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Therapeutic pharmaceutical utilization by military optometrists

Abstract

The Air Force, Army, and Navy have instituted regulations that authorize optometrists to use therapeutic pharmaceutical agents (TPAs). A survey of clinical optometrists on active duty was conducted to evaluate the impact of these regulations on military optometry. The results indicate that the majority of optometrists support the regulations and are utilizing TPAs to treat a wide variety of ocular disorders. However, the survey also found a number of optometrists in each service who were dissatisfied with certain aspects of the regulations. Some Air Force and Navy optometrists expressed concern that their regulations did not allow access to TPAs which they felt qualified to use. Some Army respondents felt that their regulation was unduly influenced by local policy and was not an equitable means of granting therapeutic privileges. These concerns suggest that a reevaluation of the therapeutic regulations might be required in the future.

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THERAPEUTIC PHARMACEUTICAL UTILIZATION BY MILITARY OPTOMETRISTS

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ABSTRACT: The Air Force, Army, and Navy have instituted regulations that authorize optometrists to use therapeutic pharmaceutical agents (TPAs). A survey of clinical optometrists on active duty was conducted to evaluate the impact of these regulations on military optometry. The results indicate that the majority of optometrists support the regulations and are utilizing TPAs to treat a wide variety of ocular disorders. However, the survey also found a number of optometrists in each service who were dissatisfied with certain aspects of the regulations. Some Air Force and Navy optometrists expressed concern that their regulations did not allow access to TPAs which they felt qualified to use. Some Army respondents felt that their regulation was unduly influenced by local policy and was not an equitable means of granting therapeutic privileges. These concerns suggest that a re-evaluation of the therapeutic regulations might be required in the future.

KEY WORDS: Air Force, Army, credentials, military, military optometry, military regulations, Navy, therapeutic pharmaceutical agents (TPAs), therapeutic privileges, therapeutic laws.

INTRODUCTION

Optometrists in the Air Force, Army, and Navy are members of one of the largest and oldest health care organizations in the United States. Their mission is to provide a wide range of optometric services to active duty personnel, military retirees, and dependents. These services range from basic optometric examinations performed in remote locations to specialized care provided in more traditional settings. More than 92% of military optometrists are involved in clinical activities and work with ancillary personnel to conduct an average of 61 routine exams per week.¹ Those individuals not involved in patient care activities could be pursuing advanced health care degrees, participating in research projects, or receiving military training. Regardless of assignment and duties performed, the overwhelming number of optometrists report that the military setting provides outstanding patient care experiences and a unique opportunity to interact with other health care professionals in a multidisciplinary setting.¹

Recently, the profession has witnessed a major effort in both the civilian and military sectors to utilize therapeutic pharmaceutical agents (TPAs). This effort, a natural extension of the primary eye care role supported by the American Optometric Association, has resulted in a basic philosophical change in the way many optometrists view their profession. A significant number of optometrists no longer want to simply “detect and refer,” but wish to “diagnose and manage” their patients to the maximum extent permitted by law.² In twenty-five states and the three military services, this includes the use of TPAs.

The Army was the first service branch to recognize the qualifications of optometrists to use TPAs when it revised Army Regulation (AR) 40-2 in 1983.³ This regulation authorizes medical treatment facility commanders to credential qualified optometrists to write prescriptions for TPAs and to treat ocular diseases. Written in very general terms, it does not define the qualifications an optometrist must possess to use therapeutic agents, nor does it limit the diseases that may be treated. The only limitation placed on optometrists is that they cannot prescribe controlled substances.

Each request by an Army optometrist for therapeutic privileges must be reviewed and approved by the following: 1. the physician (frequently an ophthalmologist) responsible for the optometry clinic's activities; 2. the hospital's Therapeutic Agents Board and Credentials Committee; and 3. the hospital commander. It is necessary for the optometrist to convince each of these authorities that she or he is qualified to use TPAs. This local control allows commanders to "tailor" the credentials of optometrists to the needs of the medical treatment facility. However, it can lead to very broad therapeutic privileges at one facility and severe restrictions at another.

In contrast to the Army regulations, the Air Force and Navy have recently instituted therapeutic regulations that provide for a more centralized, service-wide credentialing mechanism. The Air Force introduced its therapeutic regulation (AFR 160-12) in May, 1988.⁴ It is significantly different from the Army's in several respects. For example, it defines the qualifications an optometrist must have before being credentialed to use therapeutic agents. These include: (1) possessing a state license authorizing the individual to prescribe TPAs, or (2) completion of an ocular therapeutics course of at least 100 hours, or (3) completion of six semester hours of ocular therapeutics from an accredited optometric institution. Once qualified, the optometrist applies for therapeutic privileges from the medical treatment facility's Pharmacy and Therapeutics Committee. The regulation specifies the types of ocular conditions that may be treated -- conditions in which a successful outcome is anticipated within 10 days, chronic blepharitis, and recurring allergic blepharo-conjunctivitis. It allows for the removal of superficial foreign bodies, requires prior consultation with a physician or ophthalmologist before steroids are prescribed, and allows optometrists to renew expired ophthalmology prescriptions. Finally, the regulation allows for more extensive privileges to be granted in special situations, with the approval of the Major Command's consulting ophthalmologist.

The Navy's authorization allowing optometrists to use TPAs (NAVMEDCOMINST 6320.8)⁵ was introduced in July, 1988 and is

virtually identical to the Air Force regulation with two exceptions. First, the Navy requires an additional step to become qualified to use TPAs -- completion of at least 25 hours of accredited, supervised clinical training in the use of pharmaceutical agents. Second, the regulation specifies the categories of topical ophthalmic agents that may be prescribed by an optometrist with and without physician consultation. No consultation is required for topical cycloplegics, topical antibiotics, over-the-counter agents, antihistamines/decongestants, non-steroidal anti-inflammatory agents (NSAIDs), mydriatics, and anesthetics. Consultation is required prior to prescribing steroids, anti-virals, and miotics.

To date, there has been no evaluation of the effectiveness of these regulations. Are military optometrists actually requesting and receiving credentials to use TPAs? If so, what categories of drugs are they using, and what diseases are they treating? If they are not receiving therapeutic privileges, why not? How have the regulations impacted their clinical practices? How satisfied are they with these changes? This study was conducted to answer these questions.

