8% respiratory system, 29.2% injury, 16.7% musculoskeletal
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	49	no data
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	35	29.6% respiratory system, 18.6% musculoskeletal, 12.4% injury
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	35	24.2% musculoskeletal, 22.1% respiratory system, 15.7% injury
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	31	21.8% musculoskeletal, 19.4% injury, 15.7% respiratory system
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	30	20.1% respiratory system, 19.5% ill-defined, 12.6% musculoskeletal
Combat Control Operator/E3AQR1C231 00AA	27	42.4% musculoskeletal, 29.6% injury, 13.6% respiratory system
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	26	27.5% respiratory system, 20.3% injury, 15.9% musculoskeletal
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	25	30.3% musculoskeletal, 17.0% injury, 13.0% respiratory system
Combat Control Operator Tower/E3AQR1C231 00TB	24	18.2% musculoskeletal, 18.2% respiratory system, 17.0% injury
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	22	24.7% musculoskeletal, 16.8% respiratory system, 14.8% injury
Combat Control Operator Fundamentals/E3AQR1C231 00FC	19	28.4% musculoskeletal, 17.7% injury, 12.8% respiratory system
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	18	18.4% respiratory system, 17.7% injury, 17.0% musculoskeletal
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	18	38.6% musculoskeletal, 17.3% sense organs, 14.2% injury
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	10	100.0% respiratory system
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	9	32.0% musculoskeletal, 18.9% respiratory system, 13.6% injury
EXPLOSIVE ORDINANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	8	28.8% respiratory system, 17.9% musculoskeletal, 13.9% injury
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	7	40.7% musculoskeletal, 17.1% injury, 16.5% respiratory system
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	6	54.0% injury, 17.1% musculoskeletal, 7.9% sense organs
Combat Control Opertor Tower/E3AQR1C231T 001	5	100.0% neoplasms
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	5	no data
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	4	54.6% musculoskeletal, 13.6% ill-defined, 13.6% injury

Table 4. Types of Documented Medical Encounters During Training (Continued)

Course/Course ID	Medical-Related Training Events	Types of Medical Encounters
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	2	52.2% musculoskeletal, 16.4% injury, 9.0% ill-defined
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	2	66.7% musculoskeletal, 33.3% digestive system
Pararescue Apprentice Course/L3ABP1T231 0P4C	2	no data
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	2	33.3% circulatory system , 33.3% ill-defined , 33.3% sense organs
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	2	50.0% respiratory system, 22.2% musculoskeletal, 11.1% infectious diseases
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	1	50.0% respiratory system, 25.0% sense organs , 12.5% musculoskeletal
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	1	no data
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	0	no data
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	0	25.2% respiratory system, 20.6% injury, 18.7% musculoskeletal
SCUBA DIVER/L5AZN1T231 000	0	26.1% respiratory system, 21.7% musculoskeletal, 21.7% skin
Special Operations Weather/E3AQR1W032 0A1B	0	no data

4.4 Medical Costs

The total reported cost to the Department of Defense health care system for trainees was \$6.9 million (Table 5), although five courses did not have any reported medical costs among trainees. (Remarkably, four of those five had *medical-related training events* recorded in ADSS.) Including all courses, the mean cost of medical care was just over \$180,000, with a median cost of nearly \$47,000. Ten courses had medical costs exceeding the mean, led by Pararescue Preparatory Course (Enlisted) (\$1.2 million), Pararescue Indoctrination (\$1 million), and Combat Control Selection Course (\$970,000), together accounting for 46% of all reported medical costs.

The cost of medical care was \$397 per trainee matriculation (\$859 per individual trainee), with Scuba Diver accounting for more than three times the amount of the next-highest course, Combat Control Orientation Course (\$5,771 vs. \$1,463) (Table 6). Interestingly, Scuba Diver had no *medical-related training events* recorded in ADSS. Eight courses exceeded the per-course mean for medical cost per trainee matriculation (\$443).

Medical care costs were \$5,247 per *medical-related training events* (mean \$7,227 across courses, excluding those with no reported events), with eight courses exceeding the mean (Table 7). The highest medical cost per *medical-related training event* was incurred by Explosive Ordnance Disposal (EOD) Preliminary (\$44,000), followed by Pararescue Preparatory Course (Enlisted) (\$34,000), Special Forces Combat Diver Qualification (\$27,000), and Combat Control Orientation Course and Military Freefall Parachutist (\$20,000 each).

