

January/February 2011
Volume 72, Number 1
www.ncmedicaljournal.com

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Annual Subscriptions (6 issues): Individual, \$42.80 (\$40 plus 7% NC tax); Institutional, \$64.20 (\$60 plus 7% NC tax).

The *North Carolina Medical Journal* is published in January/February, March/April, May/June, July/August, September/October, and November/December. Periodicals postage paid at Morrisville, NC 27560 and at additional mailing offices. **POSTMASTER:** Send address changes to the *North Carolina Medical Journal*, 630 Davis Drive, Suite 100, Morrisville, NC 27560. **Canada Agreement Number:** PM40063731. Return undeliverable Canadian addresses to: Station A, PO Box 54, Windsor, ON N9A 6J5, e-mail: returnsil@imex.pb.com.

Cosponsors of the North Carolina Medical Journal are The Carolinas Center for Medical Excellence / North Carolina Association of Pharmacists / North Carolina Dental Society / North Carolina Health Care Facilities Association / North Carolina Hospital Association / North Carolina Medical Society
Members of these organizations receive the *North Carolina Medical Journal* as part of their membership fees. Additional major funding support comes from **The Duke Endowment**.

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Published by the North Carolina Institute of Medicine and The Duke Endowment

Tar Heel Footprints in Health Care

A periodic feature that recognizes individuals who improve the accessibility to and quality of health care in North Carolina

Wei Li Fang, PhD



On recognition of the unmet behavioral health needs of service members, veterans, and their families, the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, along with partner organizations, formed the Governor's Focus on Servicemembers, Veterans, and Their Families, to help ensure the existence of an integrated system of health care, educational services, employment resources, community support, and mental health and substance abuse services for these populations. Wei Li Fang has been a driving force in this effort.

Fang is director of research and evaluation at the Governor's Institute on Substance Abuse, one of the partner organizations of the Governor's Focus. Fang seeks out information on resources and potential opportunities for supporting military personnel and their families and disseminates this information to individuals who can best put it into action. According to Michael Lancaster, former cochair of the Governor's Focus, "Hardly a day goes by when [Fang] doesn't bring something new to the table." Flo Stein, current cochair of the Governor's Focus, adds that Fang "is always thinking one step ahead" as she works to build and maintain partnerships, using her technical skills to garner funding to support efforts of the institute. Sara McEwen, executive director of the Governor's Institute, notes that Fang "has played a pivotal role in bringing millions of dollars into the state of North Carolina, through her expertise in grant writing, project leadership, and project evaluation." These grants have supported several activities in the state, such as assisting homeless veterans and training health care professionals.

Fang's strong desire to help military personnel and their families drives her tireless efforts. "Dr. Fang has great passion for the work she is doing for veterans, service members, and their families," says McEwen. "While Li has worked on a variety of programs throughout the years, the work on behalf of veterans and military members has truly ignited something special in her." Harold Kudler, current cochair of the Governor's Focus, remarks that Fang's "vision and organizational skills have kept the program growing and going all these years," adding that "other programs have tended to drift because they didn't have the intelligence and dedication behind them that Li brings."

Fang endeavors to transfer her knowledge and skills to other individuals and organizations. "Through her leadership, supervision, and mentorship of younger staff, she is fostering the development of an equally committed and passionate workforce," says McEwen. Fang also works with a number of North Carolina organizations to expand the state's ability to implement evidence-based practices in the areas of mental health and substance abuse.

Fang received a BA in psychology, an MEd in health education, and a PhD in educational evaluation from the University of Virginia. Before joining the Governor's Institute, she worked in various faculty positions at the University of Virginia School of Medicine and the University of North Carolina-Chapel Hill School of Medicine. NCMJ

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Medical Costs of Secondhand-Smoke Exposure in North Carolina

Marcus Plescia, Daryl Wansink, Hugh R. Waters, Sally Herndon

BACKGROUND The health hazards of exposure to secondhand smoke (SHS) are well-defined. Less is known about the economic costs. We performed an analysis of the medical costs of SHS in North Carolina that was based on a similar study conducted in Minnesota.

METHODS We used 2006 Blue Cross and Blue Shield of North Carolina claims data and national and state surveillance data to calculate the treated prevalence of medical conditions that have been found to be related to exposure to SHS, as established by a 2006 report from the US surgeon general. We used the population attributable risk for these conditions to calculate the number of individuals whose episodes of illness could be attributed to exposure to SHS. We adjusted these treatment costs for other types of insurance provided in the state, using Medical Expenditure Panel Survey data.

RESULTS The total annual cost of treatment for conditions related to SHS exposure in North Carolina was estimated to be \$293,304,430, in 2009 inflation-adjusted dollars. Sensitivity analysis showed a range of \$208.2 million to \$386.3 million. The majority of individuals affected were children, but the greatest costs were for cardiovascular conditions.

CONCLUSION These cost data provide additional rationale for regulating smoking in all work sites and public places.

During the 2009 North Carolina legislative session, a law was passed that banned smoking in all North Carolina restaurants and bars. Legislation in previous years had already banned smoking in state-employee work sites, including the North Carolina General Assembly building and offices. North Carolina now joins a growing majority of states with strong laws regulating tobacco use at work sites [1]. Because of North Carolina's status as a traditional tobacco state, many advocates see North Carolina's law as the tipping point in the national effort to eliminate the risks of exposure to secondhand smoke (SHS) in public places.

The health hazards of exposure to SHS are well-defined. A 2006 report from the US surgeon general clearly established that exposure to SHS is associated with poor health outcomes and that the ingredients of SHS are toxic and carcinogenic [2]. SHS is an important occupational risk factor for many workers. Regular exposure among nonsmokers increases their risk of lung cancer by 20%-30% and their risk of heart disease by 25%-30% [2]. Short-term exposure to SHS is associated with an increased risk of acute myocardial infarctions among individuals with preexisting medical risk factors for heart disease [3].

It is estimated that 1,690 adult nonsmokers in North Carolina will die each year as a direct consequence of exposure to SHS [4]. This is a compelling argument for work-site smoking regulations. Providing data on the treatment costs for medical conditions related to these risk exposures is an additional strategy in advocating adoption of new public health policy. Legislators and policymakers are concerned about containing costs, especially the costs of medical care. Recent state budget deficits and national discussions about health reform have heightened these concerns.

Data on the estimated proportion of individual medical conditions attributable to smoking and other uses of tobacco are available to determine the medical treatment costs of tobacco use. The most recent data were released by the Centers for Disease Control and Prevention in 2006, and the medical treatment cost of tobacco use in North Carolina was estimated to be \$2.46 billion [5]. However, these data included smokers only and did not reflect the medical costs of exposure to SHS. The 2006 US surgeon general's report has made the analysis of medical treatment costs of SHS possible, by gathering, evaluating, and synthesizing the available epidemiologic evidence about the relationship between SHS exposure and a wide variety of medical conditions. Estimates of population attributable risk (PAR) for these conditions can be applied to medical care utilization rates and costs, to determine the medical treatment costs to payors that can be attributed to SHS exposure. Such an analysis, conducted in Minnesota, found that the medical cost of exposure to SHS was \$228.7 million in 2006 [6].

The purpose of our study is to estimate the medical treatment costs, within a sensitivity range, of SHS exposure in North Carolina by means of an analysis similar to that used in the study from Minnesota. On the basis of these findings, we provide policy recommendations about the need for further regulation of exposure to SHS.

Electronically published April 1, 2011.

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N C Med J. 2011;72(1):7-12. ©2011 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2011/72101

Methods

The methods in the present study largely replicated those used in the study conducted in Minnesota [6]. Our unit of analysis was the treated prevalence, defined as the number of individuals living in North Carolina who have sought treatment for medical conditions that have been found to be related to exposure to SHS, as established by the 2006 surgeon general's report. Blue Cross and Blue Shield of North Carolina (BCBSNC) administrative claims data were used to estimate both the treated prevalence and the cost of conditions associated with SHS. Public data sources were used to help extrapolate the BCBSNC results to other public and private health insurance payors in North Carolina. We adjusted the treated prevalence for the age and sex compositions of these different groups, where appropriate.

As in the Minnesota study, 5 steps were used to estimate the costs of SHS in North Carolina.

(1) Determine the health conditions attributable to SHS.

We used the risk categories established by the 2006 surgeon general's report, including all the conditions for which the evidence of a link with SHS was considered sufficient. We did not include the conditions for which the evidence was considered suggestive. Sufficient conditions include delivery of a newborn who has a low birth weight; acute lower-respiratory illnesses, for people aged 0-4 years; otitis media, middle-ear effusion, and asthma, for people aged 0-17 years; and lung cancer and coronary heart disease, for people in 2 age ranges, 18-64 years and 65 years or older.

(2) Derive the treated prevalence among BCBSNC members.

For each sufficient condition, we calculated the treated prevalence for the BCBSNC membership, broken down by age range and sex. BCBSNC analyzed administrative claims data for services incurred in 2006, to identify members with episodes of care for the diseases identified in step 1. This corresponds to the percentage of the BCBSNC population who not only had the medical conditions in question during the calendar year but who also received treatment for these conditions.

An episode of care was derived from Episode Treatment Group (ETG) software, version 6 (Symmetry). The software uses clinical rules to group together claims and costs of care related to the treatment of more than 600 discrete conditions. ETG codes provide a useful measure of treated prevalence because they group all claims related to a single clinical episode of illness. ETG uses diagnosis information submitted by physicians and other health care professionals on insurance claims, to identify the start of treatment for a given condition, and it then aggregates subsequent treatment events and costs that pertain to the index condition. ETGs aggregate all related care provided to a patient, including professional services; inpatient and outpatient hospital services; laboratory, radiology, and pathology services; and prescribed pharmaceuticals [7].

(3) Estimate the treated prevalence in the North Carolina

population. The number of North Carolina residents with a disease attributable to SHS was derived by taking the treated prevalence calculated within the age and sex brackets for BCBSNC members and then multiplying the total number of North Carolina residents in that age and sex bracket by the same value. Numbers of North Carolina residents in each age and sex bracket were obtained from the 2006 US Census Bureau Current Population Survey [8]. Because BCBSNC did not have a large population of members aged 65 years or older, more-reliable estimates of North Carolina's disease prevalence for this age group were obtained from the National Cancer Institute's SEER (Surveillance, Epidemiology and End Results) program, for the prevalence of lung cancer, and from the Agency for Healthcare Research and Quality, for the prevalence of coronary artery disease [9, 10]. Separately, North Carolina state data were used to estimate the prevalence of low birth weight [11].

(4) Apply the contribution of SHS to disease prevalence.

We used the PAR proportions to determine the number of individuals whose episodes of illness could be attributed to exposure to SHS. The total number of North Carolinians who were treated for each disease (ie, the treated prevalence) was then multiplied by the appropriate PAR, to obtain the prevalence of each disease that was the result of exposure to SHS. We also performed sensitivity analysis for the PAR estimates, varying the baseline values across a range of $\pm 25\%$.

The PAR was defined as the proportion of cases and associated mortality of a disease in a given population that can be considered to be causally related to exposure to a risk factor. The PAR is calculated as follows: $[(\text{incidence in total population}) - (\text{incidence in unexposed group})] / (\text{incidence in total population})$. For example, if the treated prevalence of hospitalization for lung cancer for an entire population is 20.0% and the incidence among those not exposed to SHS is 19.0%, the risk attributable to exposure to SHS would be as follows: $[0.2 - 0.19] / 0.2 = 0.05 = 5\%$.

We used the PARs from the Minnesota report [6]. These were identified from the most-recent valid estimates in the published literature [6, 12, 13], with the exception of asthma, for which state prevalence data and risk estimates reported in the surgeon general's report were used because there no sound estimates were available [2, 6].

(5) Assign costs to treatment of attributable disease.

BCBSNC administrative claims data were used to compute the total cost for an episode of care for each of the diseases attributable to SHS. The only exception was for low birth weight, which was estimated from per-episode costs reported in the literature [14]. In addition, because of the small population of BCBSNC members aged 65 years or older, the costs for lung cancer and coronary heart disease for members 18-64 years old were used as a proxy for the older members.

Because BCBSNC provides private insurance coverage to only a portion of North Carolinians, it was necessary to adjust the BCBSNC costs for different types of insurance

coverage, to estimate total costs for the state. BCBSNC costs were used as a proxy for all private insurance. For other types of insurance, we adjusted the per-episode treatment costs, using data from the Medical Expenditure Panel Survey (MEPS). The MEPS is a nationally representative sample of noninstitutionalized Americans that is collected by the Agency for Healthcare Research and Quality and includes a household-survey component and an insurance component providing details for employer-provided insurance plans. The ratios of medical expenses for several types of coverage (ie, Medicare, Medicaid, TRICARE [for military personnel and their families], and none) to that for private coverage in North Carolina was computed using MEPS data from the southeast region of the United States (Table 1) [15]. The ratios were then applied to the private-insurance costs for episodes of care, to estimate costs for treating each disease, depending on the type of insurance. The cost per episode of care was then adjusted for the prevalence of conditions by type of insurance. Finally, the costs based on 2006 data were adjusted to reflect 2009 dollars, using the Consumer Price Index [16].

Results

Table 2 shows the health conditions identified in the surgeon general's report and the overall prevalence of these conditions, projected using the prevalence among BCBSNC members, in North Carolina. The PAR for each condition is applied to each group, to determine the prevalence of each condition that can be attributed to SHS in North Carolina.

Table 3 provides the results of the medical cost analysis that was based on our analysis of the cost per episode of care among BCBSNC members. These costs are adjusted for insurance type, to provide the overall medical cost to the state for each condition. Table 1 specifies the distribution of insurance coverage in North Carolina and the ratios of medical expenses for other insurance sources to that for private insurance.

SHS was attributed with causing health problems for more than 100,000 North Carolinians in 2006. The vast

majority of affected individuals were children. The findings show that the health care costs associated with SHS exposure in 2006 amounted to \$293,304,430 in 2009 dollars. Cardiovascular disease represented the greatest cost and was almost half of all costs related to SHS. The next highest was for infants of low birth weight and represented nearly one-quarter of all costs.

As in the Minnesota study, sensitivity analyses were calculated for the PAR estimates and the MEPS insurance cost-adjustment ratios. We varied the PAR by 25% and the cost estimates by 15% in either direction. The results provide a range in the final cost-estimate value of \$208.2 million to \$386.3 million.

Discussion

We successfully replicated a detailed and methodologically rigorous analysis that had been completed in the state of Minnesota, to determine the total medical cost of treatment for conditions causally linked to SHS exposure in the 2006 surgeon general's report. In North Carolina, health care costs attributable to SHS in 2006 equaled \$293,304,430 in 2009 inflation-adjusted dollars. The methods used in the Minnesota study were applied by us to determine the costs of SHS in North Carolina, using data from the state's dominant commercial insurer, BCBSNC.

Minnesota and North Carolina are similar in that Blue Cross and Blue Shield is the largest insurance provider in both states, with 26% of the market share (1.3 million members) in Minnesota [6] and 33% of the market share (3.7 million members) in North Carolina [17]. Therefore, Blue Cross and Blue Shield claims data represent a significant portion of costs in both states. In addition, the age and sex distributions of the 2 covered populations are very similar. When appropriate, external sources were used to expand or supplement Blue Cross and Blue Shield data. In both states, estimates of treated prevalence for the elderly population had to be drawn from other sources, as BCBSNC and Minnesota Blue Cross Blue Shield (MBCBS) did not serve large enough numbers of individuals in this age range. In addition, Blue Cross and Blue Shield data on cost -per episode of care for lung cancer and heart disease were not available for the population 65 years or older, because this population was predominantly covered by Medicare. Therefore, the cost data for the population aged 18-64 years were also applied to this group. While these cost estimates are similar to those found in the literature [18], compared with younger people, older people may have much higher costs, because they have more-chronic conditions, or they may have lower costs, if they do not choose aggressive treatment.

The cost estimates calculated here are likely to be underestimates because only medical conditions that were found to be sufficiently causally linked to SHS in the 2006 surgeon general's report were analyzed; conditions with evidence suggestive of a causal link were not included in our analysis. Costs for long-term care were not included because they

TABLE 1.
Medical Expenses Attributable to Secondhand-Smoke (SHS) Exposure, by Primary Health Insurance (HI) Type, 2006

HI type	North Carolina residents, %	Expenses reported by MEPS respondents ^a	
		Total, ^b mean, \$	Ratio
Private	65	3,508	1.0
TRICARE ^c	2	4,867	1.39
Medicare	7	9,122	2.60
Medicaid	9	2,013	0.57
None	18	970	0.28

Note. See Methods for discussions of data collection and calculations.

^aMedical Expenditure Panel Survey (MEPS) data were collected from individuals in the southeastern United States [15].

^bData indicate expenses per episode of care for diseases in which SHS exposure is considered a sufficient cause.

^cFor military personnel and their families.

could not be as definitively attributed to SHS. Indirect costs related to the health care conditions of interest, such as lost productivity, are likewise not included. For this reason, we do not address the controversies related to SHS costs and shorter life expectancy.

One major limitation of the North Carolina analysis relates to our determination of costs for the Medicaid and uninsured populations. The methods used to estimate disease prevalence assume that the disease prevalence in the entire state population is comparable to the prevalence in the BCBSNC-insured population, with the exception of residents 65 years and older or low-birth-weight infants. However, the Medicaid and uninsured populations have higher rates of most adverse health conditions and are more likely to be exposed to SHS in the occupational setting. Therefore, it is likely that our method underreports the burden and costs of SHS exposure in these populations. The Minnesota study differs from this study because MBCBS includes special plans that cover portions of both the uninsured and the Medicaid populations and because the Minnesota study was able to use treated prevalence data for these groups, to better determine the specific prevalence estimates for these populations. In addition, the Medicaid and uninsured populations together composed a smaller proportion of the Minnesota population (18.9 % [9.2% and 9.7%, respectively]), compared with the proportion in North Carolina (25% [7% and 18%, respectively]) [15].

The implications of this study are important given the current fiscal crisis in many states and discussions of the significant costs of providing coverage to the uninsured through health reform. In addition, a significant portion of

these savings could probably be realized over a relatively short period. Recent data have shown that regulations restricting exposure to SHS in multiple communities were associated with significant decreases in hospitalizations for myocardial infarction over a 1-2-year period [3]. Similar short-term reductions in health care utilization may be possible for asthma and ear infections in children.

In the 2009 session, the North Carolina General Assembly became the first major tobacco-producing state to make all bars and restaurants smoke free. This built on incremental successes of previous years, which made all schools and prisons 100% tobacco free and government buildings and motor fleets smoke free. The 2006 surgeon general's report had been introduced in legislative debates in the 2 years before passage of the law that banned smoking in restaurant and bars, making the science of the serious health consequence of SHS more widely understood. Results of this study were released on March 16, 2009, in time for the facts to be entered into the discussion of the bill in House and Senate committee and floor debates.

While the impact on decision making by legislators is difficult to quantify, these data were used consistently in the arguments presented by legislative champions in committee and floor debates. Analyses of news reports following the passage of the law have indicated that data on financial cost played a significant influence in the success of this legislation [19]. Cost data were considered useful, given the significant historic legacy of tobacco growing and manufacturing in the state's economy. The data were useful in helping to shift the attitudes of some decision makers from tobacco as an economic benefit in North Carolina to

TABLE 2.
Treated Prevalence of Conditions Attributable to Secondhand-Smoke (SHS) Exposure, North Carolina (NC), 2006

Age, condition	Susceptible NC population ^a	For BCBSNC members ^b	Projected to NC residents	Attributable to SHS in MN ^c	Treated prevalence in NC
<18 y					
Low birth weight	127,646	0.09084 ^d	11,595	0.18	2,087
Acute lower respiratory illnesses (for ages <5 y)	473,306	0.11965	56,633	0.25	14,158
Otitis media and middle-ear effusion	2,151,548	0.16630	357,801	0.14	50,092
Asthma, wheeze illness	2,151,548	0.04022	86,539	0.35	30,289
18-64 y					
Lung cancer	5,660,468	0.00077	4,370	0.049	214
Coronary heart disease	5,660,468	0.01877	106,258	0.069	7,332
≥65 y					
Lung cancer	1,057,639	0.00664 ^e	7,028	0.049	344
Coronary heart disease	1,057,639	0.03496 ^f	36,973	0.069	2,551

Note. See Methods for definition of "treated prevalence" and discussions of data collection and calculations.
^aData are from [8].
^bData are from Blue Cross and Blue Shield of North Carolina (BCBSNC) administrative claims.
^cMinnesota (MN) data are from [6].
^dData are from [11].
^eData are from [9].
^fData are from [6].

TABLE 3.
Medical Costs of Health Conditions Attributable to Secondhand-Smoke (SHS) Exposure, North Carolina (NC)

Age, condition	Treated prevalence in NC	Cost per episode of care, \$		Overall costs for NC residents, \$	
		For BCBSNC members ^a	Adjusted for NC residents ^b	Unadjusted	Inflation adjusted
<18 y					
Low birth weight	2,087	41,790 ^c	34,548	72,104,178	77,151,470
Acute lower respiratory illnesses (for ages <5 y)	14,158	621	515	7,287,382	7,797,499
Otitis media and middle-ear effusion	50,092	333	276	13,818,975	14,786,303
Asthma, wheeze illness	30,289	981	814	24,648,459	26,373,851
18-64 y					
Lung cancer	214	42,409	36,613	7,840,023	8,388,246
Coronary heart disease	7,332	11,971	10,337	75,789,730	81,095,011
≥65 y					
Lung cancer	344	42,409 ^d	66,164	22,784,811	24,379,747
Coronary heart disease	2,551	11,971 ^d	19,537	49,842,620	53,341,603
Total	...	...	...	274,116,177	293,304,430

Note. See Methods for definition of "treated prevalence" and discussions of data collection and calculations.

^aData are from Blue Cross and Blue Shield of North Carolina (BCBSNC) administrative claims.

^bData are adjusted for types of insurance coverage in North Carolina.

^cData are from [14].