METHODS

In March 1989 a survey was mailed to every clinical optometrist on active duty in the Armed Forces. The names and addresses of these optometrists were obtained from rosters provided by each service's optometry consultant. Enclosed with the survey was a cover letter explaining the purpose of the study, letters of support from the Army and Air Force consultants, and a return-addressed, prepaid envelope. All participants were assured of complete anonymity.

The survey was divided into four sections:

1. Personal data: rank, service branch, qualifications to use therapeutics, and professional relationships with ophthalmologists.
2. Data concerning the clinical facility to which the optometrist was assigned: location, number of assigned optometrists and ophthalmologists, and the presence of ophthalmology residency programs.

3. Data on the use of TPAs: types of conditions treated, drugs used, and the referral rate for patients treated with TPAs who later required follow-up care by an ophthalmologist.

4. Credentialing data: categories of drugs requested for use, action taken by the health care facility on each request, and problems encountered in the credentialing process. This section also assessed the degree of satisfaction with current regulations and allowed respondents to express opinions on therapeutic practices in their service.

RESULTS

Response Rate

Three hundred and forty four of the original 427 surveys were returned, resulting in an overall response rate of 80.6% (82.0% Air Force, 82.7% Army, and 76.2% Navy). Four Army and two Navy surveys were not used, either because they were returned by optometrists in research or administrative positions, or because they were incomplete. As a result, a total of 338 or 79.2% of the surveys were analyzed -- 146 Air Force, 101 Army, and 91 Navy.

Qualifications

The study evaluated the qualifications of military optometrists to use TPAs. Qualifications examined by the survey reflected the requirements found in the Air Force and Navy regulations. These include possessing a state license authorizing the use of TPAs, completion of a 100 hour therapeutics course, or completion of six semester hours of therapeutic pharmacology. Navy respondents were also asked to indicate if they had completed 25 hours of supervised clinical training. The results (Table 1) show that 90.5% of all respondents had either the state license, 100 hour course, or 6 semester hours of pharmacology (95.2% Air Force, 86.1% Army, and 87.9% Navy). Thus, more than 95% of Air Force respondents and all Army respondents (who had no specific requirements in their regulation) were qualified by regulation to request the use of TPAs from their respective medical facilities. In contrast, only 26.4% of Navy respondents were qualified by their

regulation to apply for TPA certification. This lower percentage is due to the additional 25 hours of clinical training required by the Navy regulation. Many Navy optometrists had not had time to complete this requirement because their regulation was introduced only seven months prior to this survey.

INSERT TABLE 1 ABOUT HERE

Therapeutic Credentialing

Military optometrists wanting to use TPAs must submit a request for the drugs they wish to use through hospital channels. These channels, which might include the Therapeutics Agents Board, Credentials Committee, hospital commander, and other bodies depending on the service involved, must take action on the request. This action could result in the optometrist receiving either full therapeutic credentials for his drug request, limited credentials, or actually having all or part of his request denied. For the purpose of this study, full credentials meant that the optometrist received unlimited access to the drug category requested. Limited credentials was defined as any actions taken by the health care facility that limited access to requested TPAs. These restrictions might involve requiring prior consultation with a physician before prescribing, restricting the number or types of drugs to be used in a specific drug category, or limiting prescribing to the renewal of physician's prescriptions only.

Table 2 indicates that nearly 90% of all military optometrists responding to the question had requested the use of at least one category of TPAs. The most frequently requested drug classes were topical antihistamine/decongestants (89.9%), topical antibacterials (88.8%), and topical steroids (69.2%). Of the drug categories requested, the most likely to be approved for full credentialing were topical antihistamine/decongestants (91.1%), topical antibacterials (83.7%), and non-steroidal anti-inflammatory agents (63.1%).

Significant differences were found between the services in terms of the action taken on TPA requests by health care facilities. For example, 97.0% percent of Air Force optometrists who requested

antihistamine/decongestants were granted full credentials, compared to 90.4% Army and 81.3% Navy. More than 91% of Air Force requestors were fully credentialed for antibacterials as compared to 78.5% for the Army and 76.1% for the Navy. More than 5% of Army and 13.3% of Navy respondents were denied credentials for antihistamine/decongestants, and 8.6% of Army and 12.7% of Navy optometrists were denied access to antibacterial agents. No Air Force optometrists were denied credentials for these agents. On the other hand, Army optometrists requesting the use of topical steroids and glaucoma medications were much more likely to receive full credentials than were their counterparts in the Air Force and Navy (steroids - 43.2% Army versus 4.9% Air Force and 22.4% Navy; glaucoma medications - 26.2% Army versus 2.0% Air Force and 11.1% Navy).

INSERT TABLE 2 ABOUT HERE

For all service branches, credentials were most frequently limited for steroids, glaucoma medications, and systemic medications. The respondents who received limited credentials for these categories indicated that steroid use usually required consultation with a physician prior to prescribing; glaucoma medications were usually limited to refilling prescriptions; and systemic medications were limited by drug selection (usually to over-the-counter antihistamine/decongestants and analgesics). The primary reason given for requests being limited was opposition from ophthalmology. This factor was cited more often by Army respondents (79.4%) than Air Force and Navy respondents (61.2% and 65.2%).

Ophthalmological opposition also played a significant role in determining why some Army respondents were not credentialed to use any TPAs. More than 61.5% of these optometrists cited local opposition from ophthalmology as the primary reason they were not using TPAs in their practices, compared to 18.9% of Air Force and 33.3% of Navy respondents. This disparity will grow as the Air Force and Navy regulations become fully implemented and the

influence of ophthalmology on the credentialing process of optometrists is reduced. The Army regulation currently provides no relief from this opposition.

Utilization of Therapeutic Agents

Based on the questionnaire, an average of about 36 patients per month were treated with TPAs by each credentialed military optometrist (see Table 3). The numbers were very similar between the Air Force and Army for all drug categories, but the Navy had a lower rate of use for all categories except glaucoma medications. A significant range was found to exist for every drug category, indicating that some individuals were aggressively implementing their therapeutic privileges, while others had not altered their normal practice routine.

INSERT TABLE 3 ABOUT HERE

The most commonly treated ocular diseases were conjunctivitis, blepharitis, and hordeolum/chalazion. Table 4 shows that the Air Force had a greater percentage of optometrists treating these conditions, which reflects their higher credentialing rates for the use of antihistamine/decongestants and antibacterial agents. More Army optometrists were involved with the independent management of glaucoma and anterior uveitis, which reflects their greater access to steroid and glaucoma medications.