Table 5. Courses with the Highest Amount of Reported Concurrent Medical Costs^a

Course/Course ID	Total Medical Cost (\$)
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	1,199,007
Pararescue Indoctrination/L3AQR1T231 0P1A	1,009,999
Combat Control Selection Course/L3AQR1C231 0C0A	970,220
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	615,110
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	604,301
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	440,361
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	349,975
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	323,819
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	191,282
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	187,497
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	168,667
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	104,827
Combat Control Operator Tower/E3AQR1C231 00TB	100,093
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	98,371
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	92,876
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	71,926
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	69,114
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	57,530
Combat Control Operator/E3AQR1C231 00AA	49,516
Combat Control Operator Fundamentals/E3AQR1C231 00FC	44,359
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	39,684
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	36,796
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	30,834
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	11,883
SCUBA DIVER/L5AZN1T231 000	11,541
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	8,997
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	8,254
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	8,194
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	3,408
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	958
Combat Control Opertor Tower/E3AQR1C231T 001	794
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	420
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	13
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	0
Pararescue Apprentice Course/L3ABP1T231 0P4C	0

Table 5. Courses with the Highest Amount of Reported Concurrent Medical Costs^a (Continued)

Course/Course ID	Total Medical Cost (\$)
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	0
Special Operations Weather/E3AQR1W032 0A1B	0
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	0
Total	6,910,624

^aThe shaded areas reflect the courses that exceeded the mean.

Mean: \$181,859

Median: \$46,937

Table 6. Courses with the Highest Associated Medical Cost Per Trainee Entry (Includes Ongoing Courses)^a

Course/Course ID	Medical Cost Per Training Entry (\$)
SCUBA DIVER/L5AZN1T231 000	5,771
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	1,463
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	1,194
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	986
Combat Control Selection Course/L3AQR1C231 0C0A	726
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	712
Pararescue Indoctrination/L3AQR1T231 0P1A	603
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	515
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	431
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	392
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	383
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	379
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	357
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	345
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	345
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	344
Combat Control Operator Tower/E3AQR1C231 00TB	294
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	283
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	270
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	242
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	135
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	130
Combat Control Operator/E3AQR1C231 00AA	128
Combat Control Operator Fundamentals/E3AQR1C231 00FC	126
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	118
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	45

Table 6. Courses with the Highest Associated Medical Cost Per Trainee Entry (Includes Ongoing Courses)^a (Continued)

Course/Course ID	Medical Cost Per Training Entry (\$)
EXPLOSIVE ORDNANCE DISPOSAL APPRENTICE/J5ABN3E831 002	42
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	29
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	14
Military Freefall Parachutist (PJ/CR0 pipeline) (2/L9AQA1XXXX 0F1A	12
Combat Control Opertor Tower/E3AQR1C231T 001	5
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	2
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	<1
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	0
Pararescue Apprentice Course/L3ABP1T231 0P4C	0
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	0
Special Operations Weather/E3AQR1W032 0A1B	0
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	0
Total	397

^aThe shaded areas reflect the courses that exceeded the mean.

Mean: \$443

Median: \$256

Table 7. Courses with the Highest Medical Cost Per Medical-Related Training Event (Includes Ongoing Courses)^a

Course/Course ID	Medical Cost Per Medical-Related Training Event (\$)
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	43,747
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	34,257
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	27,326
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	20,016
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	19,842
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	17,266
Combat Control Selection Course/L3AQR1C231 0C0A	9,900
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	7,992
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	6,747
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	6,133
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	5,824
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	5,465
Combat Control Operator Tower/E3AQR1C231 00TB	4,171
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	4,127
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	4,097

Table 7. Courses with the Highest Medical Cost Per Medical-Related Training Event (Includes Ongoing Courses)^a (Continued)

Course/Course ID	Medical Cost Per Medical-Related Training Event (\$)
Pararescue Indoctrination/L3AQR1T231 0P1A	3,727
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	3,408
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	2,996
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	2,971
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	2,744
Combat Control Operator Fundamentals/E3AQR1C231 00FC	2,335
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	2,312
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	2,304
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	2,131
Combat Control Operator/E3AQR1C231 00AA	1,834
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	1,186
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	479
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	176
Combat Control Operator Tower/E3AQR1C231T 001	159
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	42
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	0
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	0
Pararescue Apprentice Course/L3ABP1T231 0P4C	0
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	0
SCUBA DIVER/L5AZN1T231 000	0
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	0
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	N/A
Special Operations Weather/E3AQR1W032 0A1B	N/A
Total	5,247

^aThe shaded areas reflect the courses that exceeded the mean.

Mean (excluding courses with no reported events): \$7,227

Median (excluding courses with no reported events): \$3,202

The courses that appear to incur medical costs consistently above the mean for all measures (total cost, cost per matriculation, and cost per *medical-related training event*) include Combat Control Orientation Course, Combat Control Selection Course, Explosive Ordnance Disposal (EOD) Preliminary, Pararescue Preparatory Course, and Special Forces Combat Diver Qualification. Whether including ongoing iterations of courses or only completed course offerings, none of these exceeded the mean for lost training days associated with *medical-related training events*.