^dImputed from costs for people aged 18-64 years, because of a small number of observations.

tobacco use as a health care and human cost liability. This was strategic, as the economic and human costs of SHS exposure helped to sway legislators who had voted against tobacco-control legislation in previous years. Use of cost data, derived directly from insurance claims, was felt to be more compelling than use of data from analyses based on statistical modeling.

The passage of a smoke-free law for restaurants and bars is significant in North Carolina, given the state's historic role in both growing and manufacturing tobacco products. In addition, the vast majority of restaurants and bars are complying with the new law. In the first 6 weeks after enactment, the state had received complaints against only 370 of more than 24,000 businesses that are subject to the law [20]. However, a comprehensive SHS law would ban tobacco use in all work sites. While the recent law probably covers a large proportion of North Carolina workers in the service industry, our previous analyses have found that only 56% of blue-collar workers and 73% of white-collar workers reported working in a smoke-free environment [21]. These workers receive no protection from the current law. For these reasons, the North Carolina Institute of Medicine Task Force on Prevention recommended in 2009 that the North Carolina General Assembly should amend current smoke-free laws to mandate that all workplaces and public places are smoke free [22]. Such action would protect all workers from the chemical hazards of SHS. NCMJ

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Acknowledgments

We thank Susan Pfannenschmidt, MA, for her assistance with data analyses.

Potential conflicts of interests. All authors have no relevant conflicts of interest.

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Variables Associated With Use and Susceptibility to Use of Cigarettes Among North Carolina Adolescents: Results From the 2007 Statewide Survey of High School Students

Kelly L. Kandra, Adam O. Goldstein, Scott Proescholdbell

BACKGROUND As North Carolina works to sustain recent reductions in smoking among adolescents, more knowledge is needed to design effective prevention programs. This study examined the variables associated with use and susceptibility to use of cigarettes use among North Carolina students in high school (ie, grades 9-12).

METHODS Data were collected from the 2007 North Carolina Youth Tobacco Survey (NCYTS). The NCYTS is a biannual public school- and charter school-based survey of North Carolina students in grades 6-12. Seventy-four of 115 school districts from 3 distinct geographic regions of the state were selected for participation in the 2007 NCYTS. The survey was completed by 3,364 students (81.6%) at participating high schools, for an overall completion rate of 78.3% among all North Carolina high school students. Logistic regression models examined variables associated with current use of cigarettes, ever having used cigarettes (also referred to as "ever use"), and susceptibility to use of cigarettes. All analyses included sampling weights, which enabled results to be generalized to all high school students in North Carolina.

RESULTS A total of 48.9% of students reported ever use, 19.0% were classified as current users, and 33.5% were classified as susceptible to use. Females, nonminorities, and older students had higher odds than males, minorities, and younger students, respectively, of being a current smoker. Minorities, however, had higher odds than nonminorities of ever smoking. Use of other forms of tobacco increased the odds of current use and ever use of cigarettes. Agreement with the statement that smoking makes one look cool or fit in increased the odds of being susceptible to smoking. Having a willingness to wear an item promoting a tobacco company and having close friends who smoked individually increased the odds of each of the 3 outcomes.

LIMITATIONS Data are from a cross-sectional survey conducted every other year, in which students self-report use of, attitudes about, and perceptions about tobacco products.

CONCLUSIONS Many variables should be taken into account to optimize efforts to prevent tobacco use, countermarket campaigns, and policy initiatives in North Carolina.

Every day in the United States, 3,900 young people try cigarette smoking, and 1,500 become daily smokers [1]. According to a 2005 nationwide survey, 28% of students had tried smoking before entering high school; by the last year of high school, 53% had tried smoking [2]. Smoking rates among students in grade 8 peaked in 1996, at approximately 22%, and smoking rates among students in grade 12 peaked the following year, at approximately 37% [2]. Nationally, while smoking rates among high school students began to decline in the mid-1990s, the rate of decline began to slow around 1999 [3]. The current rate for cigarette smoking among US high school students is estimated to be 19.7% [3]. North Carolina, however, has seen a different trend. From 2003 through 2007, high school students in the state had higher rates of decline in cigarette use, compared with rates for 1999-2003 [4]. In 2007, the rate of cigarette smoking among North Carolina high school students was 19.0% [5].

This study examines variables associated with cigarette use and susceptibility to cigarette use among North Carolina students, using 2007 data from a statewide tobacco survey.

This research comes at an important time, as public health efforts in the state aim to sustain reductions in cigarette consumption among youths. By identifying the variables associated with smoking and susceptibility to smoking among adolescents, state public health workers have more information about the current smoking status among North Carolina high school students. This information can be used to test for trends in the future, with the ultimate goal of designing more-effective programs to prevent tobacco use. As patterns of tobacco use change over time (eg, the smoking prevalence among females is increasing), it is useful to know how public health practices must change in order to continue to sustain reductions in tobacco consumption.

Electronically published April 4, 2011.

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N C Med J. 2011;72(1):13-19. ©2011 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2011/72102

Methods

Questionnaire. The North Carolina Youth Tobacco Survey (NCYTS) includes data on the prevalence of the use of cigarettes and other tobacco products, as well as information on tobacco use, environmental tobacco smoke, cessation, pro-health media, tobacco advertising, school-based education to prevent tobacco use, community participation, and access to and availability of tobacco products.

Sampling. The NCYTS involves a biannual public school- and charter school-based survey of students in grades 6-12. The NCYTS has been conducted 5 times since 1999, with the most recent administration occurring in 2009. A multistage cluster-sample design, with corresponding sampling weights, is used to produce representative data on students in middle school (grades 6-8) and high school (grades 9-12) in North Carolina. For purposes of the current research, however, only 2007 data on high school students were used, as 2009 data were not yet available. Schools were selected on the basis of a probability proportionate to student enrollment size. Classes were randomly selected, and most students in selected classes were eligible to participate (students who had special needs and/or were enrolled in English-as-a-second-language programs were not eligible). The sampling frame for the drawn high school sample consisted of all public and charter high schools in North Carolina. In the first stage of sampling, 74 of 115 school districts were selected in 3 distinct geographic regions of the state (ie, west, central, and east). All 74 school districts agreed to participate, for a response rate of 100%. Student participation was voluntary and anonymous, and school procedures for obtaining parental permission were followed. Students recorded their responses on computer-scannable sheets.

A total of 197 high schools were selected from the 74 school districts. Of these, 191 (97.0%) participated in the study. The 2007 NCYTS was completed by 3,364 students (81.6%) at participating schools, for an overall completion rate of 78.3% among all North Carolina high school students.

Analysis. Logistic regression modeling was performed using a backward stepwise-regression approach. Separate models included the outcome variables of ever having used cigarettes (also referred to as "ever use"), current use of cigarettes, and susceptibility to use of cigarettes. In accordance with the Centers for Disease Control and Prevention (CDC) guidelines for youth smoking [6], students who smoked cigarettes on at least 1 day in the past 30 days of taking the NCYTS were considered current smokers. Susceptibility to smoking cigarettes was determined by nonsmoking students' responses to the following questions: Do you think you will smoke a cigarette at anytime in the next year? Do you think you will be smoking cigarettes 5 years from now? If one of your best friends offered you a cigarette, would you smoke it? Students must answer "definitely not" to each question to be considered not susceptible to smoking.

Potential variables used in models included demographic characteristics, current use of specific tobacco products

(eg, cigars and smokeless tobacco), counseling from parents about tobacco, attitudes about the health effects of tobacco use, attitudes about the social acceptability of tobacco, awareness of state countermarketing campaigns, influence of tobacco advertising, and exposure to cigarettes from family and friends. Final models included odds ratios (ORs) and 95% confidence intervals (CIs) for variables that were defined as statistically significant on the basis of an α level of .05. All analyses used SAS survey procedures (SAS Institute) to account for both the survey design (eg, clusters) and sampling weights. Sampling weights enable results to be generalized to all North Carolina high school students.

Results

Approximately 19.0% of North Carolina high school students met the CDC criteria for classification as a current smoker, 48.9% had ever smoked a cigarette, and 33.5% met the criteria for being susceptible to cigarette use (Tables 1-3). Table 4 presents all statistically significant variables across the 3 logistic regression models ($P \leq .05$).

Ever use of cigarettes. The NCYTS results indicated a relationship between ever use of various tobacco products and ever use of cigarettes. High school students who had ever smoked cigars were 9.62 times as likely to have ever smoked cigarettes (95% CI, 7.01-13.19), and students who had ever used smokeless tobacco were 2.95 times as likely to have ever smoked cigarettes (95% CI, 1.71-5.09). Furthermore, female sex, older age, and minority race were each associated with increased odds of ever having used cigarettes, as were certain attitudes about tobacco companies. High school students who said they would wear or use something that promoted a tobacco company were 1.77 times as likely to have ever smoked cigarettes (95% CI, 1.35-2.31). Students who agreed that tobacco companies got too much blame

TABLE 1.
Demographic Characteristics of North Carolina High School Students

Characteristic	Students, %
Sex	
Female	49.58
Male	50.42
Race	
Minority	41.19
Nonminority	58.81
Age, years	
≤13	0.78
14	21.87
15	24.88
16	25.66
17	20.57
≥18	6.24

Note. Data are weighted to enable generalization to all North Carolina high school students.

TABLE 2.
Tobacco-Related Characteristics of North Carolina High School Students

Characteristic	Students, %
Cigarette use	
Current	
Yes	18.96
No	81.04
Ever	
Yes	32.14
No	67.86
Cigar use	
Ever	
Yes	32.14
No	67.86
Current	
Yes	12.99
No	87.01
Smokeless-tobacco use	
Ever	
Yes	17.87
No	82.13
Current	
Yes	8.98
No	91.02
Susceptible to smoking	
Yes	33.50
No	66.50
Close friends who smoke, no.	
0	54.90
1	17.60
2	11.42
3	8.44
4	7.64
Live with smoker	
Yes	40.54
No	59.46
Discussion with parents about dangers of tobacco use, frequency	
Never	35.35
Rarely	23.99
Sometimes	22.98
Often	10.59
Very often	7.09
Awareness of North Carolina media campaign	
Yes	65.17
No	34.83

Note. Data are weighted to enable generalization to all North Carolina high school students.

for young people smoking were 1.45 times as likely to have ever smoked (95% CI, 1.05-1.99). Exposure to smoking also increased the odds of ever having smoked, as high school students who lived with a smoker were 1.75 times as likely to have ever smoked (95% CI, 1.39-2.21). Similarly, as the number of close friends who smoke cigarettes increased, the odds of ever having smoked also increased (OR, 1.58 [95% CI, 1.41-1.77]).

Current use of cigarettes. Again, a relationship was found between current use of various tobacco products and being a current smoker. High school students who currently smoked cigars were 7.60 times as likely to currently use cigarettes (95% CI, 4.98-11.60), and current users of smokeless tobacco were 2.62 times as likely to currently use cigarettes (95% CI, 1.51-4.57). Female sex and older age also increased the odds of current smoking. However, nonminority high school students were more likely to be current smokers (OR, 2.04 [95% CI, 1.34-3.11]).

A relationship also existed between certain attitudes about tobacco companies and current use of cigarettes. High school students who would use or wear something that promotes a tobacco company were 2.05 times as likely to be a current smoker (95% CI, 1.31-3.22). Students who received or bought something in the previous 12 months that had a tobacco company name or logo on it were 1.92 times as likely to be a current smoker (95% CI, 1.40-2.63). Another attitude related to current smoking involved the statement that it is safe to smoke for a year or two if one then quits. High school students who agreed with this statement were 4.33 times as likely to be a current smoker (95% CI, 2.44-7.70).

One variable that was associated with lower odds of smoking was awareness of slogans from the state-sponsored media campaign. Students who were aware of these slogans were one-third less likely to be current smokers (OR, 0.66 [95% CI, 0.43-1.01]; $P = .05$).

Susceptibility to use of cigarettes. The logistic regression model for high school students' susceptibility to using cigarettes shared similar variables with models of ever use and current use of cigarettes, although a smaller subset of variables was statistically significant. Variables making high school students more susceptible to smoking included receiving or buying something that had a tobacco industry name or logo on it, believing that young people who smoked looked cool or fit in, and having close friends who smoked. However, students who reported that their parents talked to them about the dangers of tobacco use were less likely to be susceptible to smoking (OR, 0.83 [95% CI, 0.73-0.96]).

Discussion

This analysis of the 2007 NCYTS yields important findings for North Carolina public health, prevention, and tobacco-control advocates. It is alarming that North Carolina female high school students now have higher odds than their male peers of ever use and current use of cigarettes. The 1994 US surgeon general's report on preventing tobacco use among

TABLE 3.
Attitudinal Characteristics of North Carolina High School Students

Characteristic	Students, %
Smoking makes one look cool or fit in	
Yes	12.54
No	87.46
Safe to smoke for a year or two if one quits after that	
Yes	9.83
No	90.17
Tobacco companies get too much blame for young people smoking	
Yes	48.38
No	51.62
Wear/use tobacco company item	
Yes	60.29
No	39.71
Buy/receive tobacco company item	
Yes	19.64
No	80.36

Note. Data are weighted to enable generalization to all North Carolina high school students.

young people indicated that, while higher rates of tobacco use had previously been found among males, the difference in prevalence between males and females had narrowed [7]. While the prevalence in North Carolina is similar between males and females (21% and 17%, respectively), females are at much higher odds for initiation of and continued cigarette use.

Several factors may explain this shift. One probable reason is the targeted marketing of tobacco products to female youths [8]. Other reasons include psychosocial factors specific to adolescent females. Research suggests that females who have poor family relations are more likely to experiment with cigarettes and that those with a low level of activity in their lives will continue experimenting, while females who are concerned about dieting and have less social success are more likely to rapidly progress to regular smoking [9, 10]. Our findings suggest that North Carolina needs to segment countermarketing efforts on issues that are relevant to adolescent females.

Our research also suggests that efforts to prevent tobacco use must take into account that North Carolina students are using multiple forms of tobacco. Being a current cigar smoker substantially increased the odds of being a current cigarette smoker, with the same pattern holding true for ever use. While the relationship was less pronounced for smokeless-tobacco use, it nevertheless showed increased odds for current use and ever use of cigarettes. Because national data have shown that young people living in the southern United States are at risk for use of multiple forms of tobacco [11], there is a clear need to expand prevention efforts in North

Carolina to include multiple forms of tobacco.

Furthermore, our research shows that tobacco-related prevention efforts must counter the marketing practices of the tobacco industry. Wearing, receiving, or buying something with an industry logo was related to all 3 outcomes of interest (ie, current use, ever use, and susceptibility to use of cigarettes). Receptivity to tobacco promotions has been shown in previous research to be related to use and susceptibility to use of tobacco [12]. With the Master Settlement Agreement in 1998 prohibiting the tobacco industry from directly marketing to youths [13], this finding suggests that North Carolina youths are still being reached through indirect methods and are being influenced by industry promotions. It is essential that antitobacco programs, especially those in tobacco-producing states, find ways to further reduce youth exposure to tobacco advertising, while deglamorizing industry practices through media campaigns and school-based prevention efforts.

Perceptions of smoking are apparently an important variable in use and susceptibility to use of cigarettes. High school students who believe that it is safe to smoke for a couple of years are now more likely to currently use cigarettes. Furthermore, perceptions that smoking is socially desirable relate to an increased susceptibility risk. High school students who believe that smoking makes young people look cool or fit in are more likely to be susceptible to smoking. It is clear that many North Carolina students still equate smoking with being cool. This finding is not surprising, given that this result has been found in other research studies [14, 15]. However, it is unclear why high school students have reduced perceptions about the risks of smoking. Focus groups and other formative research on youths in grades 9-12 might point to more-targeted interventions to sustain risk perceptions, as well as shed light on what can be done to further counteract the "coolness" of smoking.

Parent communication appears to play an important role in determining the smoking habits of young people. Our results suggest that parent communication about the dangers of tobacco use is working to some extent: as the frequency of communication increases, the odds of being susceptible to smoking decrease. However, Harakeh and colleagues [16] suggest that it is quality (eg, respectful and constructive discussions), not quantity, that counts when it comes to talking to youths about smoking. Parents need to have open dialogue with their children about the dangers of tobacco, before their children start experimenting with cigarettes, and the conversation needs to be conducted in a way that their children will be receptive to the message. Prevention efforts should focus on providing parents with the resources and information they need to have effective communications with their children about not smoking.

Unfortunately, it appears that a family structure that tolerates smoking serves as a risk factor for smoking. High school students are more likely to try cigarettes when they live with someone (such as a parent or sibling) who smokes.

A family member who smokes offers youths the opportunity to model behavior, makes smoking appear socially desirable, and provides youths with easy access to cigarettes [17]. Furthermore, although research suggests that parents who smoke do communicate with their children about the dangers of tobacco, they are unlikely to ban smoking in the home, for fear of appearing hypocritical [18]. Strategies to

prevent tobacco use need to focus more on the family structure, and they must begin to encourage families to use cessation programs to become smoke-free.

A final variable associated with ever use, current use, or susceptibility to use of cigarettes among North Carolina youths appears to be peer smoking. Past research has shown a direct relationship between peer smoking behavior and a

TABLE 4.
Variables Related to Use and Susceptibility to Use of Cigarettes Among North Carolina High School Students

Characteristic	Cigarette use, OR (95% CI)		
	Ever	Current	Susceptibility
Age ^a	1.17 (1.08-1.28)	1.23 (1.05-1.45)	Not significant
Close friends who smoke ^a	1.58 (1.41-1.77)	2.17 (1.99-2.36)	1.25 (1.13-1.38)
Discussion with parents about dangers of tobacco use ^a	Not significant	1.27 (1.10-1.48)	0.83 (0.73-0.96)
Sex			
Female	1.73 (1.24-2.40)	1.68 (1.09-2.59)	...
Male	1.00	1.00	...
Race			
Minority	1.41 (1.04-1.91)	1.00	Not significant
Nonminority	1.00	2.04 (1.34-3.11)	...
Cigar use, ever			
Yes	9.62 (7.01-13.19)	7.60 (4.98-11.60)	Not included ^b
No	1.00	1.00	...
Smokeless-tobacco use, ever			
Yes	2.95 (1.71-5.09)	2.62 (1.51-4.57)	Not included ^b
No	1.00	1.00	...
Smoking makes one look cool or fit in			
Yes	Not significant	Not significant	3.09 (1.60-5.94)
No	...	...	1.00
Safe to smoke for a year or two if one quits after that			
Yes	Not significant	4.33 (2.44-7.70)	Not significant
No	...	1.00	...
Tobacco companies get too much blame for young people smoking			
Yes	1.45 (1.05-1.99)	Not significant	Not significant
No	1.00	...	...
Wear/use tobacco company item			
Yes	1.77 (1.35-2.31)	2.05 (1.31-3.22)	2.62 (2.02-3.39)
No	1.00	1.00	1.00
Live with a smoker			
Yes	1.75 (1.39-2.21)	Not significant	Not significant
No	1.00	...	...
Awareness of North Carolina media campaign			
Yes	Not significant	0.66 (0.43-1.00)	Not significant
No	...	1.00	...

Note. Data are weighted to enable generalization to all North Carolina high school students. CI, confidence interval; OR, odds ratio.

^aVariables treated as continuous in logistic regression model.

^bPredictor not included in logistic regression model.

youth's smoking status [18]. North Carolina youths appear to be no different: as the number of friends who smoke increases, the odds of current use, ever use, and susceptibility to use also increase. Past research suggests that, as adolescents mature, they adopt group behaviors [19]; thus, there is a strong need for adolescents to become more autonomous in making smoking-related decisions. However, since prevention efforts that focus on refusal skills have been shown to be ineffective among youths [20], it may be up to parents to get the message across. Again, the need for open and honest communication between parents and their children is essential for tobacco prevention.

While many variables were related to an increase in the odds of current cigarette smoking among high school students, one variable, awareness of any of the prevention slogans in the state-sponsored media campaign was associated with a decreased odds of cigarette smoking. Past research has suggested that comprehensive media campaigns can be an effective deterrent to teenage smoking [21]. The state media campaign that began in 2004 and received expanded funding in 2006 is a multicomponent campaign that includes television and radio ads, school programs, and a central Web site (available at: <http://www.realityunfiltered.com>). The campaign remains an important component of the statewide teen tobacco initiative, and it will be interesting to examine data from future administrations of the NCYTS, to determine how sustained exposure to the campaign has influenced smoking among students.

Several limitations exist in these data. As the NCYTS is a cross-sectional survey, causality cannot be inferred. Thus, the results should be considered descriptive in nature and not causal. Furthermore, since this analysis comes from youths in North Carolina, the results may not be generalizable to youths in other regions of the country. Another limitation is that these data involve self-reported measures and are subject to the honesty of the high school students who participated. Also, several implications discussed above need formative research to test whether youths would respond to improved messages targeted at changing factors of cigarette use and susceptibility to cigarette use.

Variables associated with use and susceptibility to use of cigarettes among North Carolina high school students are multifaceted. Demographic characteristics, such as sex, race, and age; multiple forms of tobacco use; certain attitudes relating to the safety and social desirability of smoking; and peer influence need to be taken into account when targeting youths for antitobacco prevention initiatives. Investment of state funds in comprehensive tobacco-control programs has been shown to be successful in reducing tobacco consumption among youths in North Carolina [7]. With the historic action of House Bill 2, which reduces youth and adult exposure to secondhand smoke in public places, now is the time to provide a greater focus on deterring youths from cigarette use [22]. State efforts should consider using increased portions of the Master Settlement Funds to focus initiatives on

the predictors highlighted in this research, to further reduce cigarette use among young people in North Carolina. **NCMJ**

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Acknowledgments

We thank North Carolina school district superintendents, Safe and Drug-Free Schools coordinators, administrative staff, teachers, and students, for their participation; and the North Carolina Tobacco Prevention and Control Branch, for coordinating the administration of the Youth Tobacco Survey.

Financial support. North Carolina Health and Wellness Trust Fund.

Potential conflicts of interest. All authors have no relevant conflicts of interest.

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For tips on how to prevent home fires caused by smoking materials, visit www.usfa.dhs.gov/smoking.