A comparison of the number of military optometrists who independently treated the ocular conditions listed in Table 4 with data from Shipp and Tally's 1987 survey¹ shows a significant increase in treatment across the board for every condition. The treatment of foreign bodies increased from 60.1% to 76.9%; conjunctivitis increased from 70% to 82%; blepharitis from 76.7% to 82.0%; uveitis from 15% to 35.5%, hordeolum/chalazion from 33.3% to 78.4%, glaucoma from 1.7% to 5.6%, and corneal ulcers from 8.1% to 26.3%.

INSERT TABLE 4 ABOUT HERE

Respondents were asked to indicate the percentage of patients that they independently treated with TPAs who were later referred to ophthalmology because of complications. Table 5 indicates that the referral rate was extremely low. Almost ninety-four percent of the optometrists stated their referral rate was in the 0-4% range, 4.4% were in the 5-9% range, and 1.7% in the 10-19% range. There was no significant difference in rates between the services. The low referral rate suggests that military optometrists can use TPAs with minimal ophthalmological support.

INSERT TABLE 5 ABOUT HERE

Satisfaction with Current Therapeutic Regulations

More than 42% of Air Force, 50.0% of Navy, and 60.2% of Army optometrists responding to the question expressed dissatisfaction with their services' therapeutic regulations. Two major issues emerged to explain this dissatisfaction -- one concerning the Army, the other concerning the Air Force and Navy.

The overwhelming number of dissatisfied Army optometrists felt that their regulation was imprecise in defining the credentialing process, and, as a result, was subject to significant variations in its implementation. The data in Table 6 support this. The Table compares the credentialing rates for similarly qualified Army and Air Force optometrists in relation to factors that might influence the credentialing process. (The Navy was not included in this comparison because of the small number of optometrists who had met their service's requirements.) Army optometrists were significantly less likely to receive credentials to use antihistamine/decongestants, antibacterial agents, and topical steroids in the presence of a strong ophthalmological influence. They were one-tenth as likely to be credentialed for these TPAs if they were located at a facility with more than two ophthalmologists, and approximately one-third as likely if an

ophthalmology residency program was present. Having an ophthalmologist serve as a rater of their performance or having poor professional relations with ophthalmology was also associated with a reduced chance of receiving therapeutic privileges. Further, Army optometrists were almost three times as likely as their Air Force counterparts [37.5%, (30/80) versus 12.6%, (12/95)] to have had their therapeutic privileges reduced upon transferring to a new duty station. The only factors that seemed to be associated with an increased probability of credentialing in the Army were practicing in a state that had passed a TPA law (82.8% credentialed versus 45.5% in a state without a TPA law), or being at the rank of Lieutenant Colonel or Colonel. In contrast, the Air Force shows little variation in credentialing due to any of these factors.

INSERT TABLE 6 ABOUT HERE

The majority of Air Force (41/56, 73.2%) and a large proportion of Navy optometrists (13/38, 34.2%) who were dissatisfied felt their regulations were not broad enough to allow them access to the medications they felt qualified to use. Most desired to use topical steroids without having to consult an ophthalmologist or other physician first. Both groups felt they were qualified to use TPAs to a greater degree than the regulation allowed.

Other reasons cited for dissatisfaction included: too much control by ophthalmology, lack of wide acceptance of the regulation by some commands (Navy), and difficulty receiving funding to attend the educational meetings that would serve to satisfy regulation requirements.

Those optometrists who were satisfied with the regulations (57.8% Air Force, 39.8% Army, 50.0% Navy) felt that the services had come a long way in allowing optometrists to use TPAs. They were content with current regulations and saw no need to modify them at this time.

Comments

A broad range of comments were provided by optometrists in each of the services. Air Force respondents most frequently mentioned the need for broader credentials than their regulation allowed. Army personnel were concerned with both the development of a standardized credentialing policy and a funding mechanism to allow for attendance at a 100 hour therapeutics course. Navy optometrists mentioned the need for greater autonomy from ophthalmology and for centralized funding to meet their new educational requirements. Several individuals expressed satisfaction with their service's regulations, and a few indicated there was too great an emphasis being placed on therapeutics by organized optometry. The following quotes represent some of the problems and concerns that military optometrists expressed on the questionnaire:

"Therapeutic drug use should not vary drastically from one medical treatment facility to another. Optometrists should have greater privileges than physician assistants."

"...Right now we are not allowed to Rx any antibiotics, whereas physician assistants are allowed to. This doesn't seem right since we have so much more training in optometric care..."

"I will never understand why an optometrist can not sign for certain eye meds when a PA, nurse practitioner, or general MD can..."

"While therapeutics are important, it is stressed to the point that students are forgetting the basics. Poor ability to refract...do retinoscopy...take "K" readings and fit contact lenses. Educators are doing a disservice to the students by ignoring the basics..."

"Relations with the MEDDAC (Medical Activity) staff ophthalmologist are excellent and I accept his limited denial of privileges. We have come a long way in a few years and will continue to expand our scope as we foster confidence in our clinical skills."

"...Not enough attention is being given to vision function. Therapeutics is just one more distraction from my primary job."

"We need to keep up with the various states. We used to lead and are now falling behind in some respects."

“...The federal optometrists are supposed to “lead the way” regarding trends, etc. When did things slip away?”

“...If we are credentialed to use the drug we should not have to call an ophthalmologist to consult unless a complication develops...”

“The extreme variation in drug use and treatment places new optometrists in a potentially harmful situation. We may have limited or no experience in the treatment of common ocular anterior segment problems in a series of assignments and then are expected to provide full coverage in a sole provider clinic without ophthalmology support. At the same time we are discouraged from applying for concentrated therapeutic/anterior segment courses due to time/monetary constraints.”

DISCUSSION

The introduction of therapeutic regulations represented a giant step forward in expanding the scope of military optometry. They were introduced by progressive optometry consultants who not only recognized the ability of optometrists to use TPAs, but who possessed the necessary political skills to facilitate their implementation in a physician-controlled health care system. At the time of their development, the regulations were the most advanced and comprehensive ones that could be instituted. Their appropriateness is demonstrated by the results of this study. More than 90% of respondents indicated they had either attended comprehensive therapeutic courses or had obtained a state license authorizing them to use TPAs. Over 89% had requested the use of some categories of TPAs, and those receiving privileges were very successful in the management of their therapeutic patients. The results indicate that the regulations have accomplished their primary goal of increasing access to TPAs by military optometrists. However, concerns expressed by some respondents indicate that problems do exist with the regulations that should be addressed.