4.5 Lost Training Days

The courses tracked in ADSS had a combined total of 120,797 lost training days due to attrition and recycling since 2004 associated with *medical-related training events*, a total of 7 days per matriculation and 92 per *medical-related training event* (Table 8). Per course there was a median of 305 days lost but a mean of 3,179, driven primarily by Tactical Air Control Party Apprentice (31,723 days), Pararescue Indoctrination (18,173 days), and Explosive Ordnance Disposal (EOD) Apprentice, Qualify (13,846 days). The average number of lost training days per *medical-related training event* exceeded 200 for Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134) (323 days per event) and for Explosive Ordnance Disposal (EOD) Apprentice, Qualify (283 days per event) (Table 9).

When considering only courses completed at the time of analysis, *medical-related training events* were associated with 61,112 lost training days (4 days per matriculation and 47 days per *medical-related training event*) (Table 10). Tactical Air Control Party Apprentice (16,561 days), Pararescue Indoctrination (7,829 days), and Explosive Ordnance Disposal Apprentice (6,106 days) accounted for much of the higher per-course mean (1,608 days lost per course) than median (174 days). The average number of lost training days per *medical-related training event* exceeded 100 for Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134) (143 days per event); Explosive Ordnance Disposal (EOD) Apprentice, Qualify (133 days per event); Explosive Ordnance Disposal Apprentice (120 days per event); and Pararescue Apprentice Course [sic] (115 days per event) (Table 11). Figures 3 and 4 show lost training days associated with medical-related training events and number of lost training days per medical-related training event, respectively, for Pararescue Indoctrination, EOD Apprentice, TACP Apprentice, and Tactical Air Command and Control Apprentice courses.

When including ongoing course offerings, the courses that appear to lose training days consistently above the mean on all measures (total lost days, lost days per matriculation, and lost days per event) due to *medical-related training events* include Explosive Ordnance Disposal Apprentice [sic]; Explosive Ordnance Disposal (EOD) Apprentice, Qualify; Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134); Explosive Ordnance Disposal Apprentice; Pararescue Indoctrination Course (Enlisted); Tactical Air Command and Control Apprentice; and Tactical Air Control Party Apprentice (Table 12a). Of these, only the EOD courses did not also have medical costs exceeding the mean on at least one measure. When limiting only to course iterations already completed, the courses losing training days above the mean on all measures include Combat Control Operator; Explosive Ordnance Disposal (EOD) Apprentice, Qualify; Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134); Explosive Ordnance Disposal Apprentice; Pararescue Indoctrination Course (Enlisted); Tactical Air Command and Control Apprentice; and Tactical Air Control Party Apprentice (Table 12b). Figure 5 shows the number of lost training days per trainee entry for Pararescue Indoctrination, EOD Apprentice, TACP Apprentice, and Tactical Air Command and Control Apprentice courses.

Also of note, the Pararescue Indoctrination course exceeded the mean for total medical cost, cost per matriculation, total training days lost, and days lost per matriculation. However, the mean was not exceeded on either measure when calculated on a per-event basis, although it should be noted this course also had the greatest number of *medical-related training events* (271).

Table 8. Lost Training Days Associated with Medical-Related Training Events (Includes Ongoing Courses)^a

Course/Course ID	Lost Days Due to Medical-Related Training Event
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	31,723
Pararescue Indoctrination/L3AQR1T231 0P1A	18,173
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	13,846
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	9,697
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	9,577
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	9,401
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	8,540
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	4,508
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	2,739
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	2,372
Combat Control Operator/E3AQR1C231 00AA	2,138
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	1,126
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	1,073
Combat Control Operator Tower/E3AQR1C231 00TB	994
Combat Control Selection Course/L3AQR1C231 0C0A	919
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	772
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	602
Combat Control Operator Fundamentals/E3AQR1C231 00FC	418
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	361
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	248
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	242
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	230
Pararescue Apprentice Course/L3ABP1T231 0P4C	229
Combat Control Opertor Tower/E3AQR1C231T 001	175
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	174
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	163
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	101
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	94
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	48
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	37
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	37
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	21
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	18
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	1
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	0
SCUBA DIVER/L5AZN1T231 000	0

**Table 8. Lost Training Days Associated with Medical-Related Training Events (Includes Ongoing Courses)^a
(Continued)**

Course/Course ID	Lost Days Due to Medical-Related Training Event
Special Operations Weather/E3AQR1W032 0A1B	0
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	0
Total	120,797

^aThe shaded areas reflect the courses that exceeded the mean.