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FA-309 / June 2007

Use of 2001-2002 Behavioral Risk Factor Surveillance System Data to Characterize Cancer Survivors in North Carolina

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OBJECTIVE We used Behavioral Risk Factor Surveillance System (BRFSS) data to examine demographic characteristics, health status, quality of life, and preventive health behaviors among adult cancer survivors in North Carolina.

METHODS We analyzed responses to state-added questions on cancer survivorship and to standard BRFSS questions concerning health status, quality of life, and health behaviors, including access of preventive services associated with cancer prevention and early detection, from the 2001 and 2002 North Carolina BRFSS.

RESULTS Cancer survivors were more likely than individuals with no self-reported history of cancer to be women (62.7% vs 51.3%), white (80.8% vs 70.3%), aged 65 years or older (48.7% vs 13.8%), and up to date with colorectal cancer screening (66.4% vs 52.4%); as likely to be current smokers (28.0% vs 26.2%); and more likely to report poor or fair health status (28.2% vs 17.2%). Cancer survivors reported lower quality of life, measured as the number of physically and mentally unhealthy days in the previous 30 days.

LIMITATIONS This was a cross-sectional survey that relied on self-reported history of cancer, healthy behaviors, and use of preventive services.

CONCLUSIONS Data from a statewide, population-based survey can be used to assess unmet needs of cancer survivors. Comprehensive cancer-control programs should be able to design interventions and monitor progress of state cancer-survivorship goals.

There were an estimated 11 million cancer survivors in the United States in 2006 [1]. The number of US cancer survivors has increased, in part, because of earlier detection and better treatments. As cancer patients live longer, their well-being has become an increasingly important public health issue, which a number of agencies and organizations have begun to address. For example, in 2004, the Centers for Disease Control and Prevention (CDC), in conjunction with the Lance Armstrong Foundation, the American Cancer Society, and other partners, published an action plan that identifies and prioritizes the needs of cancer survivors and proposes strategies for addressing them [2]. The Institute of Medicine of the National Academies published a report in 2005 that recommends that each cancer survivor receives a survivorship plan that summarizes information about long-term care and maintenance of a healthy lifestyle [3].

It is important to understand the behaviors and characteristics of cancer survivors, including their lifestyle, health status, health-related quality of life, use of preventive health services (eg, cancer screening and immunizations), and access to health care (eg, whether they have health insurance and a usual health care professional). However, there are few data sources available at the local and state level to monitor these behaviors and characteristics. Most reports provide information at the national level [4, 5].

The CDC's National Comprehensive Cancer Control Program (NCCCP) funds efforts by all 50 states, the District of Columbia, 7 tribes/tribal organizations, and 7 territories

and US Pacific Island jurisdictions, to develop and implement comprehensive cancer-control programs [6]. Since most of the programs address issues associated with cancer survivorship [7, 8], they need local, population-based data sources to plan and evaluate the impact of survivorship-related activities.

The CDC's Division of Cancer Prevention and Control seeks to enhance state-level data for NCCCP-funded program planning. We used 2001 and 2002 Behavioral Risk Factor Surveillance System (BRFSS) data from North Carolina to describe the demographic and health characteristics of cancer survivors and the association of certain health behaviors, quality of life, use of preventive services, and access to health care with cancer survivorship. The results of this analysis will enhance the CDC's ability to help funded programs identify survivorship-related needs.

Methods

The BRFSS collects data annually, using telephone-based interviews of noninstitutionalized adults (defined as people aged ≥ 18 years) who are selected for participation by means

Electronically published April 21, 2011.

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N C Med J. 2011;72(1):20-27. ©2011 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2011/72126

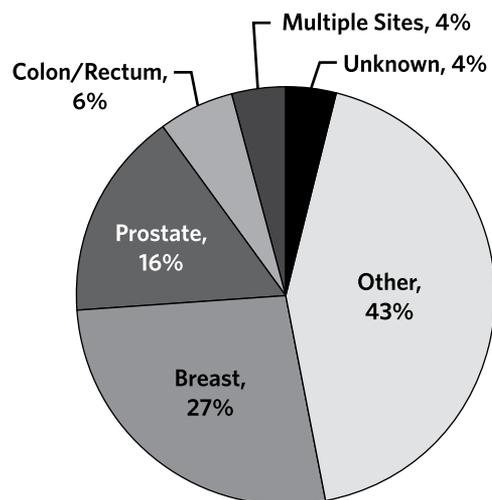
of random digit dialing. Interviews are conducted by health departments in all 50 states, the District of Columbia, and select US territories (ie, Guam, Puerto Rico, and the US Virgin Islands) to monitor the health status of their populations. Overall response rates in North Carolina for 2001 and 2002 BRFSS surveys were 56.2% and 61.6%, respectively.

BRFSS participants in North Carolina were asked state-added questions related to cancer survivorship, beginning with the question, "Have you ever been told by a doctor, nurse, or other health professional that you had cancer?" Response options were "yes," "no," and "don't know/not sure." Respondents who answered "yes" were then asked, "What type of cancer was/is it?" Response options were "breast [cancer]," "colorectal [cancer]," "skin cancer," "other," and "don't know/not sure." Respondents were allowed to choose more than 1 response. Survivors of prostate cancer were identified in the core BRFSS questionnaire in the section on prostate cancer screening; these men were then prompted to answer the state-added questions about any additional cancers. Data from state-added questions were collected only in 2001 and 2002.

We combined North Carolina BRFSS data for 2001 and 2002 and applied final survey weights to produce adjusted estimates for the entire North Carolina population. We also created a variable indicating cancer survivorship that was based on responses to the initial state-added question on cancer history and to the BRFSS core-module question on prostate cancer. Respondents who reported "don't know/not sure" or did not answer these questions were excluded from the analysis. We also excluded cancer survivors who reported a history of skin cancer only, because we could not differentiate between melanoma and nonmelanoma skin cancer. We considered respondents who reported ever having been told they had any form of cancer (other than skin cancer) to be cancer survivors. For all cancer survivors, we calculated the percentage who reported each type of cancer (breast [among women only], colorectal, prostate [among men only], and other), the percentage who reported multiple types of cancer, and the percentage whose cancer type was unknown. We calculated the prevalence of a history of cancer among all adults aged 40 years or older.

We also compared the distribution of the following demographic characteristics among cancer survivors with those among adults who had never had cancer: age (<50 years, 50-64 years, ≥65 years, or unknown), race/ethnicity (non-Hispanic white, non-Hispanic black, or other), sex (male or female), education level (less than high school graduate, high school graduate or more, or unknown), employment status (employed for wages, out of work/unable to work, other, retired, or unknown), marital status (currently married/living together, not currently married, or unknown), and weight status expressed as body mass index (BMI [defined as the weight in kilograms divided by the square of the height in meters]; underweight [BMI, <19.0], normal weight [BMI, 19.0-24.9], overweight [BMI, 25.0-29.9], or obese [BMI, ≥30.0]).

FIGURE 1.
Cancer Sites Reported by 817 Cancer Survivors, North Carolina Behavioral Risk Factor Surveillance System, 2001-2002



Note. Data are for respondents aged 18 years or older (weighted N = 332,239). The "unknown" category includes responses of "don't know/not sure."

In addition, we compared the distribution of the following health indicators among adult cancer survivors with those among adults who had never had cancer: self-reported health status (excellent, very good, good, fair, or poor), disability status (severe, moderate, mild, or none), any leisure-time physical activity in the previous 30 days (yes or no), health-related quality of life (number of physically unhealthy days and number of mentally unhealthy days in the previous 30 days [9]), smoking status (current smoker, former smoker, or never), alcohol consumption in the previous 30 days (yes or no), receipt of influenza vaccine in the previous 12 months (yes or no), and recent cancer screening (yes or no). Breast cancer screening was determined for women 40 years or older and was considered recent if mammography was performed in the previous 2 years. Cervical cancer screening was determined for all women with no hysterectomy and was considered recent if a Papanicolaou (Pap) smear was performed in the previous 3 years. Colorectal cancer screening was determined for participants 50 years or older and was considered recent if an endoscopic examination was performed within the previous 5 years or if a fecal occult blood test was performed within the previous year. A 5-year interval was chosen for endoscopy since we could not determine whether respondents had undergone sigmoidoscopy or colonoscopy. Prostate cancer screening was determined for men 50 years or older and was considered recent if a prostate-specific antigen test was performed within the previous 2 years. Cancer survivors who reported having had breast, prostate, or colorectal cancer were excluded from calculation of recent-screening rates for their type of cancer. However, because the survey did not ask women whether they had ever been told they had cervical cancer, we were

TABLE 1.
Demographic Characteristics of 817 Cancer Survivors and 11,374 Individuals Reporting “No Cancer,” North Carolina Behavioral Risk Factor Surveillance System, 2001-2002

Characteristic	Cancer, % ± SE	No cancer, % ± SE	P
Age			<.001
<50 y	25.3 ± 2.7	64.7 ± 0.6	
50-64 y	25.5 ± 2.4	20.7 ± 0.5	
≥65 y	48.7 ± 2.9	13.8 ± 0.4	
Sex			<.001
Male	37.3 ± 3.0	48.7 ± 0.7	
Female	62.7 ± 3.0	51.3 ± 0.7	
Race/ethnicity			<.001
Non-Hispanic white	80.8 ± 2.2	70.3 ± 0.7	
Non-Hispanic black	12.8 ± 1.9	18.4 ± 0.6	
Other ^a	6.3 ± 1.4	11.3 ± 0.5	
Marital status			<.001
Currently married/ living together	58.6 ± 2.7	62.1 ± 0.7	
Not currently married	41.4 ± 2.7	37.6 ± 0.7	
Education level			.39
Less than high school graduate	19.5 ± 2.2	16.4 ± 0.6	
High school graduate or more	80.2 ± 2.2	83.4 ± 0.6	
Employment			<.001
Employed for wages	31.8 ± 2.8	65.4 ± 0.7	
Out of work/unable to work	15.7 ± 2.2	9.1 ± 0.4	
Other	6.4 ± 1.2	10.5 ± 0.4	
Retired	46.1 ± 2.8	14.8 ± 0.4	

Note. For most characteristics, the “unknown” category, which includes responses of “don’t know/not sure,” has been suppressed. Therefore, percentages may not total 100%. SE, standard error.

^aIncludes persons who responded “Hispanic,” “Native American/Alaska Native,” “Asian/Pacific Islander,” “Other,” or “Unknown Race.”

unable to identify cervical cancer survivors and thus also unable to exclude these women from calculations for recent Pap testing.

We also compared health care access among cancer survivors with that among individuals with no cancer history, including whether they had current health insurance coverage, whether they had a personal health care professional (defined as 1 professional, >1, or none), and whether they felt that cost restricted their ability to see a physician.

For most analyses, we excluded survey participants who either did not respond or responded “don’t know/not sure” to a particular question. We used SAS with SUDAAN (Cary, NC) to account for the BRFSS’s complex sampling design. χ^2 testing was used in all analyses, to determine whether differences by cancer status were statistically significant (defined as a P value of < .05).

We used logistic regression analysis to produce adjusted percentages (ie, predicted marginals [10]), which is a

method of standardization that produces a weighted average for each level of the health variable of interest. This method allows for comparison between cancer survivors and individuals with no cancer history as if both groups had the same demographic characteristics. Separate models were fit with each health variable as the dependent variable, while controlling for age, race/ethnicity, sex, employment status, and cancer status as independent variables. We used multinomial logistic regression if the categorical dependent variable of interest had more than 2 levels. Multivariate linear regression was used to estimate the mean number of physically and mentally unhealthy days by cancer status, adjusted for age, race/ethnicity, sex, and employment status. P values were calculated by use of the Wald F test.

To estimate the percentage of North Carolinians who were up to date with recommended cancer screening and influenza vaccination, we used a logistic regression model in which screening or vaccination status (up to date vs not up to date) was the dichotomous dependent variable and sex (for colorectal cancer screening only), race/ethnicity, employment status, general health status (collapsed into excellent/very good/good health vs fair/poor health), health insurance coverage, history of cancer (no vs yes), and age group were the independent variables. Age group categories were 50-64 years versus 65 years or older, for colorectal and prostate cancer screening; 40-50 years and 50-64 years versus 65 years or older, for breast cancer screening; and less than 50 years and 50-64 years versus 65 years or older, for cervical cancer screening. P values were obtained from general linear contrasts by comparing estimated adjusted proportions of recent-screening status for cancer survivors with those for respondents with no cancer history. We used the same procedure to obtain adjusted estimates, stratified by age group, for the percentage of North Carolina adults who received influenza vaccination in the previous 12 months. In the logistic regression model, the age groups for respondents aged less than 50 years of age were 18-39 years and 40-49 years, and for those aged 50 years or older, the age groups were 50-64 years and 65 years or older.

Results

In 2001 and 2002, 817 respondents reported being cancer survivors. We estimated that, among all adult North Carolina cancer survivors (excluding those with skin cancer), 27% had breast cancer, 16% had prostate cancer, 6% had colorectal cancer, 4% had multiple cancers, and 43% had another type of cancer (reported as “other”) (Figure 1). The prevalence of cancer survivorship among North Carolina residents aged 40 years or older was 8.9% (standard error, ±0.5%) (data not shown). Compared with adults who had never had cancer, cancer survivors were more likely to be 65 years or older (48.7% vs 13.8%), female (62.7% vs 51.3%), and non-Hispanic white (80.8% vs 70.3%) and were less likely to be employed for wages (31.8% vs 65.4%) (Table 1). Individuals with no cancer history were more likely to be currently mar-

ried or living as married than were cancer survivors (P < .001). Education level was not associated with cancer history.

Although the unadjusted prevalence of each behavioral risk factor was significantly associated with cancer history, none of these associations remained statistically significant after we adjusted for age group, sex, race/ethnicity, and employment status (Table 2). The prevalence of current smoking among cancer survivors increased from 22.4% to 28.0% after we adjusted for these factors, and it was similar to the prevalence for individuals with no cancer history (26.4% vs 26.2%; P = .70). The estimated prevalence of

participation in leisure-time physical activity among cancer survivors increased and was similar to the estimate for individuals with no cancer history (69.7% vs 72.6%; P = .26). Cancer survivors drank alcohol at a prevalence similar to that of individuals with no cancer history (P = .48).

In the adjusted model, estimated values for health status, health-related quality of life, and disability variables differed significantly by cancer history (Table 2), including the prevalence of fair to poor health (28.2% among cancer survivors vs 17.2% among individuals with no cancer history; P < .001), mean number of physically unhealthy days in the previous

TABLE 2.
Behavioral Risk Factors and Health-Status Measures for 817 Cancer Survivors and 11,374 Individuals Reporting "No Cancer," North Carolina Behavioral Risk Factor Surveillance System, 2001-2002

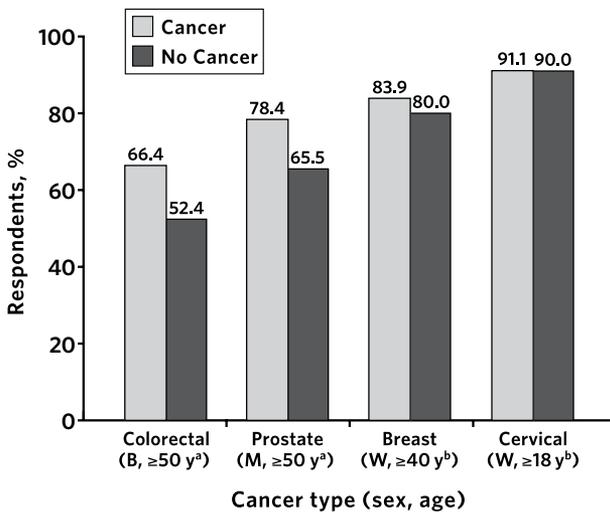
Characteristic	Unadjusted prevalence			Adjusted prevalence ^a		
	Cancer	No cancer	P	Cancer	No cancer	P
Smoking status			.004			.70
Current	22.4 ± 2.6	26.4 ± 0.7		28.0 ± 3.3	26.2 ± 0.7	
Former	32.6 ± 2.7	23.0 ± 0.6		24.3 ± 2.4	23.6 ± 0.6	
Never	44.2 ± 2.8	50.3 ± 0.7		47.6 ± 3.0	50.2 ± 0.7	
Leisure-time physical activity in past 30 d			.008			.26
Yes	64.7 ± 2.8	72.8 ± 0.7		69.7 ± 2.6	72.6 ± 0.6	
No	35.3 ± 2.8	27.1 ± 0.6		30.3 ± 2.6	27.4 ± 0.6	
Consumed alcohol in past 30 d			<.001			.48
Yes	27.5 ± 2.3	41.9 ± 0.7		39.5 ± 3.1	41.7 ± 0.7	
No	71.2 ± 2.4	57.1 ± 0.7		60.5 ± 3.1	58.3 ± 0.7	
Body mass index ^b			.05			.65
<19 (underweight)	3.6 ± 0.9	3.1 ± 0.2		3.3 ± 0.8	3.2 ± 0.2	
19-24.9 (normal weight)	36.4 ± 2.7	35.3 ± 0.7		35.8 ± 2.8	35.5 ± 0.7	
25-29.9 (overweight)	34.1 ± 2.7	33.4 ± 0.7		34.5 ± 2.8	33.4 ± 0.7	
≥30 (obese)	22.5 ± 2.5	21.8 ± 0.6		22.3 ± 2.7	21.9 ± 0.6	
Unknown	3.3 ± 0.9	6.4 ± 0.4		4.0 ± 1.1	6.0 ± 0.4	
Self-reported health status			<.001			<.001
Excellent	8.7 ± 1.4	21.8 ± 0.6		13.8 ± 2.1	21.5 ± 0.6	
Very good	21.1 ± 2.2	33.4 ± 0.7		28.8 ± 2.8	33.1 ± 0.7	
Good	25.4 ± 2.5	28.0 ± 0.7		29.2 ± 2.9	28.1 ± 0.7	
Fair	21.9 ± 2.6	11.3 ± 0.5		16.6 ± 2.2	11.5 ± 0.5	
Poor	22.4 ± 2.4	5.4 ± 0.3		11.6 ± 1.2	5.7 ± 0.3	
Health-related quality of life						
Physically unhealthy days, no.	8.3 ± 0.7	3.3 ± 0.1	<.001	6.4 ± 0.6	3.4 ± 0.1	<.001
Mentally unhealthy days, no.	3.9 ± 0.5	2.6 ± 0.1	.02	3.7 ± 0.5	2.6 ± 0.1	.058
Consider yourself to have a disability			<.001			.003
Yes						
Mild	7.4 ± 1.4	4.4 ± 0.3		5.5 ± 1.1	4.5 ± 0.3	
Moderate	13.4 ± 2.4	4.1 ± 0.2		8.7 ± 1.9	4.3 ± 0.3	
Severe	10.5 ± 1.6	4.7 ± 0.3		6.0 ± 0.9	4.9 ± 0.3	
No	66.6 ± 2.8	86.1 ± 0.5		79.7 ± 2.1	86.3 ± 0.5	

Note. Data are percentages ± standard error, unless otherwise indicated. For most characteristics, the "unknown" category, which includes responses of "don't know/not sure," has been suppressed. Therefore, percentages may not total 100%. SE, standard error.

^aAdjusted for race/ethnicity, sex, age, and employment status.

^bDefined as the weight in kilograms, divided by the square of the height in meters.

FIGURE 2.
Recent Cancer Screening Among Cancer Survivors
and Individuals Reporting "No Cancer," North Carolina
Behavioral Risk Factor Surveillance System, 2001-2002



Note. See Methods for definitions of "recent." All screening rates except those for cervical cancer screening exclude individuals who reported cancer at the specified site. Rates are adjusted for the following demographic characteristics: age, sex (when appropriate), race/ethnicity, employment status, general health status, and insurance status. B, women and men; M, men; W, women.
^aStatistically significantly different ($P < .05$).
^bData are from 2002 only.

30 days (6.4 vs 3.4; $P < .001$), mean number of mentally unhealthy days in the previous 30 days (3.7 vs 2.6; $P = .058$), and self-reported disability of any severity (20.2% vs 13.7%; $P = .003$).

We also found that cancer survivors had a significantly higher prevalence of recent screening for prostate cancer and colorectal cancer than did adults with no cancer history (Figure 2). For example, among respondents aged 50 years or older, the adjusted rate of colorectal cancer screening was 66.4% among cancer survivors and 52.4% among individuals with no cancer history. However, the prevalence of recent screening for breast cancer and cervical cancer did not differ significantly by cancer history. Although a greater proportion of cancer survivors reported receipt of influenza vaccination, the adjusted estimate for cancer survivors aged 50 years or older was only 59.3% (Figure 3).

We found that cancer survivors were as likely as adults with no cancer history to have health insurance (84.9% vs 84.4%; $P = .87$) but were more likely to have seen more than one health care professional (28.3% vs 15.1%; $P < .001$) (Table 3).

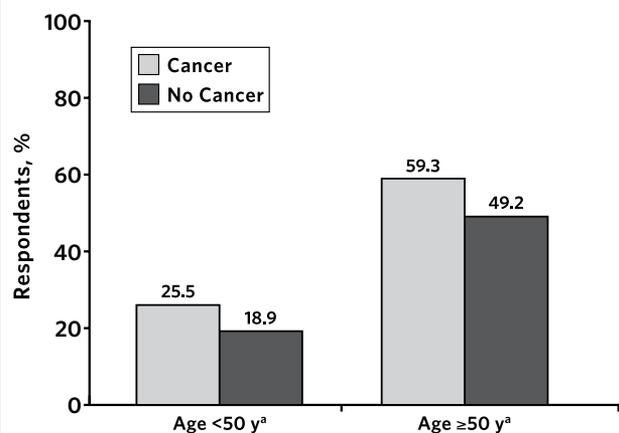
Discussion

We undertook this study to describe the demographic and health characteristics of North Carolina cancer survivors and the association of cancer survivorship with certain health behaviors, quality of life, use of preventive services, and access to health care, using statewide, population-based

data. Although cancer prevalence can be measured by cancer registries [11], measures of cancer survivors' life experiences can be ascertained only by talking to the survivors. Cancer survivorship has emerged as a major public health issue, focusing attention on the needs of this subpopulation [12, 13]. The *North Carolina Comprehensive Cancer Plan* [13], for example, includes complementary goals of increasing the prevalence of healthful behaviors and decreasing the prevalence of risky behaviors in the general population, as well as among cancer survivors.