The Air Force and Navy regulations are similar to state therapeutic laws (e.g., Arkansas⁶, Colorado⁷, and Missouri⁸) which specify the ocular diseases that may or may not be treated, and/or the categories of drugs that may or may not be utilized. There is an

advantage to regulations or laws being this specific -- it is very difficult for opposing groups (or individuals) to deny a qualified optometrist access to the specified agents. The disadvantage, as expressed by survey respondents, is that it is difficult to receive therapeutic privileges that fall outside the tight boundaries defined by the regulation. For example, Air Force and Navy optometrists found it very difficult or impossible to use steroids independently because their regulations require consultation with an ophthalmologist or physician before this class of drugs can be prescribed. Their level of concern can be expected to grow in the future as optometry's therapeutic role expands and they are limited by prohibitions associated with the management of glaucoma, viral keratitis, and ocular conditions requiring treatment longer than 10 days. Although these regulations (and their state law counterparts) meet the needs of the majority of today's Air Force and Navy optometrists, they may eventually require modification to reflect optometry's expanding role in disease management.

The Army regulation is similar to state laws (e.g., Idaho⁹, New Mexico¹⁰, Rhode Island¹¹, and North Carolina¹²) that attempt to avoid limiting the therapeutic scope of optometry to specific drugs and diseases. As a result, Army optometrists can assume a therapeutic role which in some locations is greater than that which the Air Force and Navy routinely allow. However, the Army regulation has a major drawback in that it has placed the credentialing of optometrists in the hands of medical personnel at each health care facility. Army optometrists do not directly control their ability to use TPAs. This has led to an inequitable credentialing policy and the highest dissatisfaction rate among the services. Some state laws appear to have overcome this problem by having the state board of optometry, in conjunction with the state pharmacy or medical boards, determine the therapeutic agents that can be used. Their laws seem to allow the list of drugs, and, in turn, the scope of treatment to be updated by these boards to reflect advances in the educational and clinical training of optometrists. A military regulation written with this degree of flexibility and optometric participation would appear to satisfy many of the concerns

expressed by survey respondents. If implemented properly, it would allow for the modification or expansion of military optometry's TPA privileges without requiring the introduction of new regulations, a difficult and uncertain process at best. State optometric organizations contemplating therapeutic legislation should also consider this type of law when developing their own therapeutic proposals.

In summary, this study has shown that the expansion of optometry into the therapeutic arena has been enthusiastically accepted by most military optometrists and is continuing to progress at a rapid rate. Problems were discovered with the therapeutic regulations of each service branch, but there is every indication that the utilization of TPAs by military optometrists will continue to develop.

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TABLE 1. Therapeutic qualifications of military optometrists responding to the survey. (Percentages are based on data from all 146 Air Force, 101 Army, and 91 Navy respondents)

Qualification Standard	Percentage of military optometrists possessing each qualification standard			
	AIR FORCE	ARMY	NAVY	MEAN
State therapeutic license	24.7	30.7	25.3	26.6
100 hour course	40.4	30.7	24.2	33.1
6 semester hours	76.0	80.2	83.5	79.3
25 hours of clinical training (Navy requirement only)	NA	NA	26.4	NA
State license, <u>or</u> 100 hour course, <u>or</u> 6 semester hours	95.2*	86.1	87.9	90.5
State license, <u>or</u> 100 hour course, <u>or</u> 6 semester hours, <u>and</u> 25 hours of clinical training	NA	NA	26.4*	NA

* Met their service regulation requirements to use therapeutic agents. (The Army does not specify qualification standards to use TPAs.)

TABLE 2. Therapeutic credentialing of military optometrists. (Percentages are based on all 146 Air Force, 101 Army and 91 Navy respondents.)

Drug category	% of military optometrists requesting credentials				% requesting who received full credentials				% requesting who received limited credentials				% requesting who were denied credentials			
	Air Force	Army	Navy	Total	Air Force	Army	Navy	Total	Air Force	Army	Navy	Total	Air Force	Army	Navy	Total
topical antihistamine/decongestants	92.5	93.1	82.4	89.9	97.0	90.4	81.3	91.1	3.0	4.3	2.7	3.3	0.0	5.3	13.3	4.9
topical antibacterials	93.2	92.1	78.0	88.8	91.2	78.5	76.1	83.7	8.8	12.9	8.5	10.0	0.0	8.6	12.7	5.7
topical antivirals	50.0	60.4	59.3	55.6	43.8	62.3	37.0	47.9	38.4	18.0	35.2	30.9	15.1	20.0	24.1	18.6
topical antifungals	19.9	44.6	41.8	33.1	44.8	55.5	44.7	49.1	13.8	13.3	23.7	17.0	37.9	28.9	23.7	29.5
topical steroids	69.9	73.3	63.7	69.2	4.9	43.2	22.4	21.4	80.4	33.8	53.4	59.4	14.7	21.6	22.4	18.4
non-steroidal anti-inflammatory agents	43.8	56.4	63.7	53.0	60.9	70.2	58.6	63.1	18.8	7.0	17.2	14.5	15.6	15.8	19.0	16.8
glaucoma medications	67.8	60.4	39.6	58.0	2.0	26.2	11.1	11.2	92.9	52.5	55.6	73.5	5.1	18.0	33.3	14.3
systemic medications	32.2	22.8	29.7	28.7	2.1	4.3	7.4	4.1	61.7	52.2	40.7	53.6	31.9	39.1	51.9	39.2

TABLE 3. Average frequency of therapeutic drug use per month by military optometrists who are credentialed to use the respective drug categories.

DRUG CATEGORY	FREQUENCY OF USE/MONTH				
	AIR FORCE	ARMY	NAVY	MEAN	RANGE
decongestant/ antihistamine	11.1	11.1	8.0	10.5	0-55
anti-bacterial	11.0	11.7	10.3	11.1	0-100
antiviral	1.2	1.5	0.6	1.1	0-10
antifungal	1.5	1.2	0.4	1.0	0-10
steroids	2.8	3.6	1.8	2.9	0-25
NSAIA	4.4	4.1	2.3	3.7	0-25
glaucoma	3.3	3.7	4.6	3.6	0-35
systemic	2.3	2.5	1.4	2.2	0-6
TOTAL	37.6	39.4	29.4	36.1	NA

TABLE 4. Percentage of military optometrists independently treating the following diseases. (Percentages are based on all 146 Air Force, 101 Army, and 91 Navy respondents.)