Mean (excluding courses with no events): 3,179

Median (excluding courses with no events): 305

Table 9. Number of Lost Training Days Per Medical-Related Training Event (Includes Ongoing Courses)^a

Course/Course ID	Days Lost Per Medical-Related Training Event
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	323
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	283
Explosive Ordnance Disposal Apprentice/JBASN3E831 00NA	188
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	188
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	173
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	120
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	119
Pararescue Apprentice Course/L3ABP1T231 0P4C	115
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	107
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	97
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	95
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	88
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	80
Combat Control Operator/E3AQR1C231 00AA	79
Pararescue Indoctrination/L3AQR1T231 0P1A	67
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	61
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	43
Combat Control Operator Tower/E3AQR1C231 00TB	41
Combat Control Operator Tower/E3AQR1C231T 001	35
Combat Control Operator Fundamentals/E3AQR1C231 00FC	22
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	21
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	20
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	19
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	19

Table 9. Number of Lost Training Days Per Medical-Related Training Event (Includes Ongoing Courses)^a (Continued)

Course/Course ID	Days Lost Per Medical-Related Training Event
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	18
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	18
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	14
Combat Control Selection Course/L3AQR1C231 0C0A	9
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	8
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	7
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	6
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	3
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	1
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	0
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	N/A
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	N/A
SCUBA DIVER/L5AZN1T231 000	N/A
Special Operations Weather/E3AQR1W032 0A1B	N/A
Total	92

^aThe shaded areas reflect the courses that exceeded the mean.

Mean (excluding courses with no events): 73 days

Median (excluding courses with no events): 42 days

Table 10. Lost Training Days Associated with Medical-Related Training Events (Excludes Ongoing Courses)^a

Course/Course ID	Lost Days Due to Medical-Related Training Event
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	16,561
Pararescue Indoctrination/L3AQR1T231 0P1A	7,829
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	6,106
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	5,065
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	4,770
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	4,533
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	4,011
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	2,514
Combat Control Operator/E3AQR1C231 00AA	1,629
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	1,537
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	1,451

Table 10. Lost Training Days Associated with Medical-Related Training Events (Excludes Ongoing Courses)^a (Continued)

Course/Course ID	Lost Days Due to Medical-Related Training Event
Combat Control Operator Tower/E3AQR1C231 00TB	876
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	690
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	618
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	503
Combat Control Selection Course/L3AQR1C231 0C0A	455
Combat Control Operator Fundamentals/E3AQR1C231 00FC	369
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	306
Combat Control Operator Tower/E3AQR1C231T 001	175
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	173
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	173
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	163
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	134
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	120
Pararescue Apprentice Course/L3ABP1T231 0P4C	108
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	101
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	39
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	37
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	29
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	28
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	8
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	1
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	0
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	0
SCUBA DIVER/L5AZN1T231 000	0
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	0
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	0
Total	61,112

^aThe shaded areas reflect the courses that exceeded the mean.

Mean: 1,608 days

Median: 174 days

Table 11. Number of Lost Training Days Per Medical-Related Training Event (Excludes Ongoing Courses)^a

Course/Course ID	Days Lost Per Medical-Related Training Event
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	143
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	133
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	120
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	115
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	97
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	63
Combat Control Operator/E3AQR1C231 00AA	63
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	62
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	61
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	61
Pararescue Apprentice Course/L3ABP1T231 0P4C	54
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	52
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	47
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	43
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	40
Combat Control Operator Tower/E3AQR1C231 00TB	37
Combat Control Opertor Tower/E3AQR1C231T 001	35
Pararescue Indoctrination/L3AQR1T231 0P1A	30
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	28
Combat Control Operator Fundamentals/E3AQR1C231 00FC	19
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	19
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	18
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	14
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	14
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	10
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	8
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	5
Combat Control Selection Course/L3AQR1C231 0C0A	5
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	4

Table 11. Number of Lost Training Days Per Medical-Related Training Event (Excludes Ongoing Courses)^a
(Continued)

Course/Course ID	Days Lost Per Medical-Related Training Event
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	4
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	1
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	1
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	0
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	0
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	N/A
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	N/A
SCUBA DIVER/L5AZN1T231 000	N/A
Special Operations Weather/E3AQR1W032 0A1B	N/A
Total	47

^aThe shaded areas reflect the courses that exceeded the mean.