By use of North Carolina BRFSS data collected in 2001 and 2002, we were able to assess various health measures among cancer survivors, compared with those among individuals with no cancer history, including healthy behaviors, access to care, and use of preventive services associated with cancer prevention and early detection. Similar to others, we found that cancer survivors perceived themselves as having a lower quality of life than did individuals without cancer, including poorer health status and more mentally and physically unhealthy days. Our finding that 28.2% of cancer survivors considered themselves to be in fair or poor health was similar to results from the 2000 National Health Interview Survey (NHIS), in which 26.6% of cancer survivors reported fair or poor health status [14]. A previous study that used CDC's Healthy Days measures for adult cancer survivors showed that survivors who reported activity limitations due to cancer were more likely to report more physically and mentally unhealthy days, compared with survivors who reported no activity limitations [9]. Hudson and colleagues [15] similarly found that survivors of cancer during childhood reported more physically and mentally unhealthy days than did their siblings.

FIGURE 3.
Receipt of Influenza Vaccine in the Past 12 Months Among
Cancer Survivors and Individuals Reporting "No Cancer,"
by Age, North Carolina Behavioral Risk Factor Surveillance
System, 2001-2002



Note. Rates are adjusted for the following demographic characteristics: age, race/ethnicity, sex, employment status, general health status, and insurance status.

^aStatistically significantly different ($P < .05$).

TABLE 3.
Access to Health Care for 817 Cancer Survivors and 11,374 Individuals Reporting “No Cancer,” North Carolina Behavioral Risk Factor Surveillance System, 2001-2002

Characteristic	Unadjusted prevalence, % ± SE			Adjusted prevalence, % ± SE		
	Cancer	No cancer	P	Cancer ^a	No cancer ^b	P
Health insurance coverage			.002			.87
Yes	90.2 ± 1.8	83.9 ± 0.6		84.9 ± 2.6	84.4 ± 0.6	
No	9.5 ± 1.7	15.8 ± 0.6		15.1 ± 2.6	15.6 ± 0.6	
Have personal physician or HCP			<.001			<.001
Yes, only 1	62.4 ± 2.6	64.2 ± 0.7		62.1 ± 3.0	64.6 ± 0.7	
Yes, >1	32.0 ± 2.5	14.9 ± 0.5		28.3 ± 2.3	15.1 ± 0.5	
No	5.2 ± 1.3	20.7 ± 0.7		9.6 ± 2.4	20.3 ± 0.6	
Restricted from seeing physician because of cost			.85			.79
Yes	10.1 ± 1.8	9.8 ± 0.4		10.3 ± 1.7	9.8 ± 0.4	
No	89.4 ± 1.8	90.0 ± 0.4		89.7 ± 1.7	90.2 ± 0.4	

Note. For most characteristics, the “unknown” category, which includes responses of “don’t know/not sure,” has been suppressed. Therefore, percentages may not total 100%. HCP, health care professional; SE, standard error.

^aWeighted to the population distribution.

^bAdjusted for race/ethnicity, sex, age, and employment status.

Even though cancer survivors have been shown to be at increased risk of developing second cancers [16], we found that the adjusted prevalence of 3 cancer risk factors (ie, current smoking, physical inactivity, and alcohol use) was similar to that for individuals with no cancer history. In the unadjusted model, cancer survivors were less likely to be current smokers, to engage less frequently in leisure-time activity, and to consume alcohol within the past 30 days than were individuals with no cancer history. However, after we adjusted for age, race/ethnicity, sex, and employment, prevalence estimates for current smoking increased by 5%; for leisure-time activity, by 5%; and for alcohol consumption, by 12%. These results are similar to those from other studies, showing that cancer survivors are just as likely as are individuals with no cancer history to engage in behaviors associated with an increased risk for cancer [5, 17]. Results from previous studies have also shown that smoking cessation and increased exercise are associated with lower rates of cancer recurrence [18-20].

Since cancer survivors are at a higher risk for developing second cancers, screening for cancers that can be detected early is critical. Similar to others, we found that cancer survivors reported higher rates of recent screening for breast, colorectal, and cervical cancer than did adults with no cancer history [17, 21]. However, we were unable to determine whether survivors who should receive screening at earlier ages because of past treatments did so, because the North Carolina BRFSS asked only about a limited set of cancers [22]. Given that many cancer survivors are at risk for developing influenza and pneumonia and associated complications, immunizations are recommended for this group [23-25]. We found that cancer survivors were more likely to report having received an influenza vaccination in the previous 12 months than were individuals with

no cancer history. However, only 59.3% of cancer survivors 50 years or older received influenza vaccination during the past 12 months, even though it is recommended for the general population [23, 26]. Among cancer survivors younger than 50 years old, only 25.5% had been vaccinated in the previous 12 months.

Given the higher burden of chronic disease and disability among cancer survivors, access to health care is a priority for this population [4]. We estimated that 15.1% of cancer survivors in North Carolina had no health insurance; this finding was similar to the estimate of 15.6% among US cancer survivors that was reported by Sabatino and colleagues [5], using NHIS data. We also found that cancer survivors were more likely to have a personal health care professional and to have more than one health care professional than were adults with no cancer history. This finding was expected, since cancer patients continue to receive multidisciplinary care delivered by multiple health care professionals. In a previous study, cancer survivors continued to see their oncologist after they had completed their cancer treatment [26].

The NCCCP will use these findings to understand the behaviors and characteristics of cancer survivors, as well as to design and deliver interventions to encourage and reinforce healthful behaviors by cancer survivors and to discourage them from engaging in risky behaviors. The immediate postdiagnosis period has been described as the “teachable moment” when cancer patients tend to be most receptive to messages about improving their health behaviors. Health care professionals have a relatively controlled environment in which to deliver these messages, and the logistical barriers to some interventions are low [18, 27]. Study findings can be shared with health care professionals to capitalize on the rare opportunity to coordinate their actions and

take advantage of this teachable moment by providing their patients information, resources, and support to reduce risky behaviors, such as accessing the North Carolina Tobacco Cessation Quitline [28], and by reinforcing healthy behaviors, such as initiating the conversation about appropriate cancer screening and vaccination.

Comprehensive cancer programs can also use the study findings to help coordinate efforts to determine which health care professionals should be aware of cancer survivors' risks and needs, which should deliver messages encouraging survivors to make healthful behavioral changes, and which should provide the patients' follow-up care. The NCCCP and other cancer programs have many opportunities to broadly disseminate the information we presented in this report, including developing and disseminating resources for physicians [29], hosting Web sites (eg, NC Cancer [available at <http://www.nccancer.com>]) that provide cancer information for physicians and cancer survivors [30], and supporting patient-physician-researcher informational exchanges (eg, the Annual North Carolina Survivorship Summit). Until coordinated systems are developed to ensure that cancer survivors have access to high-quality survivorship care, professionals from a broad spectrum of health care areas should be educated about behaviors associated with cancer risk, cancer survivors' risk for secondary cancers, and opportunities these professionals may have to meet cancer survivors' unique needs [3].

Our findings are subject to several limitations. First, because participation in the BRFSS requires a landline telephone, our results may be biased by the exclusion of persons who cannot afford telephones and of individuals who use only cellular telephones [31]. Second, because BRFSS data are based on self-reports by survey participants, results may be subject to recall bias. Studies have shown, however, that BRFSS survey findings are both reliable and valid [32, 33]. Third, our reliance on self-report of cancer history may have led to misclassification of participants' cancer status [2, 34]. Prevalence estimates from North Carolina's cancer registry, for example, have shown that prostate cancer is underreported by BRFSS survey participants [11, 35]. A fourth limitation is that, because BRFSS survey response rates in North Carolina were only 56.2% and 61.6% for the years of the study, our results could have been biased by any substantial differences between people who chose to participate and those who did not. Our results were also limited by a lack of information about the characteristics of the cancers that survey participants reported, including time since diagnosis, stage at diagnosis, and phase of care at the time of the survey, each of which has been shown to affect health-related quality-of-life measures [15]. Since these data are 9-10 years old, current patterns may differ from those during 2001-2002.

Despite these limitations, we have shown that BRFSS data from North Carolina can be used to assess the health behaviors and special needs of cancer survivors and to gen-

erate information useful in designing programs that meet those needs. With the number of cancer survivors increasing nationwide, assessing the needs of these survivors and designing health-promotion programs to meet those needs will be imperative [27]. The BRFSS questions for cancer survivors, which were introduced nationwide in the 2009 BRFSS survey, will complement state-specific survivorship questions and enhance state efforts to generate baseline estimates that can be used for program planning and monitoring of interventions targeting cancer survivors. **NCMJ**

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Acknowledgments

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Potential conflicts of interest. All authors have no relevant conflicts of interest.

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POLICY FORUM

Behavioral Health Needs of Military Personnel and Their Families

Introduction

We send our citizens into conflicts to bear the physical burdens of war. As members of the armed forces, they put their bodies in harm's way to protect our freedoms and our lives. These harms are evident in lost lives and limbs but are less apparent when they injure the most vulnerable of human organs, the brain.

Technological advances have increased the survival rate among combatants who sustain injuries that, in past conflicts, would have been fatal. However, individuals who survive combat-related injuries, both physical and mental, often must cope with long periods of recovery and with stress that affects them and their families. In addition, personnel who serve in combat, regardless of whether they are physically injured, are at risk for posttraumatic stress disorder, depression, and suicidal ideation. Because these conditions are often hidden and express themselves over time and in subtle ways, they can be overlooked. The federal government offers a range of behavioral health care services to active and former military personnel and their families, but gaps in coverage remain.

The North Carolina General Assembly asked the North Carolina Institute of Medicine (NCIOM) to assemble a task force to assess the adequacy of Medicaid- and state-funded behavioral health services available to service members, veterans, and the families of these groups. The task force made several recommendations that highlight areas where state resources can be used to plug the gaps in federal coverage.

The policy forum of this issue builds on the task force's recommendations by describing the need for and potential benefits of new behavioral health initiatives for military personnel and their families. The lead article, written by Kimberly Alexander-Bratcher (project director, NCIOM), Grier Martin (representative, North Carolina General Assembly), William R. Purcell (senator, North Carolina General Assembly), Michael Watson (deputy secretary for health services, North Carolina Department of Health and Human Services), and Pam Silberman (president and chief executive officer, NCIOM), sets the stage for this discussion by summarizing the work of the NCIOM task force and reviewing how behavioral health services provided at the federal, state, and local levels require coordination, as well as some degree of intensification.

North Carolina's 2 senators recognize the priority of caring for our returning service members, veterans, and their families. We must heed the senators' call to understand the problem and to bring all citizens together to meet the behavioral health needs of these courageous individuals.

Thomas C. Ricketts III, PhD, MPH
Editor in Chief

Honoring Their Service: Behavioral Health Services in North Carolina for Military Service Members, Veterans, and Their Families

Kimberly M. Alexander-Bratcher, Grier Martin, William R. Purcell, Michael Watson, Pam Silberman

The North Carolina Institute of Medicine Task Force on Behavioral Health Services for the Military and Their Families examined the adequacy of Medicaid- and state-funded services for mental health conditions, developmental disabilities (including traumatic brain injury), and substance abuse that are currently available in North Carolina to military service members, veterans, and their families. The task force determined that there are several gaps in services and made 13 recommendations related to federal, state, and local community resources. This article reviews the work of the task force and current efforts to improve services in North Carolina.

As commander in chief, I am determined to do whatever it takes to make sure that our service members have the resources, leadership, and support necessary to accomplish their mission and return home safely.

President Barack Obama [1]

Our military men and women and their families are heroes who sacrifice daily in their mission to protect our freedom. While the Department of Defense (DoD) makes a strong commitment to ensure that war fighters have the resources they need to complete their assigned mission and return home safely, this does not guarantee that health care services and supports will be available or easily accessible once they return home. The 2 most common diagnoses among service members and veterans of the wars in Iraq and Afghanistan who seek care at Department of Veterans Affairs (VA) facilities are musculoskeletal injuries and mental health problems [2]. There are excellent systems in place to treat the physical wounds of war, but accessing comprehensive behavioral health care is complicated by several barriers, including stigma, lack of behavioral health professionals, and lack of coordination between the federal, state, and local systems of health care.

Service Members and Their Families in North Carolina

North Carolina is home to the fourth-largest military population in the nation, representing every branch of the mili-

tary. Active-duty service members—enlisted personnel and officers—are full-time employees of the US armed forces. There are currently 120,000 active-duty personnel based at the 7 military installations in North Carolina who are serving in our state or deployed overseas. In addition, another 15,000 active-duty members are expected to move to North Carolina by 2013, as military installations close in other states [3]. National Guard and reserve personnel constitute the reserve component of the military and usually serve part-time in one of the branches of the armed forces. More than 45,000 reserve-component members are distributed across all 100 North Carolina counties [4]. North Carolina is also home to nearly 800,000 veterans, which places the state fifth in military-retiree population and ninth in veteran population [3]. Approximately one-third of the state's population is either in the military, a veteran, or a spouse, surviving spouse, parent, or dependent of someone connected to the military. These families live, work, study, and play in every county of the state.

Since September 2001, more than 2 million troops have been deployed in support of Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), and Operation New Dawn [2]. These wars differ markedly from previous wars in how they are fought and in their extended length. Our current military is an all-volunteer force. Rather than drafting additional service members, the United States deploys current service members multiple times, for longer periods, and with less time at home between deployments. There is also an increased use of reserve-component service members and increased numbers of deployed women and parents of young children. The physical environment in Iraq and Afghanistan exposes service members to an increased risk of injury, whether they are in traditional combat-theater roles or support roles. Although many injuries in these theaters would have resulted in death had they occurred in previous

Electronically published April 21, 2011.

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NC Med J. 2011;72(1):29-36. ©2011 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2011/72106

wars, more than 90% of service members who are injured now survive their injuries [2, 5]. As a consequence, North Carolina welcomes home a higher percentage of active- and reserve-component service members with traumatic brain injury (TBI), posttraumatic stress disorder (PTSD), other mental health problems, and/or substance use disorders, compared with past conflicts.

Service members and their families face unique challenges, including multiple deployments and repeated transitions. Military families move, on average, every 2-3 years [5]. These frequent relocations disrupt systems of support and interfere with careers and school attendance. In addition to these challenges, service members and their families have languages, traditions, perspectives, and values that represent a distinct culture. Aspects of the military culture, including honor, resilience, and self-sacrifice, help service members achieve their mission under stressful conditions. However, their self-sacrifice and resilience pose a significant barrier to seeking care when problems arise. Service members may overestimate their abilities to cope and may not seek care when it is needed.

North Carolina Institute of Medicine (NCIOM) Task Force on Behavioral Health Services for the Military and Their Families

The North Carolina General Assembly recognizes that, when federal resources are not available to meet the behavioral health needs of service members in North Carolina, the state must provide the necessary services and supports. The General Assembly asked the NCIOM to study the adequacy of Medicaid- and state-funded services for mental health conditions, developmental disabilities, and substance abuse that are currently available to active- and reserve-component members of the military, veterans, and the families of these groups, and to identify any gaps in services [6, 7]. The task force was cochaired by Representative Grier Martin, JD, LLM, North Carolina General Assembly; Senator William R. Purcell, MD, North Carolina General Assembly; and Michael Watson, deputy secretary for health services, North Carolina Department of Health and Human Services. The 3 cochairs are veterans themselves and were joined by 43 members of the task force and steering committee, including individuals in the active and reserve components of the military, veterans, family members of these groups, legislators, behavioral health personnel, representatives from federal and state agencies, and other members of the community. The task force met 11 times between November 2009 and December 2010 and made 13 recommendations in its report, 4 of which were priority recommendations (presented here in bold) [4].

TBI and Mental Health and Substance Use Disorders

The stress of combat and military service has lasting psychological and behavioral effects on our service members and their families. It is estimated that 19% of active-duty

members and returning veterans have experienced a TBI, 12%-25% have PTSD, and 20%-45% have problems with alcohol use [8-11].

TBI is a blunt or penetrating injury that disrupts the normal function of the brain. Military personnel sustain TBI from falls, assaults, and motor-vehicle crashes and, in combat settings, from firearms and blasts [12]. The manifestations and consequences of TBI vary widely. Patients with moderate or severe TBI may have residual impairments affecting a wide range of brain functions, such as perception, cognition, communication, emotion, memory, social behavior, and regulation of motor activity. In some cases, multiple head injuries have cumulative effects [13]. The DoD and the VA issued joint clinical practice guidelines to help practitioners treat service members with TBI [14]. The task force recommended continued communication between the VA and the North Carolina Division of Medical Assistance, to ensure that service members have access to the latest technologies for TBI screening and diagnosis, and creation of a community-based neurobehavioral system of care for TBI. In the policy forum, Lash and colleagues [15] discuss some of the challenges to providing TBI-associated services in North Carolina.

Combat environments can also lead to PTSD among some service members. PTSD is a type of anxiety disorder that develops after an extreme event in which one either directly experiences or observes circumstances that are threatening or lead to grave harm. This traumatic event is experienced with a profound sense of fear, helplessness, and/or horror [16, 17]. People who have PTSD may experience symptoms such as intrusive recollections, avoidant/numbing behavior, and hyperarousal. The degree of combat experience seems to increase the risk and severity of PTSD symptoms [18]. Symptoms of PTSD may develop or worsen over time. Data show that 12%-17% of active-component members and 13%-25% of reserve-component personnel meet screening criteria for PTSD on return from deployment and that a higher prevalence is seen 6 months later [10]. The DoD and the VA recently updated clinical practice guidelines for providers caring for patients with PTSD [19].

In addition to TBI and PTSD, many service members experience other behavioral health problems, such as depression, panic attacks, phobias, and generalized anxiety. Some service members have suicide ideation, and some commit suicide. Service members are at heightened risk for interpersonal conflict, including domestic violence and child abuse, when they return home [10, 20]. In addition, some service members experience military sexual trauma.

Alcohol use continues to be a significant problem in the armed services, with 20% of surveyed active-duty service members reporting heavy drinking [8]. Compared with the use of tobacco and alcohol, the use of illicit nonprescription drugs, such as marijuana, cocaine, and heroin, appears to be a less common problem among military personnel. However, an increase in reported misuse of prescription

drugs has been observed during the past 6 years [8]. Even when service members are identified as needing substance abuse counseling and treatment, very few actually receive the necessary services [10]. In the policy forum, Bolton [21] discusses some of the pressing issues associated with substance use disorders in the military.

Service personnel often experience multiple overlapping behavioral health problems, which further complicate diagnosis and treatment. A 2007 study of OEF/OIF veterans receiving care within the VA health system found that 25% had at least 1 mental health diagnosis. Of these individuals, 29% had 2 separate mental health diagnoses, and 27% had 3 or more—meaning that more than half of veterans with diagnosed mental health conditions had more than 1 such disorder [22]. As of September 2010, 50.2% of OEF/OIF veterans presenting to a VA health center met criteria for a mental health disorder [23]. Federal, state, and public systems of care need to be aware of the prevalence of these disorders in the military population and must work together to ensure that all needs of this population are met. Brancu and colleagues [24] describe best practices for treatment of behavioral health conditions in the military in the policy forum.

Military and VA Health Systems

Active- and reserve-component service members, retirees, veterans, and their families are potentially eligible for a wide array of mental health and behavioral health services provided through the federal government. Active-duty service members and their families receive health care coverage and benefits through TRICARE, which augments services available through military treatment facilities. Retired service members are also eligible for TRICARE. Health care coverage for veterans falls within the purview of the VA. Both TRICARE and the VA offer a wide and robust range of health benefits, including mental health and substance use services, to covered individuals. In recognition of the unique challenges caused by multiple and longer deployments associated with OEF/OIF, the military has worked to expand the programs and services available to members of the military and their families.

TRICARE and military treatment facilities. Active-duty service members who are stationed on or near a military base will generally receive health services at a military treatment facility. If services are not available through the facility, the active-duty personnel or their family members can receive care through private (ie, civilian) providers. TRICARE insurance programs are available to active-duty service members, their families, retirees, and certain veterans. The covered services are the same across programs, but the cost of a premium (if any), the required cost sharing, utilization requirements, and source of care may differ [25].

TRICARE covers inpatient and outpatient psychiatric and substance use services [25]. It has also recently begun the TRICARE Assistance Program (TRIAP), which uses Internet-based services to provide counseling and behavioral health

information to beneficiaries. TRIAP is intended to treat only short-term problems and provides free private, personalized, Web-based video counseling to TRICARE enrollees. Individuals with more-serious or long-term behavioral health problems must obtain services directly through qualified health professionals, rather than through TRIAP [26].

Although TRICARE offers coverage for comprehensive behavioral health services, barriers remain that make it difficult for active-duty members, family members, and retirees to access services. First, TRICARE is not available to all National Guard members or reservists. Reserve-component members become eligible for TRICARE only after they have been on active duty for 30 days. Another problem is that some service members and their families do not seek treatment because of the stigma associated with behavioral health conditions and, among service members specifically, because of concern that seeking care will adversely affect their military careers. Additionally, TRICARE may not have sufficient numbers of behavioral health professionals in its networks, and those providers may be unfamiliar with military culture or the potential effects of deployment-related stress on military members, veterans, and their families.

VA health system. To be eligible for enrollment in the VA health system, a veteran must have served for at least 2 years (unless injured while on duty) and cannot have been dishonorably discharged. All returning Iraq and Afghanistan veterans have access to VA services for 5 years. After the initial period, enrollment in the VA health system is limited to priority populations, namely, veterans with service-related conditions and disabilities and/or low incomes. Although the VA has made significant strides in involving family members in the care of the veteran, it does not provide direct health services for family members [27].