DISEASES TREATED	% AIR FORCE	% ARMY	% NAVY	MEAN
Conjunctivitis	91.8	82.2	67.0	82.2
Blepharitis	91.1	82.2	67.0	82.0
Keratitis	83.6	67.3	64.8	73.7
Episcleritis	46.6	39.6	47.3	44.7
Corneal ulcer	27.4	31.7	18.7	26.3
Hordeolum, chalazion	88.4	77.2	63.7	78.4
Anterior uveitis	31.5	39.6	37.4	35.5
Primary open angle glaucoma	2.1	9.9	6.9	5.6
Angle closure glaucoma	2.7	10.9	6.6	6.2
Foreign body removal	89.0	70.3	64.8	76.9

TABLE 5. Referral rates for patients independently treated by optometrists with TPAs who later required referral to ophthalmology due to complications. (Percentages are based on the 136 Air Force, 90 Army, and 69 Navy optometrists who responded to this question.)

REFERRAL RATE	% AIR FORCE	% ARMY	% NAVY	TOTAL
0-4%	92.7%	93.3%	97.1%	93.9%
5-9%	5.2%	5.6%	1.5%	4.4%
10-19%	2.1%	1.1%	1.4%	1.7%

TABLE 6. Comparison of Army and Air Force credentialing of qualified optometrists in response to factors that might influence the credentialing process. (Credentialing is defined as requesting and receiving full therapeutic privileges to use topical antihistamine/decongestants and antibacterials, and requesting and receiving full or partial privileges to use topical steroids.)

Variable analyzed	% Air Force credentialled	% Army credentialled
Number of ophthalmologists		
0-2	89.5 (77/86)	83.9 (52/62)
>2	100 (2/2)	9.1 (1/11)
Ophthalmology residency program		
yes	90.9 (10/11)	28.6 (2/7)
no	82.4 (70/85)	76.9 (50/65)
Perceived Relationship with ophthalmology		
poor to fair	75.0 (6/8)	23.1 (3/13)
good to excellent	85.4 (76/89)	83.6 (51/61)
Ophthalmologist as rater		
yes	80.0(28/35)	58.3 (7/12)
no	84.4 (54/64)	75.4 (46/61)
Clinic located in a State with a TPA law for optometrists		
yes	80.0 (20/25)	82.8 (24/29)
no	79.2 (42/53)	45.5 (10/22)
Rank of optometrists		
Captain	79.7 (51/64)	72.7 (24/33)
Major	88.5 (23/26)	63.3 (19/30)
Lieutenant Colonel	87.5 (7/8)	100 (9/9)
Colonel	0.0 (0/1)	100 (1/1)

APPENDIX 1

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Page A26. Tables 24-26. Analysis of Army internship programs and credentialed Army optometrists.

TABLE 1. SURVEY RESPONSE RATE.

Service Branch	Number of Surveys Sent	Number of surveys received	Overall response rate
Army	127	105	82.7%
Air Force	178	146	82.0%
Navy	122	93	76.0%
TOTAL	427	344*	80.3%

* Only 338 surveys were used during the analysis of the data. Six surveys were eliminated, either because they were from non clinical optometrists or the responses were incomplete. 101 Army, 146 Air Force, and 91 Navy surveys were used.

TABLE 2. CATEGORIES OF PATIENTS EXAMINED BY MILITARY OPTOMETRISTS.

CATEGORY	ARMY	AIR FORCE	NAVY	TOTAL
	%	%	%	%
ACTIVE DUTY	56.2	45.0	63.1	53.1
DEPENDENTS	31.4	30.7	18.3	27.5
RETIRED	9.6	22.9	15.3	17.0
OTHER	3.1	1.6	3.0	2.4

TABLE 3. PATIENT LOAD ANALYSIS FOR MILITARY OPTOMETRISTS.

CATEGORY ANALYZED		ARMY	AIR FORCE	NAVY
		%	%	%
TOTAL PATIENTS EXAMINED PER WEEK	< 20	0.0%	0.0%	1.1%
	20 - 39	4.0%	1.0%	1.1%
	40 - 59	11.9%	2.8%	18.7%
	60 - 79	53.5%	40.0%	64.6%
	> 80	30.7%	56.6%	16.5%
NUMBER OF PATIENTS TREATED WITH TPA'S PER WEEK	< 5	43.3%	44.6%	47.1%
	5 - 9	32.2%	28.8%	30.9%
	10 - 19	18.9%	16.6%	20.6%
	20 - 29	4.4%	8.6%	1.5%
	> 30	1.1%	1.4%	0.0%

TABLE 4. PERCENTAGE OF MILITARY OPTOMETRISTS WHO ARE FAMILIAR WITH THEIR SERVICE'S THERAPEUTIC REGULATIONS.

Service Branch	Number of OD's responding to question	Number of OD's familiar with regulations	Percent of respondents familiar with regulations
Army	101	80	79.2%
Air Force	141	133	94.3%
Navy	86	80	93.0%
TOTAL	328	293	89.3%

TABLE 5. SATISFACTION OF MILITARY OPTOMETRISTS WITH CURRENT THERAPEUTIC REGULATIONS.

Service Branch	Number of OD's responding to question	Number of OD's that are satisfied	Percent satisfied
Army	93	37	39.8%
Air Force	133	77	57.9%
Navy	82	41	50.0%
TOTALS	308	155	50.3%

TABLE 6. ARMY SATISFACTION RELATED TO AGE, RANK, AND TOTAL YEARS IN PRACTICE.

AGE	Number of OD's responding	Number of OD's satisfied	% Satisfied
20-29	11	4	36.4%
30-39	40	15	37.5%
40-49	38	15	39.5%
50 and over	3	2	66.7%

RANK	Number of OD's responding	Number of OD's satisfied	% Satisfied
Captain	35	14	42.8%
Major	38	11	28.9%
LTC	16	8	50.0%
Colonel	3	2	66.7%

YEARS IN PRACTICE	Number of OD's responding	Number of OD's satisfied	% Satisfied
< 5	21	10	47.6%
5 - 9	24	7	29.1%
10-15	21	5	23.8%
> 15	26	14	53.8%

TABLE 7. AIR FORCE SATISFACTION RELATED TO AGE, RANK, AND TOTAL YEARS IN PRACTICE.