Mean (excluding courses with no events): 41 days

Median (excluding courses with no events): 32 days

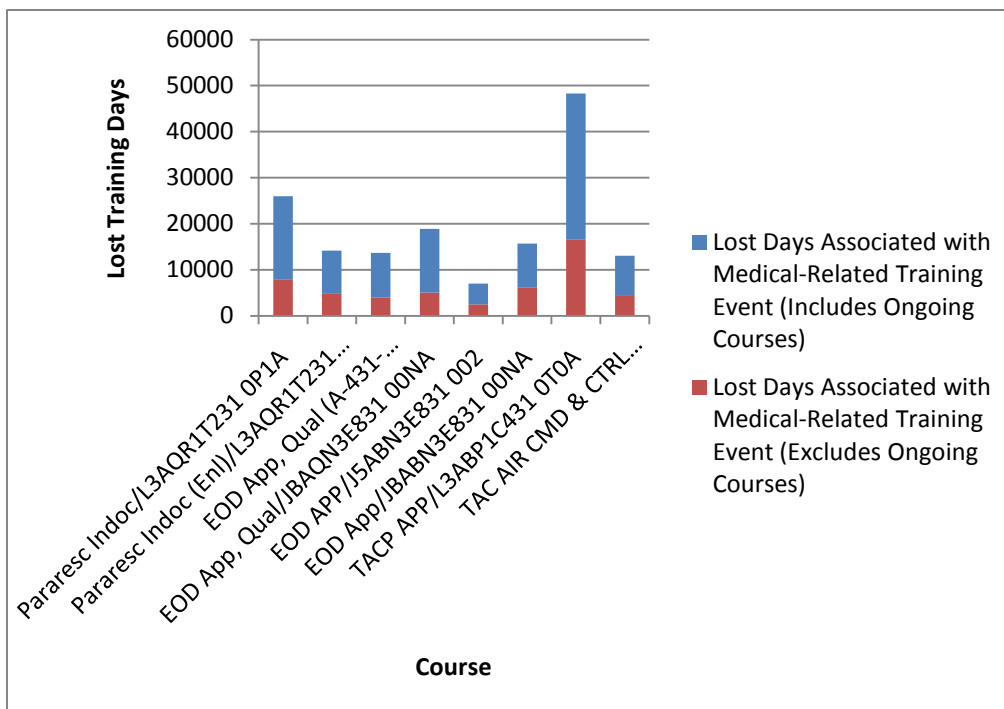


Figure 3. Lost Training Days Associated with Medical-Related Training Events

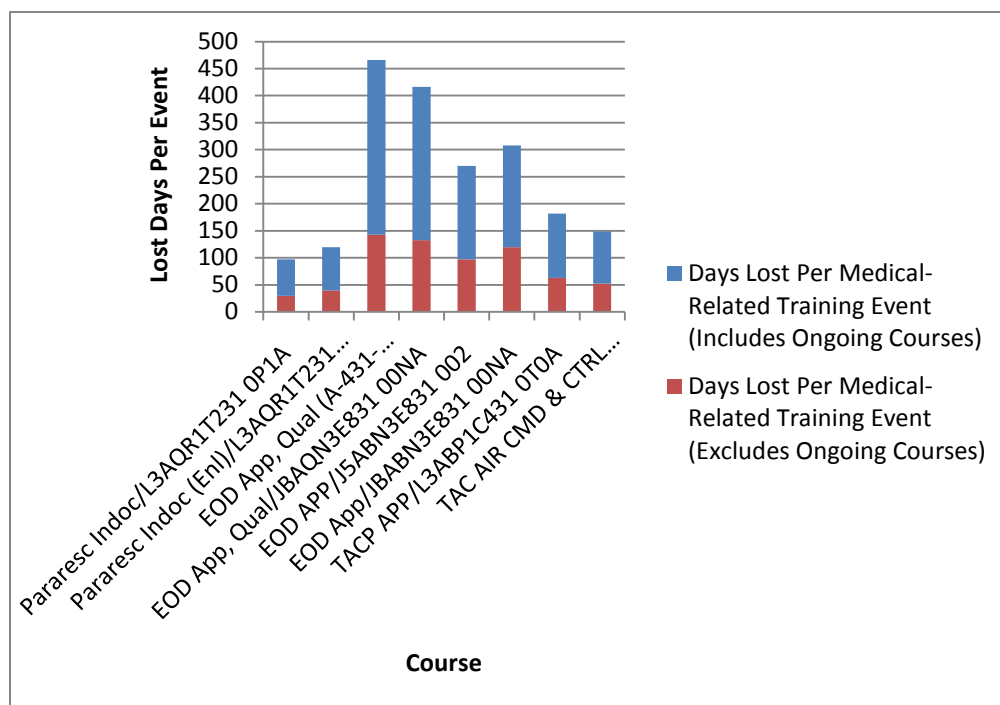


Figure 4. Number of Lost Training Days Per Medical-Related Training Event

Table 12a. Number of Lost Training Days Per Trainee Entry (Includes Ongoing Courses)^a