In North Carolina, the VA provides direct health services at 4 VA medical centers (hospital medical complexes), 12 community-based outpatient clinics, and 5 Vet Centers [28]. The VA provides an extensive range of inpatient and outpatient care and treatment for mental health and substance use disorders, but the availability of specific services varies by type and size of facility. Later in this issue, Kudler and colleagues [29] discuss recent efforts to improve access to behavioral health services in the VA health system.

The VA offers comprehensive behavioral health services to veterans enrolled in the VA system. However, only 50% of eligible OEF/OIF veterans have enrolled in the VA system, and of these, few who are expected to need behavioral health services actually seek care [2]. Less is known about the 50% of eligible OEF/OIF veterans who have not yet sought VA care, but on the basis of findings of the National Vietnam Veterans Readjustment Study [2], there is reason to believe that a significant number of these veterans may also be dealing with behavioral health issues that they do not feel ready to discuss. Although the VA and the armed forces have tried to remove the stigma attached to seeking behavioral health services, this stigma still exists.

Despite significant growth in the number and distribution of VA facilities across North Carolina, the geography of the state continues to present important barriers to access. The VA Mid-Atlantic Health Care Network, with funding from VA Office of Rural Health, recently created the Rural Health Mental Health Contract Program to help rural veterans access behavioral health services in a number of North Carolina communities. This time-limited program may be expanded if it is successful. The VA is also taking assertive action by reframing the rules by which service connection is established for PTSD, by focusing clinical and administrative resources on eliminating the backlog in disability assessments, and by launching an unprecedented effort to eliminate homelessness among veterans, but these efforts may not be known to providers and systems outside of the VA health system. Thus, the task force recommended that the VA, along with state and community partners, should offer training to professional advocacy and support organizations about coverage eligibility and the recent changes.

Programs for National Guard and reserve personnel. One of the major gaps in the TRICARE program affects the reserve component. The reserve component and their families are only eligible for TRICARE after the service member has been on active duty for more than 30 days. Furthermore, the distances that separate most National Guard and reserve members from their commands and comrades may not afford the same levels of social and instrumental support systems available to service members and families who live on or near a military base. To address these gaps, new programs are being developed to provide additional support to North Carolina service members and their families.

The NCNG has developed programs that serve as a national model for supporting National Guard personnel. The NCNG Integrated Behavioral Health System is a one-stop, telephonic portal to clinical and support services and is available 24/7. The system is voluntary, confidential, and professionally staffed by contracted, licensed NCNG clinical professionals. It began operations on November 1, 2010. The NCNG Reconstitution Program, which also began recently, embeds National Guard support services at demobilization centers. The goal is to help National Guard members become aware of support services, so that they are more willing to seek help [30]. In support of the innovative NCNG programs, the task force recommended that **the North Carolina General Assembly should expand the availability of counseling and treatment services for individuals who have served in the military, whether in active or reserve components, and their families.** Later in this issue, Nissen and colleagues [31] discuss further the NCNG programs and how they evolved in response to particular issues in North Carolina.

There are significant barriers, including eligibility (ie, coverage) restrictions, costs, inability to access diagnostic services and care because of a lack of providers, and fear of adverse military consequences, that prevent active and

former military members and their families from receiving necessary behavioral health services. To better meet the behavioral health needs of service members and their families, the task force recommended that Congress should increase funding for behavioral health services and make other changes, such as allowing licensed substance abuse and other mental health professionals to be credentialed through TRICARE. In the policy forum, US Senators Burr and Hagan [32] offer their perspectives on postdeployment behavioral health care.

A major goal of the task force was to help people access federal services they are entitled to, whether through TRICARE or the VA. Federal programs and health insurance should be the primary source of coverage for behavioral health services for the men and women who have served our country in the military. Thus, the task force recommended that the VA and state partners should provide additional outreach and training to veterans service groups, the faith community, and other community organizations, to help them understand the needs of the military, the array of services available, and how to link service members and their families to various resources.

State-Funded Health Systems

Despite efforts to expand the availability and accessibility of federal behavioral health resources, there are gaps and other barriers that make it difficult for active and reserve components, veterans, and their families to access these services. The task force examined how the state behavioral health system and other state-funded systems of care could help address some of these gaps.

Service members who have been discharged from active and reserve components may have access to private or public insurance coverage. However, many reserve-component members, veterans, and their families are uninsured. These individuals often rely on state-funded mental health and substance abuse services for treatment. Other individuals turn to peer-support groups, faith leaders, or other community organizations for help. Yet there are still barriers that reserve-component members, veterans, and their families experience when accessing needed services.

The North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) is the state agency charged with coordinating prevention, treatment, and recovery support services for people with mental health, intellectual, and other developmental disabilities (including those associated with TBI) and substance abuse problems in North Carolina. Services are typically accessed through private providers under contract with local management entities (LMEs) [33]. There are currently 24 LMEs that oversee and manage services provided at the community level across the state. The DMHDDSAS does not have sufficient funding to provide all the needed services and supports for people with mental health problems, developmental disabilities, and substance abuse problems. Thus,

the state has identified a target population—which includes veterans and members of their families—to ensure that services are targeted to the people most in need.

Although many service members and their families seek behavioral health services in either the federal or the state system, many of these people transition between these systems. Thus, the task force recommended that **the DMHDDSAS, along with other state and federal partners, should improve transition and integration services between military and public systems.** As a result of the task force discussions, the DMHDDSAS has already begun to implement this recommendation. The DMHDDSAS requires each LME to designate 1 person to serve as the primary contact for reserve-component and TRICARE staff working to help service members or their families with referrals to civilian behavioral health providers. In addition, the task force recommended that LME staff, as well as local crisis service providers (such as first responders or emergency medical technicians), should receive additional training about the number of active- and reserve-component members and veterans in their catchment areas, the behavioral health needs they may have, and the available referral resources.

The task force also recognized the importance of improving the availability and readiness of behavioral health and primary care services, as part of the state's response to the needs of military members, veterans, and their families. Most people access primary care services at least once per year [34]. Thus, one way to improve access is to encourage primary care providers to offer mental health, substance abuse, and other behavioral health services. Primary care providers should be trained to understand the potential medical, mental health, and substance abuse issues facing returning veterans and their families. The Integrated, Collaborative, Accessible, Respectful, and Evidence-Based Care (ICARE) project, the Area Health Education Centers (AHEC) program, and their partner organizations already help train primary care providers to provide evidence-based screening and treatment for depression. Stein and colleagues [35] discuss state-funded behavioral health initiatives, including ICARE, later in this issue. Although AHEC and other partners offer different trainings that cover the medical, mental health, and substance abuse needs of military members and their families—as well as screening, counseling, and treatment for depression and substance abuse—it has been difficult to get primary care providers and other physicians to participate in these trainings. Thus, the task force recommended that **the AHEC program, along with state and federal partners, should provide additional outreach and training for health professionals and hospital administrators.** The task force also recommended improvement of Medicaid and DMHDDSAS reimbursement to behavioral health providers who meet certain quality-of-care standards, as well encouragement of co-location and integration of behavioral health and primary care.

In addition to the services offered through the DMHDDSAS, there are other publicly funded programs available to service members and their families. For example, the Department of Health and Human Services operates CARE-LINE, a toll-free information and referral telephone service. In 2009, CARE-LINE expanded its capacity to provide suicide-prevention crisis services and its resources for service members and their families; however, its funding was decreased in fiscal year 2010, and it can no longer provide round-the-clock crisis services. To ensure that telephone information, referral, and crisis counseling are available, the task force recommended that CARE-LINE funding should be increased to support a return to 24/7 availability.

Workforce, Outreach, and Research

A coordinated system of care for military members and their families needs sufficient providers and support to operate effectively. North Carolina, like the nation, has a shortage of trained mental health and substance abuse professionals. Between 1999 and 2004, 19 counties in the state had 1 or fewer psychiatrists. During that period, more than half of the counties in the state experienced a decrease in the number of psychiatrists [36]. In 2009, there were 5 North Carolina counties—Camden, Graham, Hyde, Tyrrell, and Warren—without any psychiatrists, psychologists, psychological associates, or either nurse practitioners or physician assistants with mental health specialties [37].

In addition to the shortage of substance abuse professionals, there are 6 counties—Alexander, Anson, Bertie, Clay, Greene, and Northampton—with behavioral health providers who are eligible to participate in TRICARE but do not participate. In addition, there are licensed behavioral health providers in most of the other counties who are eligible but who choose to not participate in TRICARE. Of the more than 3,000 behavioral health providers in North Carolina who are currently eligible to participate in TRICARE, approximately 1,300 are participating [37].

This shortage and maldistribution of behavioral health providers affects the entire state. The North Carolina Office of Rural Health and Community Care operates the National Health Service Corps and state-funded loan-forgiveness programs, which can be used to recruit certain types of mental health and substance abuse professionals to areas where there are shortages of health professionals. However, these loan-forgiveness programs are unlikely to address all the behavioral health provider shortages in our state. Accordingly, the task force recommended that North Carolina should expand behavioral health training programs, to increase the supply of trained mental health and substance abuse professionals.

Because of the stigma associated with seeking behavioral health services, active-duty and former service members and their families may turn to veterans service organizations, community-based organizations, and/or the faith community when they need help. North Carolina has many organi-

zations with a mission to provide support and programs to the military population. The Citizen Soldier Support Program (CSSP) helps facilitate the development and sustainment of effective military and community partnerships in support of reserve-component members and their families. In the policy forum, Goodale and colleagues [38] discuss the CSSP in more detail. Veterans service organizations and the faith community provide a variety of supports and links to key resources for military families.

As one of the most military-friendly states, North Carolina has many outreach organizations. Silbajoris [39] describes the state's behavioral health resources. In recognition of the services and commitments to our service members from these varied organizations, the task force recommended that **the CSSP, along with state and federal partners, should provide training for veterans service organizations and veterans service officers, professional advocacy and support organizations, and the faith community on behavioral health conditions that affect the military, eligibility for federal programs, and referral resources.** The task force also recognized the unique circumstances of children connected to military families in its recommendation to improve support for military children in the North Carolina public school system, including increased training for local educators on military children and the behavioral health issues that might affect them, as well as appropriate referral resources.

Although there are many resources at the national, state, and community levels to support service members, veterans, and their families, these services are not always well coordinated. The Governor's Focus on Servicemembers, Veterans, and Their Families is a DoD, VA, state, and community partnership that works to ensure that service members, veterans, and their families receive the best services available. North Carolina has received national recognition from the US Substance Abuse and Mental Health Services Administration because of the work of the Governor's Focus group; Fang [40] discusses this initiative in the policy forum.

There is still much to learn about the military/veteran population and the ways to best serve it. North Carolina is home to world-renowned research facilities that are studying and seeking solutions to these problems, and their efforts are setting a national standard for the integration of DoD, VA, state, and private health research programs. In recognition of this ongoing work, the task force recommended expanding research to improve the effectiveness of behavioral health services provided to active- and reserve-component service members, veterans, and their families.

Conclusion

Our service members, veterans, and their families make tremendous sacrifices in their service to North Carolina and the nation. When service members and veterans face difficulties adjusting to their communities and family lives, it

is our responsibility to honor their service by making sure that they and their families have access to quality behavioral health services. To meet this commitment, agencies and organizations at the federal, state, and community levels must work together. **NCMJ**

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Acknowledgments

Financial support. Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, North Carolina Department of Health and Human Services (North Carolina Substance Abuse Prevention and Treatment block grant from the Substance Abuse and Mental Health Services Administration).

Potential conflicts of interest. All authors have no relevant conflicts of interest.

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A Congressional Look at Postdeployment Behavioral Health Care

Richard Burr, Kay Hagan

As the 2 US senators from North Carolina, it is our job to support veterans and active-duty personnel as they work to keep our country safe. Because of the physical and psychological stresses of repeated deployments, it is critically important that we make significant strides to improve the behavioral health services available to these individuals and their families.

As the 2 US senators from North Carolina, it is our job to support our veterans and active-duty service members, who fight each day to keep our country safe. North Carolina is the most military-friendly state in the nation. Our state has the fourth-largest military footprint in the country, and 35% of North Carolinians serve in the military, have an immediate family member who serves, or are veterans [1].

As the US armed forces—the best in the world—work to defeat terrorists abroad, they are coping with the physical and psychological stresses of repeated deployments to Afghanistan and Iraq. While there are programs that provide behavioral health services for military service members, veterans, and their families, it is critically important that significant strides are made to improve these services across the country.

Traumatic Brain Injury (TBI) and Posttraumatic Stress Disorder (PTSD)

Detonation of improvised explosive devices (IEDs) by insurgents in Iraq and Afghanistan exposes troops to shocks that can cause concussions. The effect these shockwaves have on the brain and on the cognitive ability of the service member is difficult to detect by a postevent assessment. The severity of TBIs can be exacerbated if they are left undetected. In the early years of combat in Iraq, troops who experienced IED blasts and did not demonstrate a reduction in cognitive ability were back on patrol within minutes or hours. Many experienced multiple blasts and associated concussions.

The Department of Defense (DoD) continues to improve cognitive assessments and reporting procedures in theater (ie, during deployment). Although medical experts acknowledge the relationship between TBI and PTSD, the nexus is not fully understood. Congress authorized the DoD to increase the number of behavioral health professionals

at forward operating bases in Iraq and Afghanistan and has assigned such professionals to deploying units. The Army and the Marine Corps are also training medics and corpsmen to identify signs of cognitive and psychological stress. The DoD's health care network, TRICARE, has increased the number of behavioral health professionals in its provider base to meet the needs of military personnel and their families. However, progress has been slower in some parts of the country, especially rural areas.

Reducing the stigmatization associated with TBI and PTSD among military personnel is critical to minimizing the effects of these conditions on the individual, their unit, and their family. However, the military's cultural norms can sometimes make service members hesitant to seek appropriate care [2]. As a result, many service members continue to avoid reporting behavioral problems because they believe that reporting might harm their careers [3].

The Army and the Marine Corps established warrior transition units (WTUs) and wounded warrior regiments (WWRs) for service members who experienced traumatic physical and invisible (ie, emotional and psychological) wounds. These units provide a secure environment where service members can obtain outpatient treatment for their conditions, receive behavioral health counseling, and benefit from the camaraderie of the unit. There is a WTU at Fort Bragg and a WWR at Camp Lejeune. Both units have access to DoD behavioral health professionals; interaction with nonprofit organizations, for special assistance; and Veterans Affairs (VA) representatives, who assist the service members with their transition from active duty to veteran status. However, because of limitations in assessment and self-reporting mechanisms, not all service members with TBI or PTSD join a WTU or WWR. Accurate and timely in-theater reports of the behavioral and physical conditions of service members who have been injured or wounded should be incorporated into the individuals' medical records.

Electronically published April 21, 2011.

Address correspondence to the Honorable Richard Burr, US Senate, 217 Russell Senate Office Building, Washington, DC 20510; and to the Honorable Kay Hagan, US Senate, 521 Dirksen Senate Office Building, Washington, DC 20510.

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0029-2559/2011/72107

Gaps in Care Across the DoD and the VA

While the DoD-VA interaction at military installations is essential for individuals leaving active service, uneven follow-through by the VA and veterans has caused gaps in delivery of care, a problem acknowledged not only by members of Congress, but also by the VA [4]. The VA is struggling to alleviate a backlog of disability claims; because of this, the VA is seeking solutions.

While effective treatment and counseling are fundamental for a service member or veteran with TBI or PTSD, gaining access to the proper blend of treatment can become a problem if the service member is relying on the VA for that care. In many cases, a veteran comes to the VA without a prior diagnosis from a DoD clinician and must undergo a medical evaluation to receive a diagnosis that determines whether the veteran is eligible for VA disability benefits. The average interval between a qualifying diagnosis and receipt of VA disability benefits is approximately 6 months. Furthermore, access to VA health care is not, in every case, allowed until a final disability determination is made, a decision that could take months or years.

The VA has received authorizations and appropriations from Congress to integrate behavioral health care, especially screening for TBI and PTSD, into VA primary care. The VA also has full-spectrum therapies to treat veterans with PTSD and to address the related behavioral health issues that emanate from this condition, including suicidal tendencies, substance abuse, and inability to function as a contributing member of the family, work environment, or community. Continual congressional oversight is needed to monitor progress.

Suicide Prevention and Substance Abuse Counseling

Suicide prevention and substance abuse are important aspects of behavioral health issues affecting military personnel, veterans, and their families. Suicides among service members have increased since 2003, when US forces began combat operations in Iraq. In 2009, the Army experienced its worst year for suicides among active-duty soldiers, with 162 cases [5]. That year also marked the highest annual suicide rate in the Marine Corps over at least the past decade [6].

Community support services, medical treatment facilities, and unit leadership are often housed at several locations on military installations, leading to ineffective approaches for suicide prevention [2]. Commanders need additional tools to detect and track unit-level suicide risk factors and identify individuals who are at high risk [2].

The DoD has not concluded that multiple deployments and limited dwell time are the main causes of military suicides. According to the Army, one-third of the active-duty soldiers who killed themselves in 2009 had no deployment history [7]. More research is needed to explore the influence of dwell time on suicide risk.

The DoD and medical professionals have expressed concern about the possible relationship between suicide and psychiatric medications prescribed for military service members [8]. Prescription drugs can help troops deal with the physical, psychological, and emotional wounds incurred on duty and with readjustment to life back home, but some medications can potentially have dangerous side effects. Additional research is needed to investigate this potential relationship and to identify medications that will reduce anxiety and depression without increasing the risk of suicide. We also must ensure that service members have proper physician supervision in theater and on returning from combat.

The Army and the Marine Corps have instituted leadership training and are using social media and peer involvement to educate troops on suicide risk factors and signs. This is a positive step.

In the past 3 years, Congress has appropriated funds for the VA to establish and maintain readjustment counseling centers, known as Vet Centers, in every state. North Carolina is fortunate to have 6 such facilities that focus on readjustment counseling for veterans with PTSD. These centers also offer postdeployment health screening for active-duty personnel who prefer not to seek assistance at a military treatment facility or at a civilian facility via the TRICARE network. In addition to Vet Centers, there are 4 medical centers, 4 VA outpatient clinics, and 8 community-based outpatient clinics in North Carolina that deliver on-site treatment for substance abuse and behavioral illness. These facilities may also contract with partner providers in the community.

VA Telehealth Initiatives

We are pleased that the VA is exploring ways to reach veterans who live in remote areas or are isolated because of physical or emotional reasons. The VA operates one of the largest tele-mental health programs in the world, with devices that connect veterans with practitioners. There are plans to establish real-time clinical videoconferencing systems to deliver services between VA medical centers and community-based outpatient clinics. Since 2008, tele-mental health programs have facilitated more than 45,000 video-based health encounters and more than 5,000 home tele-mental health encounters each year [9]. As the younger, technologically savvy generation of veterans becomes part of the VA's network, the potential for this particular approach to health care delivery will need to be expanded and refined.

Care and Resources for Families of Military Personnel

Because the needs of military families have become more complex, all volunteer spouse-led groups that are connected to each unit are now supported by a family-readiness officer, a family-assistance coordinator, or a family-readiness assistant. We have heard positive responses from military families about this. These staff are full-time employees who are

often retired military members and live in the local community. They serve as the coordinator for family readiness, linking and integrating resources available to family members. The Army and the Marine Corps have increased the number of these coordinators to meet the increased demand for their services.

Deployments can take a heavy toll on families [10]. The most vulnerable individuals are obviously children and adolescents [11]. Younger children may not comprehend why a parent must leave on deployment. Older children and adolescents are forced to cope with parental deployment during important social and emotional developmental stages in their lives [12]. Behavioral problems and difficulties with academic engagement worsen with increasing age among children coping with parental military deployments [13]. Additionally, girls tend to experience more difficulties during parental deployment than do boys [13]. More research must be completed to determine how behavioral health conditions such as TBI and PTSD among parents might impact their children and families [11].

Despite the implementation of programs across the defense and civilian sectors to support military families coping with deployments, assessment of the effectiveness of these programs is insufficient [11]. Congressional oversight is needed to determine whether existing programs are meeting the needs of military families. This will lead to effective policies geared toward helping military families cope with deployments. Additionally, more research focused on deployment and reintegration challenges among children is needed [11].

Conclusion

Our service members form the most resilient fighting force in the world. However, the prolonged wars, extended deployments, shorter dwell times, and high operational tempo have created a more stressful environment for service members and their families. The effects of invisible wounds are just beginning to emerge, and the long-term impacts of such wounds are unknown [14]. Service members need adequate time to recover and restore total fitness and balance, or psychological stressors will continue to negatively impact their behavioral health and the health of their families [2].

Increased research on military suicide, substance abuse, TBI, and PTSD is necessary to ensure that behavioral health programs meet the emerging needs of military service members, veterans, and their families. Nongovernmental organizations, commercial health care providers, and nonprofit veterans' advocacy groups also play an important role by facilitating effective grassroots solutions. We hope that professional and community organizations will increase their understanding of the unique challenges service members, veterans, and their families face in the realm of behavioral health. NCMJ

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Acknowledgments

Potential conflicts of interest. R.B. and K.H. have no relevant conflicts of interest.

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Initiatives to Improve Access to Behavioral Health Services in the Veterans Affairs Health System

Harold Kudler, Kristy Straits-Tröster, Mira Brancu

In response to veterans' needs in the context of recent deployments, the Veterans Affairs (VA) health system has increased the number of its facilities and caregivers and has pioneered changes in policy and programs. We review significant recent initiatives to improve access to behavioral health services in the VA health system.

Individuals who have served in the armed forces of the United States may be eligible for a broad range of programs and services provided by the US Department of Veterans Affairs (VA) [1]. The VA operates the nation's largest integrated health care system, with more than 1,400 sites of care, including VA medical centers, community-based outpatient clinics, community living centers, domiciliarys, readjustment counseling centers (also known as Vet Centers), and various other facilities [2].