AGE	NUMBER OF OD'S RESPONDING	NUMBER OF OD'S SATISFIED	% SATISFIED
20-29	26	17	65.4%
30-39	72	37	51.1%
40-49	30	20	66.7%
50 and over	2	2	100%

RANK	NUMBER OF OD'S RESPONDING	NUMBER OF OD'S SATISFIED	% SATISFIED
Lieutenant	1	1	100%
Captain	74	38	51.4%
Major	43	29	67.4%
Lieutenant Colonel	10	5	50.0%
Colonel	2	2	100%

YEARS IN PRACTICE	NUMBER OF OD'S RESPONDING	NUMBER OF OD'S SATISFIED	% SATISFIED
< 5	48	30	62.5%
5 - 9	34	15	44.1%
10-15	25	16	64.0%
> 15	24	15	62.5%

TABLE 8. NAVY SATISFACTION RELATED TO AGE, RANK, AND TOTAL YEARS IN PRACTICE.

AGE	NUMBER OF OD'S RESPONDING	NUMBER OF OD'S SATISFIED	% SATISFIED
20-29	18	8	44.4%
30-39	41	19	55.5%
40-49	21	12	50.0%
50 and over	2	2	100%

RANK	NUMBER OF OD'S RESPONDING	NUMBER OF OD'S SATISFIED	% SATISFIED
Lieutenant j. g.	1	0	0.00%
Lieutenant	49	22	44.9%
Lieutenant Commander	18	10	55.5%
Commander	10	5	50.0%
Captain	4	4	100%

YEARS IN PRACTICE	NUMBER OF OD'S RESPONDING	NUMBER OF OD'S SATISFIED	% SATISFIED
< 5	33	12	36.4%
5-9	21	12	57.1%
10-15	13	7	53.9%
> 15	15	10	66.7%

TABLE 9. QUALIFICATIONS OF ALL MILITARY OPTOMETRISTS.

CRITERIA	# OD'S ANSWERING QUESTION	# OD'S MEETING CRITERIA	% OF THOSE ANSWERING WHO MEET CRITERIA	% OF ALL OD'S WHO MEET CRITERIA
STATE LICENSE WITH TPA'S	338	90	26.6%	26.6%
100 HOUR COURSE	338	112	33.1%	33.1%
6 SEMESTER HOURS OF TPA'S	337	268	79.5%	79.3%
STATE LICENSE, 100 HOUR COURSE, OR 6 SEMESTER HOURS	338	306	90.5%	90.5%

Table 10. QUALIFICATIONS OF ARMY OPTOMETRISTS.

CRITERIA	NUMBER OF OD'S ANSWERING QUESTION	NUMBER OF OD'S WHO MEET CRITERIA	% OF THOSE ANSWERING WHO MEET CRITERIA	% OF ALL OD'S WHO MEET CRITERIA
STATE LICENSE AUTHORIZING TPA'S	101	31	30.7%	30.7%
100 HOUR COURSE	101	31	30.7%	30.7%
6 SEMESTER HOURS OF PHARMACOL-OGY	101	81	80.2%	80.2%
STATE LICENSE, 100 HOUR COURSE OR 6 SEMESTER HOURS	101	87	86.1%	86.1%

TABLE 11. QUALIFICATIONS OF AIR FORCE OPTOMETRISTS.

CRITERIA	# OD'S ANSWERING QUESTION	# OD'S MEETING CRITERIA	% OF THOSE ANSWERING WHO MEET CRITERIA	% OF ALL OD'S WHO MEET CRITERIA
STATE LICENSE WITH TPA'S	146	36	24.7%	24.7%
100 HOUR COURSE	146	59	40.4%	40.4%
6 SEMESTER HOURS OF TPA'S	145	111	76.6%	76.6%
STATE LICENSE, 100 HOUR COURSE, OR 6 SEMESTER HOURS	146	139	95.2%	95.2%

TABLE 12. QUALIFICATIONS OF NAVY OPTOMETRISTS

CRITERIA	# OD'S ANSWERING QUESTION	# OD'S MEETING CRITERIA	% OF THOSE ANSWERING WHO MEET CRITERIA	% OF ALL OD'S WHO MEET CRITERIA
STATE LICENSE WITH TPA'S	91	23	25.3%	25.3%
100 HOUR COURSE	91	22	24.2%	24.2%
6 SEMESTER HOURS OF TPA'S	91	76	83.5%	83.5%
25 HOURS OF CLINICAL EXPERIENCE	85	24	28.2%	26.4%
STATE LICENSE, 100 HOUR COURSE, OR 6 SEMESTER HOURS	91	80	87.9%	87.9%
STATE LICENSE, 100 HOUR COURSE, OR 6 SEMESTER HOURS AND 25 HOURS OF CLINICAL EXPERIENCE	85	24	28.2%	26.4%

TABLE 13. ANALYSIS OF THERAPEUTIC CREDENTIALING OF MILITARY OPTOMETRISTS.

DRUG CATEGORY	% OF OD'S REQUESTING CREDENTIALS	% REQUESTING WHO RECEIVED FULL CREDENTIALS		% REQUESTING WHO RECEIVED LIMITED CREDENTIALS		% REQUESTING WHO WERE DENIED CREDENTIALS	
		% OF ALL OD'S	% OF ALL OD'S	% OF ALL OD'S	% OF ALL OD'S		
Antihistamines /decongestants	89.9%	91.1%	82.0%	3.3%	3.0%	5.3%	4.9%
Topical antibacterials	88.8%	83.7%	74.3%	10.0%	3.0%	5.7%	5.0%
Topical antivirals	55.6%	47.9%	26.6%	30.9%	17.2%	18.6%	10.4%
Topical antifungals	33.1%	49.1%	16.3%	17.0%	5.6%	29.5%	9.8%
Topical steroids	69.2%	21.4%	14.8%	59.0%	40.8%	18.8%	13.0%
Non-steroidal anti-inflammatory agents	53.0%	63.1%	33.4%	14.5%	7.7%	16.8%	8.9%
Glaucoma meds	58.0%	11.2%	6.5%	73.5%	42.6%	14.3%	8.3%
Systemic meds	28.7%	4.1%	1.2%	53.6%	15.4%	40.2%	11.5%

TABLE 14. ANALYSIS OF THERAPEUTIC CREDENTIALING OF ARMY OPTOMETRISTS.