Course/Course ID	Days Lost Per Training Entry
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	20
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	18
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	18
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	17
Explosive Ordnance Disposal Apprentice/JBASN3E831 00NA	15
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	11
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	11
Pararescue Indoctrination/L3AQR1T231 0P1A	11
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	10
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	7
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	6
Combat Control Operator/E3AQR1C231 00AA	6

**Table 12a. Number of Lost Training Days Per Trainee Entry
(Includes Ongoing Courses)^a (Continued)**

Course/Course ID	Days Lost Per Training Entry
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	4
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	4
Combat Control Operator Tower/E3AQR1C231 00TB	3
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	3
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	2
Pararescue Apprentice Course/L3ABP1T231 0P4C	2
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	1
Combat Control Operator Fundamentals/E3AQR1C231 00FC	1
Combat Control Opertor Tower/E3AQR1C231T 001	1
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	1
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	1
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	1
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	1
Combat Control Selection Course/L3AQR1C231 0C0A	1
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	1
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	1
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	0
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	0
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	0
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	0
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	0
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	0
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	0
SCUBA DIVER/L5AZN1T231 000	0
Special Operations Weather/E3AQR1W032 0A1B	0
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	0
Total	7

^aThe shaded areas reflect the courses that exceeded the mean.

Mean: 5 days

Median: 1 day

**Table 12b. Number of Lost Training Days Per Trainee Entry
(Excludes Ongoing Courses)^a**

Course/Course ID	Days Lost Per Training Entry
Explosive Ordnance Disposal (EOD) Apprentice, Qualify/JBAQN3E831 00NA	10
TACTICAL AIR CONTROL PARTY APPRENTICE/L3ABP1C431 0T0A	10
Explosive Ordnance Disposal (EOD) Apprentice, Qualifying (A-431-0134)/JBAQN3E831 00NA	10
Explosive Ordnance Disposal Apprentice/JBABN3E831 00NA	9
TACTICAL AIR COMMAND AND CONTROL APPRENTICE/E3ABP1C431 000	9
PARARESCUE APRENTICE COURSE/L3ABP1T231 002	7
COMBAT CONTROL APPRENTICE/L3ABP1C231 000	6
Pararescue Indoctrination Course (Enlisted)/L3AQR1T231 002	6
Combat Control Operator/E3AQR1C231 00AA	5
Pararescue Indoctrination/L3AQR1T231 0P1A	5
Combat Control Apprentice Course (Enlisted and Off/L3ABP1C231 0C1A	4
EXPLOSIVE ORDINANCE DISPOSAL APPRENTICE/J5ABN3E831 002	3
Combat Control Operator Tower/E3AQR1C231 00TB	3
Pararescue Apprentice Course (Enlisted)/L3ABP1T231 0P4A	2
AIR FORCE COMBAT DIVE COURSE/LCAQP1XXXX 0D0A	2
Special Operaton Weathermen Slection/L3AQR1W032 0C0B	2
Combat Control Opertor Tower/E3AQR1C231T 001	1
Pararescue Emergency Medical Tech-Paramedic(enlist/L1AQC1T231 0P0A	1
Combat Control Operator Fundamentals/E3AQR1C231 00FC	1
Pararescue Apprentice Course/L3ABP1T231 0P4C	1
COMBAT CONTROL OPERATOR FUNDAMENTALS/E3AQR1C231 003	1
Air Force Combat Dive Course - Open Circuit/LCAQP1XXXX 010A	1
PARARESCUE EMERGENCY MEDICAL TECHNICIAN PARAMEDIC/L3AQP1T231 003	1
SPECIAL FORCES COMBAT DIVER QUALIFICATION/L5AZA1T231 007	1
COMBAT CONTROL ORIENTATION COURSE/L3AQR1C231 002	0
Military Freefall Parachutist (PJ/CRO pipeline) (2/L9AQA1XXXX 0F1A	0
Combat Control Selection Course/L3AQR1C231 0C0A	0
Pararescue Emergency Medical Technician-Basic Crse/L1AQC1T231 0B0A	0
Explosive Ordnance Disposal Preliminary Course/L3AQR3E831 0E0B	0
EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRELIMINARY/L3AQR3E831 000	0
PARARESCUE PREPARATORY COURSE (ENLISTED)/L3AQR1T231 003	0

**Table 12b. Number of Lost Training Days Per Trainee Entry
(Excludes Ongoing Courses)^a (Continued)**

Course/Course ID	Days Lost Per Training Entry
MILITARY FREEFALL PARACHUTIST/L5AQA1T231 001	0
Explosive Ordnance Disposal (EOD) Apprentice, AF/JCABP3E831 00AA	0
PARARESCUE EMERGENCY MEDICAL TECHNICIAN BASIC/L3AQP1T231 002	0
SCUBA DIVER/L5AZN1T231 000	0
Special Operations Weather Team Selection Course/L3AQR1W032 0C0A	0
Tactical Air Control Party (TACP) Preparatory Course/L3AQR1C431 0T0A	0
Total	4

^aThe shaded areas reflect the courses that exceeded the mean.