As of the end of September 2010, 1,250,663 Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans had left active duty and become eligible for VA health care. Roughly half (625,384) of these veterans have had at least 1 episode of VA health care since September 2002. The fact that 50% of eligible OEF/OIF veterans have already received VA health care is impressive, given that, of the 22.7 million living US veterans, only 8.1 million (36%) were enrolled in VA health care as of September 2009, and only 5.7 million (25%) had used VA health care in the preceding 12 months [3].

The VA health system has grown rapidly in response to the needs of American veterans, but simply increasing the number of facilities and clinicians will not meet the needs of eligible veterans—changes in policy and program are also required. This commentary reviews a selection of significant initiatives undertaken by the VA to improve access to behavioral health services.

New Regulations on Posttraumatic Stress Disorder (PTSD) Claims

Perhaps the most important barrier to accessing care for PTSD had been the level of evidence required of a veteran to corroborate the occurrence of a significant traumatic stressor. In July 2010, the VA published a new regulation

designed to make access to care and the claims process easier for veterans whose trauma was related to fear of hostile military or terrorist activity and was consistent with the places, types, and circumstances of the veteran's service [4]. Under the new rule, the VA does not require corroboration of a PTSD stressor if a VA psychiatrist or psychologist confirms that the reported event adequately supports a diagnosis of PTSD and that the veteran's symptoms are related to the claimed stressor. The VA will continue to seek verification from the Department of Defense (DoD) that an individual served in an area of combat operations. This rule applies to veterans of every era.

Rural Health

Veterans are less likely to access services that are difficult to reach, and this is as true for young veterans with new injuries as it is for older veterans with compromised health. Rural veterans, in particular, often face obstacles of distance, poor-quality roads, lack of public transportation, and, sometimes, cultural obstacles as they seek to engage the services they have earned. Recognizing this problem, the VA created the Office of Rural Health (ORH), which has provided \$215 million in competitive funding to improve services specifically designed for veterans in rural and highly rural areas across the nation.

More than half of all veterans in North Carolina are classified as living in rural or highly rural areas, according to federal definitions. The VA's Mid-Atlantic Health Care Network (also known as Veterans Integrated Service Network Number 6 [VISN 6]), which includes North Carolina, Virginia, and sections of South Carolina and West Virginia, will receive more than \$20 million in VA rural health funds in fiscal year 2011. ORH funding has allowed VISN 6 to establish new outpatient clinics, expand collaborations with federal and community partners, accelerate the use of telemedicine, and

Electronically published April 21, 2011.

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N C Med J. 2011;72(1):40-42. ©2011 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2011/72108

explore innovative uses of technology, to better serve rural veterans.

One VISN 6 innovation is the development of rural health teams at each VISN 6 VA medical center. In North Carolina, the teams are located in Asheville, Durham, Fayetteville, and Salisbury. These multidisciplinary teams travel the state to meet new veterans and their families, educate them about VA services, enroll them (on the spot, by use of wireless computer links, whenever possible), and schedule appointments for any needed treatment. The teams include nurse health educators, who lead classes on management of high-risk health problems, like diabetes or chronic pain; social workers, who can immediately connect veterans and their families with needed services, including assistance for homeless veterans; pharmacists, who review veterans' medications and help reconcile their VA prescriptions with any medications received from local clinicians; and public affairs officers, who engage local media, community leaders, and stakeholders to ensure maximum awareness of each VISN 6 rural health team's efforts.

VISN 6 is also developing a Rural Connections Knowledge Repository, which will support rural health care clinicians through a Web-based introduction to VA services and a comprehensive guide to evidence-based best practices, including VA/DoD clinical practice guidelines for PTSD, traumatic brain injury, and other disorders. The repository is designed to equip rural clinicians with high-quality information and tools, including links to VA services and specialty care, when needed.

The goal of the VISN 6 rural health program is to complement community services, rather than to compete with them. Rural America has a strong culture typified by both self-sufficiency and volunteerism. On the other hand, rural veterans often have qualms about stepping outside their own communities to seek care, even if they are eligible for VA care. By helping veterans, their families, their clinicians, and the local community learn about the range and quality of VA services and better understand the needs of rural veterans and their families, the rural health program seeks to enhance access to care and quality of care, whenever and wherever veterans choose to seek it.

Helping Homeless Veterans

The VA has undertaken a campaign to end veteran homelessness by 2015, with broad support at the federal, state, and local levels, in both the public and the private sectors. At the time of this writing, the VA's partnership with the Department of Housing and Urban Development has secured permanent housing, with dedicated case managers and access to VA health care, for more than 18,000 veterans [5]. This homelessness program is unusual in that it provides housing for members of the veteran's household, as well.

To maximize access, the VA created a national homeless hotline (1-877-4AID VET or 1-877-424-3838). During 2010, the VA's homeless-outreach coordinators assisted almost 7,800 homeless veterans in filing for disability pay or

pensions and assisted nearly 100,000 veterans and family members.

Whenever possible, the VA acts to prevent homelessness. One of its newest prevention tools is the Supportive Services for Veteran Families program, which provides supportive services to very-low-income veterans and their families who are in or are transitioning to permanent housing. The VA awards grants to private nonprofit organizations and consumer cooperatives that assist very-low-income veterans and their families by providing a range of supportive services designed to promote housing stability.

Because homelessness, especially when combined with mental health problems, frequently leads to incarceration, the VA established the Veteran Justice Outreach (VJO) initiative, which ensures that eligible veterans involved in the justice system have timely access to VA mental health and substance abuse services when clinically indicated, and other VA services and benefits as appropriate. VJO is designed to avoid the unnecessary criminalization of mental illness and the extended incarceration among veterans. The Health Care for Re-entry Veterans program addresses community reentry of incarcerated veterans by preventing homelessness; reducing the impact of medical, psychiatric, and substance abuse problems on community readjustment; and decreasing the likelihood of re-incarceration for those leaving prison.

Because homelessness among veterans is such a complex issue, the VA has developed the National Center on Homelessness Among Veterans as a forum to exchange new ideas and provide education and consultation, to improve the delivery of services, and to disseminate the knowledge gained through the efforts of the center's research and model-development cores to the VA, other federal agencies, and community provider programs that assist homeless populations. In the coming months and years, this center will provide important opportunities for collaboration with state and local leaders and homelessness programs across North Carolina.

Suicide Prevention

The VA recognizes the risk of suicide among veterans and has established a suicide-prevention hotline (1-800-272-TALK or 1-800-272-8255). Since the beginning of operations, in July 2007, more than 400,000 calls have been received, and the VA's suicide prevention program (which also includes dedicated suicide prevention coordinators at VA facilities across the nation) has been credited with saving more than 10,000 veterans [6].

Families at Ease

In the course of a series of focus groups composed of OEF/OIF veterans and spouses living within 60 miles of Raleigh, North Carolina, Straits-Tröster and her team from the VISN 6 Mental Illness Research, Education, and Clinical Center (MIRECC) noted persistent family concerns about irritability, sleep problems, social withdrawal, rapid changes

in family roles and responsibilities, and lack of communication among veterans after deployment [7]. Each of these factors contributes independently and collectively to family stress and threatens family breakup. Veterans and spouses most desired VA services related to anger management, marital and family counseling, stress management, benefits counseling, and career and school counseling. They identified the stigma associated with reporting mental health problems, their own pride and fear of betraying any sign of "weakness," the potential negative impact of seeking help on the chances for promotion, and "red tape" as key barriers to seeking assistance.

In recognition of the impact that deployment-related stress can have on families, the VISN 6 MIRECC has piloted the Families at Ease program in North Carolina [8] and is in the process of rolling out a national Families at Ease program, in collaboration with VISN 3 (based in Philadelphia, PA) and the VA Office of Mental Health Services. This program helps family members cope with their veteran's post-deployment difficulties and supports the family's efforts to find help for the veteran. It provides referrals for veterans and their family members and coaches family members in motivating their veteran to seek help. Families at Ease can be reached by phone at 1-888-823-7458, or by e-mail at Families.Ease.NC@va.gov.

Meeting the Needs of Women Veterans

Women compose 8% of all veterans and more than 11% of all OEF/OIF veterans. More than half of all women OEF/OIF veterans have already enrolled for VA health care [9]. The VA is expanding its comprehensive approach to women's health, including (but not limited to) primary care, gender-specific health-promotion and disease-prevention programs, hormone-replacement therapy, breast and gynecological care, maternity and limited infertility treatment (excluding in vitro fertilization), acute medical and surgical care, telemedicine, emergency care, substance abuse treatment, mental health care, homebound care, rehabilitation services, and long-term care. VA has trained more than 500 clinicians in care specific to women veterans, and VA researchers are actively conducting medical research on women's health across the nation.

Conclusion

This brief summary provides only a glimpse of the VA's efforts to improve access to behavioral care and related

health services across its national system. In concluding, we note that one of the best ways to improve the care of veterans is to ensure that clinicians outside of the VA have a good understanding of what the VA offers, appreciate the quality of VA services, feel comfortable accessing these services, and become full partners in coordinating federal, state, and community systems of care in the service of veterans and their families, who have served us all so well. **NCMJ**

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Acknowledgments

Financial support. Department of Veterans Affairs (grant to the VISN 6 Mental Illness Research, Education, and Clinical Center).

Potential conflicts of interest. All authors have no relevant conflicts of interest.

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North Carolina National Guard Integrated Behavioral Health System

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The North Carolina National Guard (NCNG) Integrated Behavioral Health System is designed to systematically bring the best internal and external military resources together to function collaboratively for the betterment of behavioral health assessment, crisis intervention, referral, and case management services available to NCNG service members and their families.

A military force fit in mind, body, and spirit that wins the battle against suicide and stands ready to answer the nation's call.

Vision statement of the Department of Defense Task Force on the Prevention of Suicide by Members of the Armed Forces [1]

The mission of the North Carolina National Guard (NCNG) is to produce ready military units from the state's communities to perform federal wartime missions, as directed by the president, and to respond to disasters, as directed by the governor. Paramount to unit readiness is individual readiness—physical and mental—among the unit's service members and their families.

The unprecedented demands of 10 years of protracted conflict have increased the stressors on NCNG soldiers and airmen and, as a second-order effect, have increased the stressors on their families. While many NCNG soldiers and airmen have deployed multiple times and answered the call to duty, the medical system has not kept pace with their medical demands and the complexity of their logistics in accessing health care. Furthermore, segments of the NCNG population have never deployed, yet because of current economic conditions and high unemployment, they find themselves suffering the effects of stress. As the Department of Defense Task Force on the Prevention of Suicide by Members of the Armed Forces noted, "military cultural norms, while beneficial for survival and mission accomplishment on a battlefield, can sometimes stifle responsible help-seeking behavior" and yield "a less fit force more vulnerable to suicide" [1pES-4].

Access to care, as well as the quality of available care, depend on the service member's status at the onset of symptoms and the correlation of the symptoms to the demands of duty. If citizen soldiers are on active duty at

the onset of symptoms, they have full access to the medical facilities on a military installation; however, if they have returned from active duty to their community, they may elect to receive behavioral health care services from their primary care physician, through coverage offered by their civilian employer, or from the Department of Veterans Affairs (VA). However, for service members who have never deployed and are unemployed and without health insurance, there are minimal choices available to meet their mental health needs.

The NCNG believes it is in the midst of a perfect storm. Since the inception of tracking suicide deaths, in 2001, by the National Guard Bureau, the NCNG has experienced 10 suicides. Most troubling is the sharp increase during 2010, when the NCNG experienced 5 suicides (the cause of a sixth death is pending rule by a state medical examiner). As mentioned, behavioral health concerns are not exclusively reserved for service members who have deployed. Four of the 5 persons who died of suicide in 2010 never deployed. In deployed and never-deployed populations, relationship failure or object loss, financial issues, and substance abuse are increasing in frequency. These are also the top 3 factors associated with behavioral health crises that can lead to suicide for service members. Resistance to treatment for postdeployment readjustment issues and injuries, such as posttraumatic stress disorder and traumatic brain injury, are well documented among service members who have deployed. However, resistance to care-seeking behavior is also prevalent among service members who have symptoms indicative of behavioral health conditions, regardless of their deployment history. Although the Department of Defense has taken action to reduce the resistance associated with seeking help, stigmatization continues to complicate efforts to provide professional assistance to service members who have behavioral health issues. Finally, the logistical challenge of meeting the needs of NCNG service members is great. The National Guard is a community-based military

Electronically published April 21, 2011.

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NC Med J. 2011;72(1):43-45. ©2011 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2011/72109

organization. Without the benefit of living on a base, service members and their families struggle in neighborhoods scattered throughout the state, frequently under the radar of the NCNG, until it is too late.

The historically high suicide rates for the National Guard, other reserve components, and active-duty branches of the armed forces have military and civilian researchers and statisticians working feverishly to determine the cause. A recent report from the Army [2] found that, “while Army policy and processes are fundamentally sound, gaps allow soldiers to exploit or slip through the current system.... There is a requirement to improve integration of surveillance, detection and accountability” (internal communication, Army National Guard). The NCNG Integrated Behavioral Health System (IBHS) was created to meet this requirement.

The NCNG IBHS is driven by the newly created Psychological Services Section (PSS), which operates in a mutually exclusive but collaborative relationship with NCNG Military Personnel (J1) Medical Command (MED COM). The PSS incorporates several groups of civilian contractors to better meet the behavioral health needs of NCNG service members. The PSS is made up of a contracted state behavioral health programs director, 2 contracted directors of psychological health (NGB PHP DPH and ANG Wing DPH), 4 contracted behavioral health clinicians, and 2 contracted behavioral health case managers. A contracted state behavioral health programs coordinator plays an administrative role for the section. All service and family members can call an internal 1-800 number any time to enter into the NCNG IBHS, regardless of duty or military status. Although the NCNG IBHS was developed for NCNG service members and their families, service members from other branches of the military are never turned away. The 1-800 number is also frequently used by commanders and first-line leaders for professional consultation about service members who have behavioral health issues or need help with crisis intervention. In addition, the NCNG suicide prevention policy mandates that all leaders and service members contact the NCNG IBHS specifically for professional guidance to help service members obtain the accurate clinical assessments, critical intervention and support, referrals, and case management services necessary to place them on the path toward recovery. Military operational readiness and sustainment depend on maintaining not only the physical factors, but also the psychological, social, and spiritual factors associated with a person's health.

While the 1-800 number is not an emergency hotline, it is a portal of entry into a comprehensive system of support for service members and their families. After NCNG PSS staff assess the individual's clinical and nonclinical needs, they make referrals to internal and external resources, which may or may not be free of charge. It is important to realize that the individuals in the NCNG's highest-risk group—composed of service members who are young (age, ≤ 24 years), have never deployed, and are unemployed—rarely have

health benefits, whether from the VA or another source. Whereas civilian and military emergency departments are overburdened and individuals with behavioral health crises often do not meet criteria for hospitalization, the NCNG IBHS directors of psychological health and the NCNG behavioral health clinicians are immediately available to help service members and their families begin the problem-solving process needed to de-escalate emotional crises and reduce threats to health. The NCNG behavioral health case managers, in turn, help service members and their families follow through on all the resourced appointments provided by the NCNG IBHS.

The NCNG IBHS directly supports Focus Area 3 of the Department of Defense Task Force on the Prevention of Suicide by Members of the Armed Forces, which emphasizes “access to, and delivery of, quality care” [1]. An effective, multifaceted suicide prevention initiative must provide systematic access to high-quality professional services—including assessments, accurate clinical impressions, crisis intervention and support, and referrals for ongoing counseling and treatment—complemented by behavioral health-related case management services, that focus not only on clinical pathologic findings, but also on life circumstances that can perpetuate behavioral crises. The NCNG IBHS is successful because it is an internally operated system whose motto is “Taking Care of Our Own.” All military and paramilitary organizations have the underpinnings of a family unit. Family members lean on each other when times are tough. NCNG service members know how to call home and are directed to do so.

The NCNG has faced the requirement to close the gaps service members are falling through by providing an easy portal for command consultation, assessment, internal crisis intervention and support, and referral services to various internal and external behavioral health systems for soldiers, airmen, and families for the first time in its history. Recent partnership of NCNG forces with active-duty forces in the deployment of units and soldiers to ongoing combat operations is a fundamental shift in the use of reserve forces and has placed significant demands on the NCNG's citizen soldiers. While these demands are being met, the NCNG is also partnering with the active components, the VA, and state and community agencies to provide services, such as the NCNG IBHS, to its members that previously were unavailable or not required.

The early data on the NCNG IBHS program are encouraging, because it is clearly reducing the gaps identified in the findings and recommendations of the Department of Defense task force. Since its inception, on November 1, 2010, the NCNG IBHS has received more than 340 calls—7 times the anticipated frequency—for help from NCNG service members and leaders who are placing trust in their fellow NCNG personnel to guide them in times of hardship. Leaders are encouraging soldiers and airmen to use the IBHS, and an organizationally mandated “buddy system” has fostered

accountability among service members for their buddies in crisis. Anecdotal stories and data indicate not just a casual use of the new resource, but evidence of an effective crisis-intervention model, as 46 of the 343 calls to date involved an imminent suicidal or homicidal threat or a behavioral health crisis requiring immediate intervention and/or hospitalization. The ability to assess, intervene, and provide case management on a 24/7 basis to soldiers and airmen in behavioral health crises is essential to ensuring the readiness of NCNG forces. The NCNG IBHS is complementing this effort by building community partnerships and shoring up connections to nonclinical resources for NCNG service members and their families, to help resolve socioeconomic problems that might lead to a behavioral health crisis and, ultimately, to provide the support these individuals need to weather this perfect storm. NCMJ

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Acknowledgments

Potential conflicts of interest. All authors have no relevant conflicts of interest.

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my friend's got mental illness.

To a friend with mental illness, your caring and understanding greatly increases their chance of recovery. Visit whatadifference.samhsa.gov for more information. Mental illness – What a difference a friend makes.



The Governor's Focus on Servicemembers, Veterans, and Their Families

Wei Li Fang

The Governor's Focus on Servicemembers, Veterans, and Their Families is a coalition of federal, state, and local agencies and professional and consumer organizations. Its goal is to develop and maximize public and private services and supports for service members in active and reserve components of the armed forces, veterans, and their families

History of the Governor's Focus

The Governor's Focus on Servicemembers, Veterans, and Their Families (available at: <http://veteransfocus.org>) has its origins in a March 2006 national meeting entitled *The Road Home: The National Behavioral Health Conference on Returning Veterans and Their Families*. The meeting was sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA), and its purpose was to bring together community providers of mental health and substance abuse treatment to discuss evidence-based strategies for restoring hope and building resilience among service members in active and reserve components of the armed forces who served in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), veterans, and their families. This conference served as a catalyst for the North Carolina summit, with the first planning meeting occurring shortly after the national conference.

On September 27, 2006, Governor Michael Easley hosted the Governor's Summit on Returning Combat Veterans and Their Families, in Research Triangle Park, North Carolina. Its purpose was to bring together key leaders from state government, the Department of Veterans Affairs (VA), and the Department of Defense with representatives of provider and consumer groups, to share essential information and promote best practices in the service of OEF/OIF veterans and their families [1]. Governor Easley emphasized the importance of creating a continuum of care for these veterans once they return to their home communities. Provision of timely and effective mental health and substance abuse services was considered critical, with the governor charging participants to develop new ideas that would help veterans succeed in reintegrating into their communities.

Nearly 90 individuals attended the conference, exchanging information about their agencies' assets and goals and identifying strategic partnerships. Summit attendees provided recommendations to the governor with regard to indi-

viduals' access to services, outreach to military personnel, educational linkages and interagency collaboration, and training of health care professionals.

Results of the Governor's Summit

In response to the recommendations, the North Carolina General Assembly allocated more than \$2 million in state fiscal year 2008 funds to support new initiatives for service members, veterans, and their families. Funds were allotted to expand CARE-LINE—a toll-free number—to be available around the clock, with an emphasis on veterans and their families. On March 1, 2008, CARE-LINE began providing 24/7 services. State budget shortfalls eventually resulted in the elimination of the second and third shifts and weekend services. CARE-LINE is currently available from 8 AM to 5 PM Monday through Friday, linking callers to services in government, faith-based, for-profit, and nonprofit agencies. The Office of Citizen Services also maintains NCcareLINK, a comprehensive database of human-services providers throughout the state.

Another result of the summit was the creation of the governor's letter—a personalized letter sent to every OEF/OIF veteran in the state, thanking them for their service and expressing the governor's desire to serve them. The letter also includes toll-free numbers for CARE-LINE and the VA Families at Ease program. Since March 2007, approximately 30,000 letters have been mailed.

The Health Sciences Library at the University of North Carolina-Chapel Hill hosts NC Health Info, an online portal of community resources available throughout the state. The General Assembly allocated funding to add a military component to the Web site so that service members, veterans, and their families could access medical information and medical providers.

The summit served as the pilot for the first of the *Painting a Moving Train* series, a collaboration of the Citizen Soldier Support Program, the Veterans Integrated Service Network 6 Mental Illness Research, Education, and Clinical Center

Electronically published April 21, 2011.

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0029-2559/2011/72110

Opportunity Knocks: How Will We Answer?

L. Worth Bolton

The policy forum of this issue of the NCMJ presents North Carolina with a unique opportunity to provide veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), as well as their families, with the behavioral health resources they deserve and have earned. My perspective is that of a World War II veteran's son, a 2-tour combat veteran of Vietnam, and a social worker with more than 30 years of experience practicing with North Carolina families experiencing issues with substance abuse and mental health. The initial response of the nation and North Carolina to the behavioral health efforts highlighted in this issue has been positive, with effective and supportive programs present in all branches of the military. Likewise, military and civic associations have provided ongoing support to returning veterans, in the form of employment programs, housing, education, and family support. Hopefully, despite the difficult economic situation currently faced by the nation and North Carolina, this support will remain in place during the long journey to recovery that many veterans will travel as they address the "hidden wounds" associated with substance abuse and mental health issues.