DRUG CATEGORY	% OF ARMY OD'S REQUESTING CREDENTIALS	% REQUESTING WHO RECEIVED FULL CREDENTIALS		% REQUESTING WHO RECEIVED LIMITED CREDENTIALS		% REQUESTING WHO WERE DENIED CREDENTIALS
		% OF ALL OD'S	% OF ALL OD'S	% OF ALL OD'S	% OF ALL OD'S	
Antihistamines/ decongestants	93.1%	90.4%	84.2%	4.3%	4.0%	5.3%
Topical antibacterials	92.1%	78.5%	72.3%	12.9%	11.9%	8.6%
Topical antivirals	60.4%	62.3%	37.6%	18.0%	10.9%	20.0%
Topical antifungals	44.6%	55.5%	24.8%	13.3%	5.9%	28.9%
Topical steroids	73.3%	43.2%	31.7%	33.8%	25.7%	21.6%
Non-steroidal anti- inflammatory agents	56.4%	70.2%	39.6%	7.02%	4.0%	15.8%
Glaucoma meds	60.4%	26.2%	15.8%	52.5%	31.7%	18.0%
Systemic meds	22.8%	4.3%	1.0%	52.2%	11.9%	39.1%

TABLE 15. ANALYSIS OF THERAPEUTIC CREDENTIALING OF AIR FORCE OPTOMETRISTS

DRUG CATEGORY	% OF AIR FORCE OD'S REQUESTING CREDENTIALS	% REQUESTING WHO RECEIVED FULL CREDENTIALS		% REQUESTING WHO RECEIVED LIMITED CREDENTIALS		% REQUESTING WHO WERE DENIED CREDENTIALS
		% OF ALL OD'S	% OF ALL OD'S	% OF ALL OD'S	% OF ALL OD'S	
Antihistamines/decongestants	92.5%	97.0%	89.7%	3.0%	2.7%	0.0%
Topical antibacterials	93.2%	91.2%	84.9%	8.8%	8.23%	0.0%
Topical antivirals	50.0%	43.8%	21.9%	38.4%	19.2%	15.1%
Topical antifungals	19.9%	44.8%	8.95%	13.8%	2.75%	37.9%
Topical steroids	69.9%	4.90%	3.42%	80.4%	56.2%	14.7%
Non-steroidal anti-inflammatory agents	43.8%	60.9%	26.7%	18.8%	8.2%	15.6%
Glaucoma meds	67.8%	2.0%	1.4%	92.9%	63.0%	5.1%
Systemic meds	32.4%	2.1%	0.7%	61.7%	19.9%	31.9%

TABLE 16. ANALYSIS OF THERAPEUTIC CREDENTIALING OF NAVY OPTOMETRISTS.

DRUG CATEGORY	% OF NAVY OD'S REQUESTING CREDENTIALS	% REQUESTING WHO RECEIVED FULL CREDENTIALS		% REQUESTING WHO RECEIVED LIMITED CREDENTIALS		% REQUESTING WHO WERE DENIED CREDENTIALS
		% OF ALL OD'S	% OF ALL OD'S	% OF ALL OD'S	% OF ALL OD'S	
Antihistamines/decongestants	82.4%	81.3%	67.0%	2.7%	2.2%	13.3%
Topical antibacterials	78.0%	76.1%	59.3%	8.5%	6.6%	12.7%
Topical antivirals	59.3%	37.0%	22.0%	35.2%	20.9%	24.1%
Topical antifungals	41.8%	44.7%	18.7%	23.7%	9.9%	23.7%
Topical steroids	63.7%	22.4%	14.3%	53.4%	34.1%	22.4%
Non-steroidal anti-inflammatory agents	63.7%	58.6%	37.4%	17.2%	11.0%	19.0%
Glaucoma meds	39.6%	11.1%	4.4%	55.6%	22.0%	33.3%
Systemic meds	29.7%	7.4%	2.2%	40.7%	12.1%	51.9%

TABLE 17. "QUALIFIED" OPTOMETRISTS WHO REQUESTED FULL CREDENTIALS AND RECEIVED THEM. (QUALIFIED ACCORDING TO EACH SERVICES REGULATONS. IN ORDER TO MAKE A COMPARISION, THE ARMY RESPONDENTS WERE JUDGED ON THE AIR FORCE CRITERIA.)

SERVICE BRANCH	NUMBER OF OD'S QUALIFIED BY REGS	NUMBER OF QUALIFIED OD'S REQUESTING FULL CREDENTIALS	NUMBER GRANTED PRIVILEGES	% OF QUALIFIED GRANTED PRIVILEGES
ARMY	86.1% 87/101	69	49	71.0%
AIR FORCE	95.2% 139/146	97	81	83.5%
NAVY	26.4% 24/91	18	13	72.2%

TABLE 18. PERCENTAGE OF "QUALIFIED" OPTOMETRISTS WHO REQUESTED FULL CREDENTIALS AND RECEIVED THEM IN RELATION TO THE FOLLOWING VARIABLES. (Qualified is defined as

possessing a state TPA license, or having attended a 100 hour course, or having completed 6 semester hours of therapeutic pharmacology. Fully credentialed is defined as being credentialed to use antihistamine/decongestants and antibacterials without restrictions, and topical steroids with or without restrictions)

VARIABLE ANALYZED		ARMY	AIR FORCE	NAVY
AGE	20-29	66.7%	66.7%	80.0%
	30-39	51.2%	90.0%	73.3%
	40-49	77.8%	90.0%	66.7%
	50 and over	100%	0%	100%
RANK	O2	--	0.0%	--
	O3	72.7%	79.7%	73.7%
	O4	63.3%	88.5%	76.9%
	O5	100%	87.5%	60.0%
	O6	100%	100%	100%
YEARS IN PRACTICE	< 5	80.0%	78.3%	83.3%
	5-9	58.3%	92.0%	77.8%
	10-15	56.3%	76.9%	42.7%
	> 15	100%	86.7%	66.7%
FACILITY LOCATION	United States	64.7%	78.5%	72.0%
	Pacific	50.0%	100%	83.3%
	Europe	94.7%	100%	100%
	Other overseas	100%	None	100%
	Total of all oversea	87.5%	100%	87.5%

TABLE 18 CONTINUED. (OPTOMETRISTS WHO REQUESTED FULL CREDENTIALS AND RECEIVED THEM.)