Mean: 3 days

Median: 1 day

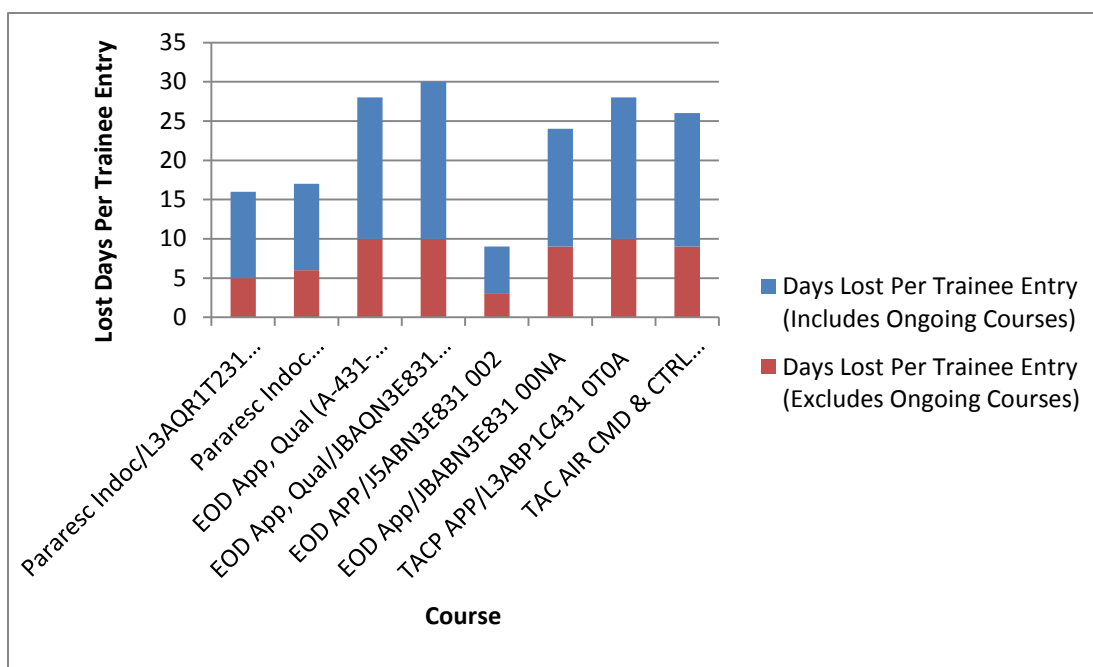


Figure 5. Number of Lost Training Days Per Trainee Entry

5.0 CONCLUSIONS

These findings quantify information that would reasonably be expected, namely, that the most important medical factors leading to lost training days among Battlefield Airmen trainees appear to be commonly occurring phenomena such as upper respiratory infections and musculoskeletal complaints and injuries. From these data it cannot be determined whether these medical issues are indicative of the nature of the training or incidental, e.g., sports related; however, they render continued training impossible. It should also be noted that no course had more than 40% of its attrition associated with *medical-related training events*, with the exception of Tactical Air Control Party (TACP) Preparatory Course offerings already completed. In fact, for most courses, *medical attrition* accounted for less than one-quarter of all attrition. The high cost of *medical-related training events* in terms of medical costs and lost training days appears to be driven by a handful of courses, e.g., EOD and Tactical Air Control apprentice courses and the Pararescue Indoctrination course.

5.1 Limitations

A key limitation to this analysis is the scope of available data, namely, that ADSS captures only training-associated events occurring under the purview of Second Air Force; thus, any attrition, delay, or recycling for courses outside of Goodfellow, Keesler, Lackland, Sheppard, or Vandenberg Air Force Base (AFB) is rendered invisible to surveillance. In fact, only courses offered at Keesler, Lackland, and Sheppard AFB were captured in our data.

As a nonmedical database, ADSS provides a listing of training-associated events, e.g., attrition, with a “medical” designator; however, it is unclear what that designator actually means or how it is determined. Furthermore, comparing the ADSS data with available health care data does not necessarily produce accurate findings. For example, one trainee who was categorized as *medical attrition* also had a clinical encounter the same day for a musculoskeletal complaint; however, a hand search of the individual’s electronic medical record revealed medical discharge processing due to asthma. An automated analysis of databases, the only timely and feasible option, would almost certainly misclassify this attrition as due to musculoskeletal causes. Additionally, 845 trainees had *medical-related training events*, including medical hold, in ADSS but no record of actual medical visits during the same time period. This is a primary reason for many of the data gaps in the current cost analysis that cannot be resolved with current surveillance methodologies.