Physical injuries receive the best medical treatment available, with remarkable responses from the brave men and women who are returning from war. North Carolina's biggest challenge, then, is to provide the best support and services to meet the behavioral health needs identified in this policy

forum. Important lessons from previous conflicts have been identified in the volumes of scientific studies and reports involving Korea, Vietnam, and the first Gulf War. These lessons cannot be ignored during the move forward to address the invisible behavioral wounds among returning veterans.

Since April 2006, I have had the privilege of being a part of a work group in North Carolina that took part in a national conference in Washington, D.C., attended by more than 1,400 individuals, to discuss the anticipated behavioral health needs of returning OEF/OIF veterans and their families. This collaboration of the Substance Abuse and Mental Health Services Administration, the National Institutes of Health, the Department of Defense, the Department of Veterans Affairs (VA), and all branches of the armed forces was joined by physicians, nurses, psychologists, social workers, addiction specialists, members of the clergy, and other health care professionals, to hear excellent plenary presentations and attend specific breakout sessions on the anticipated services and needs of returning servicemen and servicewomen. The result of these efforts in North Carolina was the development of the Governor's Focus on Servicemembers, Veterans, and Their Families, which is described by Fang [1] in the commentary associated with this sidebar.

The National Institute on Drug Abuse (NIDA), the National Institute on Alcohol Abuse and Alcoholism, and the Nation-

(MIRECC), and the Area Health Education Centers program. The Painting a Moving Train series targets behavioral health clinicians and offers education on topics that would assist them when providing services to veterans and their families.

The General Assembly provided funding to support a military-liaison position in the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS), to coordinate efforts to meet the needs of active and reserve components, veterans, and their families. Since 2008, the military program manager has worked with service members, veterans, families, and the agencies that serve them, to ensure that their concerns are being addressed.

Governor's Focus on Servicemembers, Veterans, and Their Families

The summit also resulted in the formation of the Governor's Focus on Servicemembers, Veterans, and Their Families. Its mission is to promote evidence-based strategies and best practices in the screening, assessment, and treatment of active and reserve components, veterans, and their families. This effort includes the articulation and implementation of an integrated continuum of care that emphasizes access, quality, effectiveness, efficiency, and compassion. Principles of resilience, prevention, and recovery are high-

lighted, along with state-of-the-art clinical services, as part of a balanced public health and behavioral health approach. The Governor's Focus envisions a referral network of services through which target groups will have access to assistance during all stages of the deployment cycle in North Carolina.

Since fall 2006, the Governor's Focus has met monthly. It consists of a coalition of federal, state, and local agencies and professional and consumer organizations, with the goal of developing public and private services and supports for active and reserve components, veterans, and their families. The coalition discusses needs and identifies, develops, and assesses programs for these target groups throughout the state. Partnership on various initiatives has been key to the accomplishments of the Governor's Focus. These successes are described below.

Services and Supports

The North Carolina National Guard (NCNG) is partnering with the DMHDDSAS, the Alcohol and Drug Council of North Carolina, and the Behavioral Healthcare Resource Program at the University of North Carolina-Chapel Hill to provide substance abuse assessments and initial case-management services to the NCNG. Once the NCNG identifies a service member with a potential substance abuse problem, the NCNG issues a voucher for services. Service members are

al Cancer Institute joined with the VA to provide 11 research institutions with funding to support research on substance abuse and related problems among US military personnel; their research was presented in a report released in July 2009 [2]. This research, as well as the ongoing studies conducted by numerous other research facilities, will help yield further understanding about the biological, social, and environmental factors that influence substance abuse. In an October 2007 research update from NIDA, a well-made case was presented for the concurrent treatment of mental health and substance use disorders [3]. Data from this report indicated that 6 of 10 persons with a substance-related disorder also have another mental illness. The report stated that having one of the disorders does not always mean that the other disorder will follow, and it outlined the following 3 scenarios as confirmation: (1) drug abuse can cause a mental illness, (2) mental illness can lead to drug abuse, and (3) drug abuse and mental illness are both caused by other common risk factors (eg, stress, anxiety, trauma, and genetic vulnerabilities), as similar regions of the brain are affected.

There is growing support for mental health treatment of active-duty service members and discharged veterans, but the discussion is more difficult when the issue of alcohol and drug misuse is involved. One reason for this is the stigma that comes with alcohol and drug misuse and abuse. Another reason is the lack of education and experience that some behavioral health practitioners have in working with individuals who have comorbid conditions, such as mental health and substance use disorders. Finally, my professional experiences with colleagues and referral sources have shown that some

practitioners do not, under any circumstances, want to work with people who have substance abuse issues.

My final concern involves the mentality of military personnel and of civilians alike who do not believe that addiction is a legitimate mental health issue and always want to treat it as "bad behavior" or, even worse, as a criminal offense. After Vietnam, I saw many men who had served valiantly and bravely during that war receive dishonorable and undesirable discharges, as the armed forces began to downsize the military and these men struggled to cope with posttraumatic stress disorder, depression, and anxiety. My sincere hope for OEF/OIF veterans is that, this time, the United States and North Carolina answer the call and use available scientific knowledge to meet the behavioral health needs of these individuals. NCMJ

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referred to the Alcohol and Drug Council of North Carolina for assessment. As of March 11, 2011, a total of 50 licensed substance abuse clinicians have been trained and have assessed 99 NCNG members for substance use disorders.

Because of relationships established through the Governor's Focus, the DMHDDSAS, the VA, and Mecklenburg County worked together to submit a grant application to SAMHSA. In October 2009, SAMHSA awarded a 5-year grant to the DMHDDSAS to develop a statewide infrastructure for a jail-diversion program that provides informed treatment for trauma-related injury and comprehensive needs-based support services to individuals, particularly veterans, in the criminal justice system. A state advisory committee has met monthly since June 2010 to discuss issues related to state policies and the development of Operation Recovery, the pilot program, in Mecklenburg County.

Outreach to Veterans and Their Families

The VA Health Care for Reentry Veterans program and the North Carolina Department of Corrections are collaborating to identify inmates who are veterans. One of the first steps was to train case managers and social workers in the North Carolina Division of Prisons to ask inmates about their military status. More than 2,000 veterans have thus far self-

reported their military status. It is estimated that 20% of the 42,000 inmates may be veterans. A prison staff member encourages veterans to work with a Health Care for Reentry Veterans specialist before discharge, to receive prerelease assessment services; referrals and linkages to medical, psychiatric, and social services; and short-term case management and assistance on release from prison. The goal of the Health Care for Reentry Veterans program is to prevent homelessness; to reduce the impact of medical, psychiatric, and substance abuse problems on community readjustment; and to decrease the likelihood of reincarceration for individuals leaving prison.

The VA and the North Carolina Office of Rural Health and Community Care are determining ways to deliver health care to veterans in rural North Carolina settings. During fall 2010, the VA Mid-Atlantic Health Care Network received \$13 million in funding to work with community mental health centers and federally qualified health centers and satellites. They have identified and contracted with community clinicians to deliver services and are setting up teams to engage and enroll veterans for health care services by offering influenza vaccinations, diabetes care, high-blood-pressure screening, homelessness services, substance abuse screening, and justice outreach.

Workforce Development

The DMHDDSAS and the Behavioral Healthcare Resource Program have cosponsored a workshop called PTSD, Substance Abuse, and Returning OEF/OIF NC Guard and Reserve Veterans, for professionals who treat substance abuse. The program addresses the factors necessary for determining appropriate care that are confronted by combat veterans after they return from deployment. In addition to full-day training events, an advanced 20-hour course is offered at the North Carolina School for Alcohol and Drug Studies.

The DMHDDSAS, the MIRECC, the Area Health Education Centers program, and the Citizen Solider Support Program have collaborated on educational programs for health and behavioral health professionals since 2008. The topics of these programs include military culture, posttraumatic stress disorder, traumatic brain injury, advanced therapeutic techniques (ie, cognitive-processing therapy and prolonged exposure therapy), and issues facing women veterans and military families. Partners are translating these workshops into online courses, and additional courses are being developed for dentists and optometrists. One of the results of the educational programs is the enlistment of licensed professionals into the TRICARE network. Approximately 1,200 North Carolina clinicians have been added to the database maintained by the Citizen Solider Support Program; more than half have registered to become TRICARE clinicians.

SAMHSA Policy Academy

A follow-up to SAMHSA's 2006 national conference was the initiation in August 2008 of a policy academy on veterans issues. On the basis of applications submitted by state agencies of mental health, 10 state teams—including a team representing North Carolina—were selected to attend. The North Carolina team comprised representatives from the DMHDDSAS, the Division of Medical Assistance, the NCNG, the VA, and the North Carolina Division of Veterans Affairs, as well as veterans. They developed a plan to integrate systems of mental health care, build clinician capacity, train teachers and school staff, and develop strategies to sustain efforts. The successes of the North Carolina team led to its selection as a mentor state team at the June 2010 policy academy. Attendance at the policy academy resulted in the identification of 4 priorities: (1) engage partners in integrated solutions; (2) sustain and strengthen coordination and planning; (3) develop resource capacity to sustain, grow, and adapt programs, services, and treatment; and (4) develop technology, communication, media, and marketing. Central to this effort is the use of the existing network of NCNG family assistance centers to expand services and resources.

Since summer 2010, the North Carolina team has further promoted the use of family assistance centers as regional clearinghouses of services and resources. The need for collaboration has been emphasized in ensuring that active and reserve components and veterans receive needed behavioral

health services and can access education, jobs, housing, and social services. Indeed, employment has been identified as an issue of vital importance to NCNG members and their families, with the NCNG partnering with the Office of the Governor, the DMHDDSAS, the Veterans Employment and Training Services of the North Carolina Department of Labor, and the Veteran Employment Services of the North Carolina Employment Security Commission.

Summary

While the Governor's Focus has made progress since its start in 2006, a number of challenges remain. Of utmost concern is the need for funds to support direct behavioral health services, especially for service members who have not yet been deployed. These service members are often young, unemployed, and at risk for mental health problems. Also worrisome is the increasing number of service members, veterans, and their families in the state, with new deployments and redeployments constantly underway. The state system is strapped economically, with insufficient funds for services. Thousands of family members remain in the state and require services and supports, especially with the economic downturn, owing to layoffs and a lack of jobs. Facilitating jobs for returning veterans requires partnerships, focusing on outreach and education, with state agencies and local employers. In addition, more than 100,000 children of service members live in North Carolina and require effective programming in their schools and communities. Another challenge is the limited information about the number of veterans and their families who seek services in the public system. Sharing data across federal and state agencies is complex, although the benefits of information exchange would be great.

As a result of the SAMHSA policy academy, next steps have been identified. The top priority is to obtain funding for direct behavioral health services for active and reserve components, veterans, and their families. The Governor's Focus will continue to emphasize the need to use new and existing partnerships to increase employment opportunities, by contacting employers and offering job training and job placement; to conduct outreach to minority veterans; to eliminate homelessness among veterans, through the development of transitional and permanent housing options; to offer more peer-to-peer services in local communities for reserve components; and to improve access to health care, through telemedicine and online strategies. **NCMJ**

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Acknowledgment

Potential conflicts of interest. W.L.F. has no relevant conflicts of interest.

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Co-Location of Behavioral Health and Primary Care Services: Community Care of North Carolina and the Center of Excellence for Integrated Care

Flo Stein, Michael Lancaster, Susan Yaggy, Regina Schaaf Dickens

The North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services works with partners to reduce the impact of behavioral health conditions in communities throughout the state. We review state-funded behavioral health initiatives that provide support to military personnel and their families, with special attention to public services and co-location efforts.

Substance use disorders, poor emotional health, and mental illness yield increased treatment costs for persons with comorbid physical diseases and are associated with some of the most substantial disability-related burdens faced by individuals, organizations, and countries worldwide [1]. The mission of the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS) is to work with its partners to reduce the impact of these and other conditions, including traumatic brain injury, in communities throughout the state. Behavioral health services are essential services that address the whole health of the citizens of North Carolina, including military service members, veterans, members of the armed forces reserves and National Guard, and their families. Individuals in the military, veterans, and their families have served the United States, and it is the nation's responsibility to ensure that the help they need will be available to them. The Department of Veterans Affairs (VA) has the lead on providing services to veterans, and the Department of Defense has military medical facilities across the nation. Both agencies support the Defense and Veterans Brain Injury Center. There remains, however, a critical role for state agencies in supporting the health of military families.

The DMHDDSAS, in collaboration with the Substance Abuse and Mental Health Services Administration (SAMHSA), has adopted the mission to facilitate innovative community-based solutions that foster access to evidence-based prevention, treatment, and recovery support services for military service members, veterans, and their families. The DMHDDSAS hosted a team representing its military and civilian partners and, on 2 occasions, participated in national policy academies to develop an action plan for

North Carolina. The DMHDDSAS, under the direction of the governor and the General Assembly, is making access to care a priority, when care is appropriate. The DMHDDSAS is working to ensure that service systems in North Carolina are well prepared, through coordination and training, to meet the needs of the military, making military service members eligible for state-supported services when other benefits are not available or accessible. Additionally, all crisis support systems are available on demand to military service members in all 100 counties in the state. The focus of the collaboration is on posttraumatic stress disorder (PTSD), suicide, the increasingly acknowledged problem of drug misuse, and mild and moderate traumatic brain injury.

The North Carolina system of care is coordinated by 21 local management entities (LMEs) that work with providers across the state. Coordination between LMEs and community providers is important because it is estimated that only 30% to 40% of veterans who meet eligibility criteria for health care seek such care at VA facilities [2]. The DMHDDSAS has to work with the system to be prepared to address problems related to service members, veterans, and their families for the long term. Troubling issues related to trauma, addiction, and the effects of head injury can arise years after the event. Family members throughout North Carolina may also require services for mental health or substance use issues related to the service of their family member, or they may seek assistance for the care of service members who have PTSD, addiction, or head injury.

The DMHDDSAS offers a voucher program that provides National Guard members with free substance abuse assessments and trains practitioners about substance use disorders and the military. The DMHDDSAS has participated with SAMHSA to develop state plans and design support for a suicide-intervention program through the North Carolina

Electronically published April 21, 2011.

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0029-2559/2011/72111

Challenges to Providing Services to North Carolina Veterans Who Have Traumatic Brain Injury

Marilyn Lash, Janice White, Sandra Farmer

North Carolina is currently at a critical crossroads for meeting the needs of service members and veterans with traumatic brain injuries (TBIs). On one path are the increasing numbers of service members with TBI, often the result of blast-related injuries received during the conflicts in Iraq and Afghanistan. TBIs present complex challenges for identifying, assessing, and meeting needs for treatment and services, because of the wide-ranging injury severity and physical, cognitive, behavioral, and emotional sequelae. The current population of veterans with TBI is larger than ever and involves a unique mix of active duty military, National Guard, and reserve personnel.

On the other path are the approximately 160,000 civilians with TBI in North Carolina, who also face the challenges of living with the effects of TBI. These individuals have learned that access to informed, coordinated medical and other community neurobehavioral services is limited and fragmented. In contrast to veterans, who are eligible for extensive Department of Veterans Affairs (VA) and TRICARE benefits, civilians face limitations associated with private insurance or managed care, and some have no insurance.

Providers of brain-injury care and support are also at the intersection of this crossroads. North Carolina has a severe shortage of providers who specialize in TBI care, and funding continues to be a roadblock. But the crisis is about more than funding. The lack of neurobehavioral services is the major unmet need identified by both civilians and service members

who have experienced TBI, largely because North Carolina lacks an integrated neurobehavioral system of TBI care and services. There is no infrastructure designed to foster the development of programs, the number of qualified providers is insufficient, and reimbursement rates are not commensurate with the specialized costs of neurobehavioral services.

When service members and veterans leave the VA and the Department of Defense systems of care and return to their homes and communities, the next phase of rehabilitation and reintegration begins. This is where their needs intersect with those of civilians, as they search for services and supports in their local communities—whether it be for family counseling, job retraining, cognitive training, day programs, or home modifications.

The Brain Injury Advisory Council of North Carolina and the Brain Injury Association of North Carolina are leading the way to develop an integrated system of community services for all persons with brain injury. These groups are working closely with the North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, which is the designated lead state agency for TBI. People with neurobehavioral difficulties face significant community-level challenges. As reported in the National Association of State Head Injury Administrators' (NASHIA's) State of the States 2006 Panel on Neurobehavioral Issues, "Individuals with serious behavior disorders after TBI have traditionally been considered difficult to support in community settings and,

CareLine and with the North Carolina National Guard.

The goal of promoting the behavioral and physical health of military families will be addressed with programs and evidence-based practices that support the families' resilience and emotional health. The DMHDDSAS Practice Improvement Collaborative, managed by the Governor's Institute on Alcohol and Drug Abuse, reviews and catalogues evidence-based practices designed to address the health care needs of this special group. The historic collaboration between LMEs and state hospitals has been expanded to include the VA, the University of North Carolina system, Area Health Education Centers and Community Care of North Carolina (CCNC), and the Center of Excellence for Integrated Care (CEIC). The DMHDDSAS will continue to work with SAMHSA's national technical-assistance center to improve the quality of service delivered in North Carolina.

CCNC provides managed primary care for Medicaid-eligible patients, under the guidance of the North Carolina Division of Medical Assistance. According to Michael Lancaster, director of behavioral health at CCNC, care managers help coordinate health care for military members, veterans, or family members who have Medicaid coverage. The CCNC case manager works cooperatively with the LME care coordinator to ensure that appropriate services are secured.

North Carolina has worked to improve care for all of its citizens, including those who served the nation as a member of the military. One avenue of improvement is being investigated by the CEIC, whose work addresses the disconnection between mental health and physical health, a by-product of the US health-care system's payment system. This disconnection has made access to timely mental health services and coordinated care difficult for residents in North Carolina and the United States and has exacerbated the stigma many patients may feel about seeking mental health services. While the VA has led the way in integrating mental health care and physical health care at VA facilities, the public and private health systems have lagged in efforts to help patients who have mental and physical conditions. In 2006, professional organizations, state agencies, consumer groups, and others joined together to create the training program, clinical tools, and practice-based demonstration projects to enable primary care practices to integrate a mental health or substance abuse provider into the practice. This integration could be as minimal as an agreement to share patient care between a primary care practice and a mental health or substance abuse provider in the same region, or it could be as complex as the full integration of the behavioral health or primary care provider into the practice's teams of

therefore, place a disproportionate burden on public health systems. The absence of effective intervention and ongoing support...results in a threat to the safety of self and others" (NASHIA, unpublished data, 2006).

Emotional and behavioral challenges after TBI can include (1) impaired control of behaviors and emotions (eg, outbursts, aggression, anxiety, depression, or irritability), (2) verbal and/or physical disinhibition or impulsivity and increased frustration, (3) impaired physical activity (eg, hyperactivity or lethargy), (4) impaired self-management and self-regulation (eg, diminished problem-solving ability), and (5) impaired processing and interpreting of verbal and/or nonverbal communication.

Inadequate and underfunded brain-injury services and programs in North Carolina can result in inappropriate placement and programming, rather than appropriate diagnosis and treatment planning, for people with neurobehavioral challenges. Typical outcomes, placements, and services include the correctional system, psychiatric hospitals, substance abuse services, vocational rehabilitation, community-supported living, institutions (eg, intermediate care facilities for people with mental retardation and skilled-nursing facilities), and homelessness (TBI is estimated to occur in 30% of the homeless population). While some placements (eg, vocational rehabilitation, substance abuse services, and community-supported living) are appropriate, they are often unsuccessful because the underlying neurobehavioral issues have not been addressed. For effective delivery of services, including differential diagnoses and appropriate treatment planning, providers must have a sufficient level of expertise in brain injury.

Acknowledged best practices for treating people with

brain injuries include (1) evaluations by a neuropsychologist, neuropsychiatrist, and physiatrist (specialized rehabilitation physicians), to assess functional abilities and the need for appropriate services; (2) evaluations by other rehabilitation professionals (eg, physical therapists, occupational therapists, speech-language pathologists, vocational rehabilitation counselors, social workers, and nurses), as needed; (3) person-centered, family-centered planning; (4) personal and medical histories from the injured person, as well as personal histories from their family members, friends, or coworkers; and (5) environmental supports for skill development and promotion of independence.

Recommended innovations in community care to meet the needs of returning military service members with TBI include accurate TBI screening; community-based neurobehavioral rehabilitation programs; a hospital-based "booster" approach; crisis stabilization; a mobile-team approach to activities such as assessment, crisis management, intervention, education, and mentoring; a consultation approach, including telerehabilitation; cross-systems training; and family support and training. NCMJ

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providers. Between 2006 and 2010, this partnership, called ICARE (Integrated, Coordinated, Respectful, and Evidence-Based Care), built a formidable base of training, clinical protocols, algorithms, local mental health and patient-support resource listings (grouped by county), and relevant research to assist primary care providers and mental health/substance abuse providers with the integration of care within practices. Funded by The Duke Endowment, the Kate B. Reynolds Charitable Trust, and AstraZeneca, and operated under the North Carolina Foundation for Advanced Health Programs, ICARE was successful in reducing barriers to care for patients who have mental and physical conditions, greatly reducing wait times for mental health outpatient care and increasing patients' self-reported mental health. Providers and patients liked working and receiving treatment in an integrated setting where patients' mental and physical conditions, treatments, and medications could be analyzed and addressed. To integrate mental health care into primary care settings, ICARE trained mental health providers and medical providers in an approach that could fit within busy primary care practices: assessment, brief intervention, and, when a higher level of mental health or substance abuse treatment was indicated, referral to specialty care. Primary care providers can also be integrated into behavioral health spe-

cialty practices, such as the newly emerging Critical Access Behavioral Health Agencies (CABHAs).