VARIABLE ANALYZED		ARMY	AIR FORCE	NAVY
STATE TPA LAW	In TPA state	82.8%	80.0%	63.2%
	Non-TPA state	45.5%	79.2%	77.4%
FACILITY SIZE	Health clinic	70.0%	75.0%	70.8%
	Small hospital	89.5%	92.0%	81.8%
	Large hospital	31.1%	69.6%	83.3%
PRESENCE OF OPHTHALMOLOGY	One OMD	90.9%	80.0%	66.7%
	Two OMD's	77.8%	63.0%	66.7%
	Three or more OMD's	9.1%	100%	60.0%
	Zero OMD's	80.7%	87.3%	81.3%
NUMBER OF OD'S PRESENT	One OD	78.6%	88.6%	72.7%
	>1 OD	67.4%	79.7%	75.0%
OMD AS RATER	Yes	58.3%	80.0%	70.0%
	No	75.4%	84.4%	80.0%
OMD AS SUPERVISOR OF OPTOMETRY CLINIC	Yes	65.5%	68.8%	65.0%
	No	76.7%	89.6%	78.9%

TABLE 18 CONTINUED. (OPTOMETRISTS WHO REQUESTED FULL CREDENTIALS AND RECEIVED THEM.)

VARIABLE ANALYZED		ARMY	AIR FORCE	NAVY
OPHTHALMOLOGY RESIDENCY	Program present	28.6%	90.9%	50.0%
	Program not present	76.9%	82.4%	73.7%
DISTANCE TO REFERRING OMD	< 10 miles	70.0%	76.5%	57.1%
	10-25 miles	75.0%	70.0%	75.0%
	>25 miles	100%	100%	86.4%
RELATIONSHIPS WITH OMD'S	Good or excellent	83.6%	85.4%	82.4%
	Fair or poor	23.1%	75.0%	14.3%

TABLE 19. PRIMARY REASON WHY SOME OPTOMETRISTS ARE NOT CREDENTIALLED TO USE THERAPEUTIC AGENTS.

	ARMY	AIR FORCE	NAVY
% of OD's answering question	12.9% (13/101)	7.5% (11/146)	33.0% (30/91)
Reason not credentialed			
don't desire TPA's	23.1% (3/13)	36.4% (4/11)	13.3% (4/30)
was denied TPA's	61.5% (8/13)	27.3% (3/11)	36.7% (11/30)
other*	23.1% (3/13)	36.4% (4/11)	56.7% (17/30)

* The primary reason for the Air Force and Navy having high percentages for "other" is because those respondents are in the process of completing requirements to get credentialed - 75% of AF and 82.4% of Navy.

NOTE: Responses do not total 100% in all cases because some respondents provided more than one reason for not being credentialed, even though the question asked for only the primary reason.

TABL 20. REASONS OPTOMETRISTS WERE DENIED THERAPEUTIC PRIVILEGES.

	ARMY	AIR FORCE	NAVY
Number of OD's denied credentials who indicated why the request was denied	10	3	12
Not qualified by regulation	0.0%	33.3%	25.0%
Opposition by OMD	100%	66.7%	83.3%
lack clinical experience	20.0%	0.0%	0.0%
lack classroom instruction	10.0%	0.0%	8.3%
no reason given	60.0%	33.3%	41.7%
Command opposition	10.0%	0.0%	25.0%
Other	0.0%	0.0%	0.0%

Note: percentages do not add to 100% in all cases because some respondents gave more than one reason for being denied credentials.

TABLE 21. REASONS WHY OPTOMETRISTS HAD THEIR REQUEST FOR PRIVILEGES REDUCED IN SCOPE.

	ARMY	AIR FORCE	NAVY
Number of OD's answering question	34	49	23
Command opposition	26.5% (9)	6.1% (3)	21.7% (5)
Not qualified by regs	2.9% (1)	36.7% (18)	26.1% (6)
Opposition by ophthalmology	79.4% (27)	61.2% (30)	65.2% (15)
clinical experience	14.3% (3/21)	19.0% (4/21)	18.2% (2/11)
classroom experience	9.5% (2/21)	9.5% (2/21)	0.0%
no reason	76.2% (16/21)	71.4% (15/21)	81.8% (9/11)

NOTE: percentages do not add to 100% in all cases because some respondents gave more than one reason for having their request reduced.

TABLE 22. PERCENTAGE OF MILITARY OPTOMETRISTS WHO HAVE HAD THEIR CLINICAL PRIVILEGES EXPANDED OR REDUCED UPON TRANSFERRING TO A NEW DUTY STATION.

CHANGE IN CLINICAL PRIVILEGES		ARMY	AIR FORCE	NAVY
EXPANDED	Yes	61.4% (54/78)	39.7% (29/73)	59.6% (28/47)
	No	30.8% (24/78)	60.3% (44/73)	40.4% (19/47)
REDUCED	Yes	37.5% (30/80)	12.6% (12/95)	29.4% (15/51)
	No	62.5% (50/80)	87.4% (83/95)	70.6% (36/51)

TABLE 23. PERCENTAGE OF ARMY OPTOMETRISTS WHO HAVE HAD THEIR CLINICAL PRIVILEGES REDUCED AND ARE DISSATISFIED WITH CURRENT THERAPEUTIC REGULATIONS.

Number having privileges reduced	30
Number of those having privileges reduced who answered the satisfaction question	29
Of these, the number that are dissatisfied with current regulations	26
Percentage dissatisfied with regulations	89.7% (26/29)

NOTE: 38.0% of Army optometrist who have not had their privileges reduced are still dissatisfied with current regulations

TABLE 24. NUMBER OF OPTOMETRISTS WHO ARE ASSOCIATED WITH AN OPTOMETRIC EXTERNSHIP PROGRAM.

ARMY	67/100 or 67.0%
AIR FORCE	52/143 or 36.4%
NAVY	29/91 or 31.9%

TABLE 25. PERCENTAGE OF OPTOMETRISTS WITH EXTERN PROGRAMS WHO ARE FULLY CREDENTIALLED.

ARMY	40.3%
AIR FORCE	53.6%
NAVY	55.2%

TABLE 26. DATA ON ARMY OPTOMETRISTS PARTICIPATING IN EXTERNSHIP PROGRAMS.

number of respondents	67
% at health clinics	18.2%
% at small hospitals	44.5%
% at large hospitals	33.3%
% of respondents fully credentialed	
health clinics	25.0%
small hospitals	62.5%
large hospitals	4.5%