Further scrutiny of TTPA data also revealed some post-dated entries, particularly regarding course completion. While it is possible that these were merely null-value placeholder entries, their inclusion may have yielded some inaccuracies in the analysis, particularly underestimating attrition for courses still in progress. The unfamiliarity of investigators with ADSS and with the specifics of Battlefield Airmen pipeline training may be responsible for additional inaccuracies. For example, we chose to evaluate each course with a unique case-sensitive name and/or course ID as separate entities, although some of these may in fact be inextricably linked, e.g. didactic and field training components taken concurrently. The ambiguity of the “medical” designator, among other status code descriptions, has been discussed.

5.2 Summary Conclusions

Although the data are significantly limited for the reasons discussed above, this analysis does identify a few courses that appear to carry a disproportionately high burden of cost in terms of lost training days or of direct medical costs. Primarily among these are the Explosive Ordnance Disposal apprentice, Tactical Air Control apprentice, and Pararescue Indoctrination courses. Although these findings warrant further consideration and scrutiny, it is impossible in the scope of this analysis to determine whether the “high-risk” courses are inherently high risk or if their chronological places in the training pipeline (or the courses preceding them) confer a higher level of risk to them.

6.0 RECOMMENDATIONS

The above data and analyses suggest the following recommendations, presented in no particular order:

- Expand the current ADSS/TTPA surveillance to include all training sites, including non-Air Force installations. Given that the majority of AFSC-awarding training for Battlefield Airmen trainees occurs away from Second Air Force installations, the full scope of medical attrition issues cannot be determined or even extrapolated from the present narrow perspective. To do this, ADSS/TTPA must be able to maintain continuous visibility on all Battlefield Airmen pipeline students from initial selection until arrival at the first assignment. The consolidation of support services under present joint basing initiatives may provide an opportunity to improve surveillance of Air Force trainees at some non-Air Force locations.
- Allow for better capture of medical events occurring during training. Potential solutions here are necessarily constrained by consideration of Privacy Act and Health Insurance Portability and Accountability Act laws. Certainly, specific medical information cannot be placed on a system such as ADSS/TTPA. However, it would be useful to know whether a specific event, particularly an injury, occurred during training and was the direct cause for individual attrition, as opposed to such attrition events as suboptimal physical fitness or interference of a chronic condition such as recurrent low back pain. More complete and accurate capture of medical encounter data on M2 is also crucial but beyond the scope of these recommendations.
- Enable specific medical oversight of Battlefield Airmen pipeline training. This would likely include providing the necessary authorization and resources for a trainee health component to maintain medical surveillance of pipeline trainees. Regardless, it must be accepted that some incompatibility will always exist between the medical and training data, as instructors and ADSS data entry personnel do not possess sufficient need-to-know authority to determine in every case whether an attrition is truly medical in origin. On a related note, the experiences and limitations documented in this report underscore the fact that it would be ill advised to attempt to simply consolidate ADSS and medical data into a single medical surveillance system and hope to obtain meaningful results.

- Provide more detailed evaluation of events and attrition for the courses highlighted in section 5.0 CONCLUSIONS while the aforementioned surveillance expansions are being considered and implemented. This may involve direct observation and evaluation of training, directed medical evaluation of attrition events and/or trainees, a human performance evaluation of training procedures and practices, or some other format and could have particularly high yield.

As always, the content of this report and these recommendations should be considered in context of other factors such as the operational, personnel, and fiscal needs of the Air Force and the unique individual and collective characteristics of the trainees themselves. To the authors' knowledge, investigations of illness and injury in Battlefield Airmen trainees are scarce, yet many resources are utilized to train this important group of warfighters. If more specific medical events are identified, countermeasures can be implemented in specific courses, thus saving the military a considerable amount of time and money.

7.0 REFERENCES

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LIST OF ABBREVIATIONS AND ACRONYMS

ADSS	Air Education and Training Command Decision Support System
AFB	Air Force Base
AFSC	Air Force Specialty Code
EOD	Explosive Ordnance Disposal
HQ AETC	Headquarters, Air Education and Training Command
ICD-9	International Classification of Diseases, Ninth Revision
ID	identifier
M2	Military Health System Mart
MTF	military treatment facility
SADR	Standard Ambulatory Data Record
SIDR	Standard Inpatient Data Record
TACP/TAC-P	Tactical Air Control Party
TTPA	Technical Training Production Analysis
USAFSAM/PHR	USAF School of Aerospace Medicine, Epidemiology Consult Service