In 2010, the North Carolina Department of Health and Human Services asked the foundation to extend ICARE's service integration beyond primary care, to integrate care more broadly across the health care spectrum. In July 2010, with support from Governor Bev Perdue and funding from the North Carolina Health and Wellness Trust Fund and the Division of Medical Assistance, ICARE was reorganized into the CEIC. The CEIC's scope of work includes (1) helping hospital emergency departments incorporate integrated care tools and techniques for patients with mental health and substance abuse conditions, (2) supporting LMEs and the newly certified CABHAs in the performance of physical health screening and placement in medical homes where integrated care for mental health conditions and substance abuse issues is available, (3) training targeted case managers, and (4) supporting the integration of care at primary care practices not enrolled in CCNC. More broadly, the CEIC convenes experts, stakeholders, and patient advocates to examine evidence and secure consensus on effective standards, treatment, and tools for providers to use. The CEIC, while a resource for providers, promises to not only further integrate care in multiple

health care settings for patients with physical and mental health conditions, but also to ensure that the care provided is consistent and evidence based, thereby assuring better patient care and outcomes.

This new collaboration between the Department of Health and Human Services' agencies and contractors will, together with the military, continue to develop models for effective coordination of care for service members, veterans, and their families. **NCMJ**

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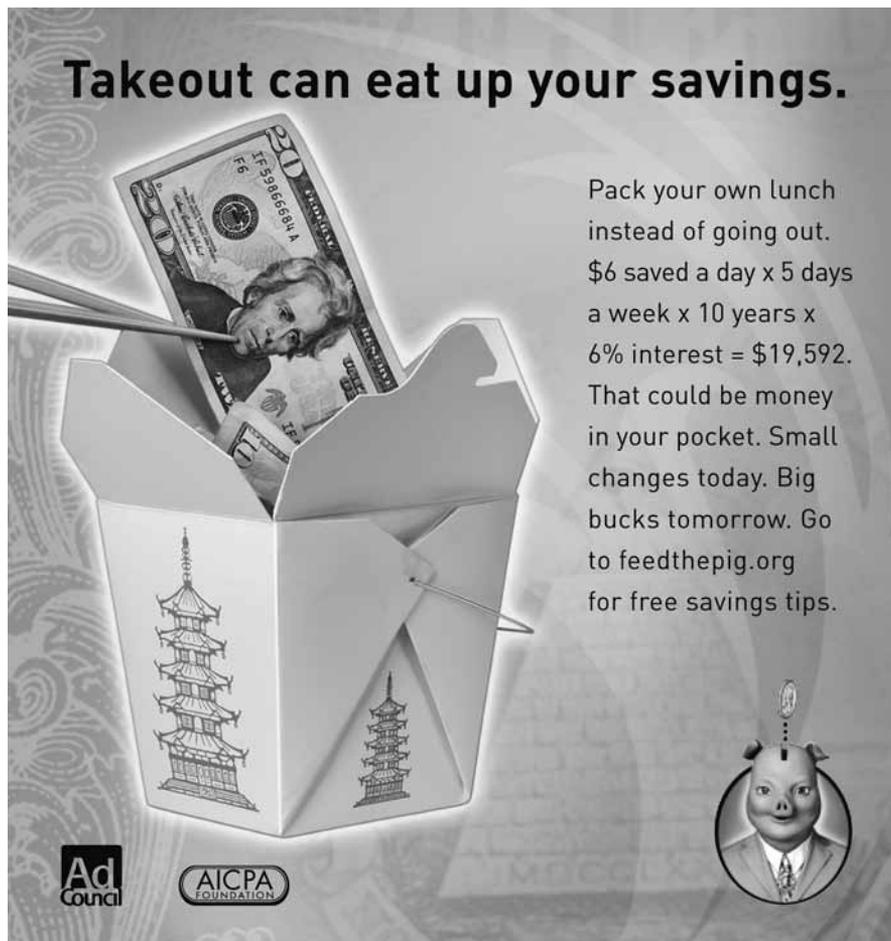
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Acknowledgments

Potential conflicts of interest. All authors have no conflicts of interest.

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Behavioral Health Conditions Among Military Personnel and Veterans: Prevalence and Best Practices for Treatment

Mira Brancu, Kristy Straits-Tröster, Harold Kudler

The Department of Defense and the Department of Veterans Affairs place a high priority on behavioral health assessment, treatment, and research. We present the national and regional prevalence of the most-common behavioral health problems experienced by Operation Enduring Freedom and Operation Iraqi Freedom veterans and offer resources for best practices for treatment.

Scope of the Problem

Since 2002, approximately 2.1 million troops have served in the military conflicts in Afghanistan and Iraq (Operation Enduring Freedom [OEF] and Operation Iraqi Freedom [OIF], respectively), with more than 1.2 million separated from active duty following deployment. Half of the individuals eligible for Department of Veterans Affairs (VA) health care have enrolled to receive such care, and of these, 50.2% received a diagnosis of a mental health disorder at a VA health care center, with posttraumatic stress disorder (PTSD) being the most common mental health diagnosis, followed by depression [1]. In response to the growing postdeployment mental health needs of service members returning from combat, the Department of Defense (DoD) and the VA have placed a high priority on behavioral health assessment, treatment, and research. The purpose of this commentary is to present the national and regional prevalence of the most-common behavioral health problems experienced by OEF/OIF veterans and to offer resources for best practices in treating these problems. Of note, data in this commentary were gathered from research on OEF/OIF veterans. There are no new data for the new cohort of service members involved with Operation New Dawn, which began in September 2010.

Prevalence proportions of mental health problems vary according to the population assessed, differences in assessment protocols, the duration of the study and the time at which it is performed, and the frequency and intensity (hereafter referred to as "level") of combat exposure. Proportions are also higher after deployment, likely because of the impact of combat exposure on mental health. Soldiers with multiple deployments, particularly those with 3 or 4 deployments and those with a reduced length of time between deployments (ie, "dwell time"), report more psychological

concerns, acute stress, marital problems, and medication use for psychological or combat stress-related problems, as well as lower morale, than do those on their first or second deployment [2].

The combined prevalence of psychological problems (defined as depression, anxiety, or acute stress) in theater (ie, during deployment) among OEF soldiers increased from 10.4% in 2005 to an estimated 21.4% in 2009, with an associated increase in the level of combat exposure [2]. Conversely, for OIF soldiers in theater, the prevalence decreased to 11.9% in 2009, with an associated decline in combat exposure [2]. However, the level of combat exposure remain quite high: up to 83% of combat veterans reported experiencing potentially traumatic combat experiences [2, 3].

The prevalence of psychological problems significantly increases after deployment, ranging from 20% to 38% among active-duty service members and from 42% to 49% among reserve-component service members (ie, individuals in the National Guard or armed forces reserves) [3, 4]. National prevalence proportions of PTSD and depression among service members generally range from 10% to 25% and from 8% to 14%, respectively [5, 6]. These proportions are significantly higher than those in the general population (ie, 3%-5% for depression and 3%-7% for PTSD) [5, 7]. Table 1 lists the most commonly diagnosed mental health disorders for OEF/OIF veterans who sought care at a VA facility between 2002 and 2010. For many veterans, these diagnoses co-occur.

Substance use disorders (SUDs) often co-occur with PTSD and depression, likely because alcohol and drugs are often employed to cope with these difficulties. Substance use often complicates treatment for PTSD and depression and creates additional negative consequences for work performance, health, and relationships [3, 7]. Research indicates that, while some level of heavy or regular alcohol use

Electronically published April 21, 2011.

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The Citizen Soldier Support Program: A Case Study

Robert Goodale, William Abb, Jessica T. Meed, Thu-Mai Christian, Harold Kudler, Kristy Straits-Tröster

The congressionally authorized Citizen Soldier Support Program (CSSP) serves as a model for collaboration between the Department of Defense (DoD), the Department of Veterans Affairs (VA), and state and community health care professionals to expand access to local, culturally and clinically competent behavioral health care among the families of armed forces reservists.

Background. Reservists and their families face the same multiple deployments, behavioral health risks, and marital and family problems as members of the active-duty force. Yet reservists continue to lack access to many of the support services available to active-duty service members on military bases, including medical, peer support, and chaplain services. While the federal government has taken steps to increase reserve-component access to services, including expanding TRICARE benefits and creating the Yellow Ribbon Reintegration Program, there continues to be a lack of continuity between programs initiated by the federal government and programs initiated by state governments and local communities. As a result, reservists and their families encounter barriers when they try to access needed behavioral health-related assistance. The CSSP at the University of North Carolina-Chapel Hill is Congressionally authorized to address this problem. The CSSP serves as a unifying model for DoD, VA, state, and community partnerships to meet the needs of reservists and their families.

Assessing the needs. The CSSP employs a combination of quantitative and qualitative methods, including geographic information system (GIS) analysis, to determine the adequacy of health care professional coverage and to identify gaps in behavioral health and family support services accessible to

reservists and their families, by comparing reservist residency and deployment data to the location of military treatment facilities and VA health care centers.

The CSSP also conducts qualitative focus groups to better understand how and where reserve-component members want to access behavioral health services. To identify gaps in the current system, the CSSP challenged support services with hypothetical cases to validate that their process could respond to the needs of reservists' families living throughout the state. Finally, the CSSP participates in work groups focused on improving care for veterans, service members, and their families, including the North Carolina Institute of Medicine Task Force on Behavioral Health Services for the Military and Their Families and the North Carolina Governor's Focus on Service Members, Veterans, and Their Families.

Generating solutions. One of the CSSP's most important findings was that even though reservists' families normally get their care from local civilian health care professionals, they want professionals who can identify signs of a deployment-related behavioral health and/or functional problem and refer the individual for appropriate follow-up care. Because most civilian health care professionals do not understand the impact of deployment on behavioral health, the CSSP partnered with staff from Camp Lejeune, the North Carolina Area Health Education Center (AHEC) program, and the VA's Mid-Atlantic Veterans Integrated Service Network Mental Illness Research, Education, and Clinical Center to create courses that introduce civilian community health care professionals to military culture and deployment behavioral health issues (available at: http://www.aheconnect.com/citizen_soldier). The courses combine presentations by Operation

may start in the military as part of military culture, individuals who deploy and experience combat are at increased risk for postdeployment alcohol-related problems (eg, difficulty cutting down or drinking more than planned), with a prevalence of 11.8% for active-duty service members and 15% for reserve-component members [3]. Among VA users, almost 22% of veterans with PTSD also received an SUD diagnosis in 2008; the rate was 70% for veterans hospitalized for PTSD [7]. Given the high prevalence of comorbid SUD and PTSD, the VA mandated the addition of an SUD specialist to each of its PTSD clinical teams in 2008.

New Developments and Best Practices for Treatment and Management of Common Behavioral Health Disorders

It is estimated that evidence-based care for treating mental health conditions after deployment would pay for itself within 2 years and could save as much as \$1.7 billion (\$1,063 per veteran) as a result of increased productivity and reduced medical and mortality costs [6]. Evidence-

TABLE 1.
Mental Health (MH) Disorders Diagnosed at Department of Veterans Affairs (VA) Facilities During 2002-2010

Diagnosis	No.	All patients, % (N=625,384)	Patients who used MH services, % (N=398,981)
PTSD ^a	167,295	27	42
Depressive disorders	122,175	20	31
Anxiety (non-PTSD)	102,767	16	26
Drug abuse	27,714	4.4	7
Drug dependence	16,799	2.7	4
Alcohol abuse	20,834	3.3	5
Alcohol dependence	33,660	5	8
Tobacco use disorder	85,671	14	21

Note. Data are for VA inpatients and outpatients who served in Operation Enduring Freedom or Operation Iraqi Freedom [1].

^aOf the total number of individuals with a diagnosis of posttraumatic stress disorder (PTSD), 11,656 received treatment for PTSD at VA medical centers in the Mid-Atlantic Veterans Integrated Health Care System Number 6, which includes North Carolina, Virginia, and parts of West Virginia.

Enduring Freedom and Operation Iraqi Freedom veterans and their family members with lectures by health care experts to illustrate the social and clinical aspects of deployment-associated behavioral health problems and to explain how local health care professionals can work with the DoD and the VA to improve continuity of care. Nationwide, over 9,000 health care professionals have participated on-site or online.

Our GIS analysis indicated a shortage of TRICARE health care professionals in certain counties, particularly rural counties. To address this problem, the CSSP partnered with Health Net Federal Services to recruit professionals into the TRICARE system. Particular emphasis was placed on recruiting professionals who had taken a course delivered through the AHEC program.

Increasing the number of TRICARE health care professionals is not enough to solve the problem of access to care. High unemployment among reservists not currently activated means that many lack access to affordable health insurance for themselves and their dependents. Reservists who never deployed are ineligible for care through the VA or TRICARE. The lack of access to care provided by informed health care professionals can hinder unit readiness and may contribute to increased morbidity. To address concerns related to insurance, the CSSP worked with the Mountain AHEC to place culturally competent health care professionals in community health clinics.

Finally, needs assessments showed that finding appropriate care for reservists and members of their extended families, many of whom (ie, parents, siblings, and spouses or significant others) are not dependents of the service member, was an issue. Nondependent family members are not eligible for TRICARE, VA, or Military OneSource coverage, yet they may still desire treatment for deployment-related behavioral health problems from health care professionals who understand military culture and deployment. To improve the ability

of reservists and their family members to find local, culturally competent health care, the CSSP created an online directory (available at: <http://www.warwithin.org>) that lists behavioral health and primary care professionals who have expressed a specific interest in working with military members and their families. The directory provides the user with information about culturally competent health care professionals within their own communities, including the professional's clinical specialty, special training on deployment health issues or military experience, and type of insurance accepted (with special attention to TRICARE). NCMJ

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Acknowledgment

Presented in part: Interagency Medical Service Corps Chief poster session, 116th Annual Meeting of the Association of Military Surgeons of the United States; November 2, 2010; Phoenix, AZ.

based treatment guidelines on best practices are available to all clinicians, from a number of sources; most are available online at no cost (Table 2). A summary of best practices for treating these disorders is presented in Table 3.

Other Related Behavioral Health Concerns

Traumatic brain injury (TBI). In addition to mental health problems, TBI, especially mild TBI (ie, concussion), is considered a signature injury of the Iraq and Afghanistan wars. The prevalence of TBI has increased since past wars, largely because of modern technology, which has improved survival rates from blast-related injuries. The postdeployment prevalence of probable TBI among OEF/OIF veterans is estimated to be between 19% and 22% [6, 7]. Within the VA, from April 2007 through fiscal year 2009, a total of 66,023 OEF/OIF veterans were identified on the basis of VA outpatient screening as possibly having a TBI [10]. Of these, 37% had a confirmed TBI. Battle-injured individuals are also more likely to have additional TBIs, compared with individuals injured outside of battle [10].

The presence of PTSD, depression, or other psycho-

logical problems often complicates recovery from TBI. Approximately 5% of OEF/OIF veterans report experiencing co-occurring PTSD, depression, and TBI, since many TBIs are related not only to a blast-related physical injury, but also to a traumatic event [6]. Among OEF/OIF veterans with physical injuries, chronic pain is also seen. In June 2009, a VA/DoD interdisciplinary consensus panel was convened to make specific practice recommendations to improve health care services, educational programs, and systems coordination at VA health care centers for veterans with PTSD, pain, and/or mild TBI [7]. The panel's recommendations include improved routine screening and comprehensive assessment, which will require clinician education and outreach across multiple models of care, and increased dissemination of current clinical practice guidelines for mild TBI, PTSD, chronic pain, and related disorders. The VA currently has established more than 100 VA medical centers that offer specialized rehabilitation care including rehabilitation centers, regional network sites, and interdisciplinary clinical teams.

Military sexual trauma (MST). The lifetime prevalence of sexual victimization among male military members is 3%,

TABLE 2.
Sources of Information on Best Practices for Postdeployment Treatment of Mental Health Conditions in Veterans

Source	Disorder(s)	Reference
VA/DoD Practice Guidelines	Depression, acute stress, PTSD, SUD, TBI, co-occurring chronic pain	http://www.healthquality.va.gov/
VA National Center for PTSD	Depression, acute stress, PTSD, SUD, TBI, co-occurring chronic pain	http://www.ptsd.va.gov
Defense Centers of Excellence for Psychological Health & Traumatic Brain Injury	Depression, acute stress, PTSD, SUD, TBI, co-occurring chronic pain	http://www.dcoe.health.mil
Integrated report of recommended PTSD treatments across multiple international sources	PTSD	Forbes et al. [8]
Invisible Wounds of War Series—Citizen Soldier Support Program ^a	PTSD, women veterans' issues	http://www.aheconnect.com/citizensoldier

Note. DoD, Department of Defense; PTSD, posttraumatic stress disorder; SUD, substance use disorder; TBI, traumatic brain injury; VA, Veterans Affairs.
^aAn online accredited training program for non-VA clinicians [9].

which is approximately equal to the rate for the general US population [11]. However, for military women, the prevalence is estimated to be 23%-33%, which is significantly higher than the 17% prevalence for the general female population in the United States. Women are also more likely to be revictimized in the military than in the civilian world.

Sexual trauma is 4 times as likely to result in a PTSD diagnosis than is combat-related stress, and it usually results in more-adverse consequences when it occurs during military service, because of associated psychological, physical, and readjustment problems; reduced safety options; difficulty filing a complaint; and other issues related to military life and career. In addition to a high prevalence of PTSD for those with MST experiences, almost a third also experience at least 1 episode of depression during their lives. Furthermore, victims of sexual assault are approximately 3 times as likely to use marijuana, 6 times as likely to use cocaine, and 10 times as likely to use other major drugs [11, 12].

Among returning veterans seeking treatment at a VA health care center, approximately 1 in 5 women and 1 in 100 men told their VA health care professionals that they experienced sexual trauma in the military. Given concerns about stigmatization, these proportions likely underestimate of the actual prevalence among VA patients. According to national VA data for 242,099 OEF/OIF veterans who were screened for MST in 2009, 3% (7,274) screened positive for potentially having experienced an MST [12]. Of these, 5,590 were women, and 1,684 were men.

Since 1992, Congress has passed several laws that address MST-related treatment for veterans, including (1) that VA health care professionals receive training and education related to MST, (2) that the VA provides counseling services for male and female victims of MST, and (3) that there be no limits on the duration of care provided. The VA has also (1) required that all VA patients undergo screening for MST, (2) ensured that each medical center has a MST coordinator to oversee screening, treatment, and staff education related to MST, and (3) guaranteed that MST-related physical and mental health treatment is provided free of

charge to all veterans, regardless of whether they are eligible for other VA care [11]. Behavioral health interventions for MST are generally similar to treatment of PTSD and any trauma-related co-occurring problems, such as depression and substance use.

Suicide. Approximately 1% of service members who were deployed report having thought about suicide at least some of the time [13]. Suicide is the second-leading cause of death in the Marine Corps. The Army has the highest proportion of suicides among the armed services [14, 15]. Until 2005, military suicide rates were generally lower than those for the general US population. For example, during 1999-2005, there were 12.0 suicides per 100,000 population among personnel in the Department of the Navy (10.7 cases/100,000 for the Navy and 14.6 cases/100,000 for the Marine Corps), compared with approximately 18 suicides per 100,000 population for the US civilian population, after adjustment for demographic characteristics [14]. However, since 2005, suicides have increased, surpassing civilian rates each year since 2005 for the Army and each year since 2007 for the Marine Corps [14]. In the past 2 years, the rates have finally stabilized, likely because of the significant suicide prevention efforts by all branches of the military and the VA (discussed below). The 2008 in-theater suicide rate among all OIF service members was 21.5 cases per 100,000 population; this was the first time the annual suicide rate had not increased since 2004 [2]. Key risk factors include depression, PTSD, SUD, and TBI, especially when a number of these problems occur together.

There have been numerous suicide prevention efforts within the VA and DoD, including the Veterans Crisis Line (1-800-273-TALK) and online resources (available at: <http://www.suicidepreventionlifeline.org>), which offer veterans 24/7 access to trained counselors. Call center staff can make immediate direct referrals to any VA treatment center across the country. In addition, each branch of the military has developed a comprehensive suicide prevention program that includes training for personnel in leadership positions, education about risk factors and intervention/prevention measures

TABLE 3.
Common Mental Health Conditions and Treatment Recommendations for Veterans Who Served in Operation Enduring Freedom or Operation Iraqi Freedom

Condition	Recommendations	
	General	Other
PTSD [5, 7, 8]	<p>Psychotherapy: CBTs such as prolonged exposure and cognitive-processing therapy, as well as eye-movement-desensitization reprocessing, are considered first-line treatments for PTSD. Brief psychodynamic therapy can also be considered, although its evidence base is less strong.</p> <p>Medication: SSRIs—in particular, fluoxetine, paroxetine, and sertraline—are strongly recommended (they can also be considered for veterans with co-occurring SUDs), as are SNRIs, specifically venlafaxine. There is also some support for mirtazapine, nefazodone, tricyclic antidepressants, amitriptyline, and imipramine or monoamine oxidase inhibitors (eg, phenelzine). Atypical antipsychotics (eg, risperidone, olanzapine, or quetiapine) are only recommended as adjunctive therapy for PTSD.</p> <p>Acupuncture can be considered for patients with PTSD.</p> <p>Imagery rehearsal therapy or prazosin, a generically available alpha-1 adrenoreceptor antagonist, can be considered as adjunctive treatment for nightmares and sleep disruption.</p> <p>Relaxation techniques should be considered for alleviating symptoms associated with physiological hyperreactivity.</p> <p>Hypnotic techniques can be considered for symptoms associated with PTSD, such as pain, anxiety, dissociation, and nightmares.</p> <p>Additional recommendations for early interventions (within the first month after trauma exposure) and co-occurring problems (eg, insomnia, anger, agitation, and pain) can be found in the sources listed in Table 2.</p>	<p>Additionally, CAM approaches (eg, mindfulness, yoga, and massage) that facilitate a relaxation response can be considered for adjunctive treatment.</p>
Depression [5]	<p>Mild depression can be effectively treated with either medication or psychotherapy. Moderate-to-severe depression may require combining medication and psychotherapy.</p> <p>Medication: SSRIs, excluding fluvoxamine, along with the SNRIs, such as bupropion and mirtazapine, are considered a first-line treatment options. No particular antidepressant agent is superior to another with regard to efficacy or time to response.</p> <p>Psychotherapy: Short-term psychotherapies, such as CBT, interpersonal therapy, and problem-solving therapy, for the primary care setting are recommended for the treatment of uncomplicated major depression. For severe depression, behavioral activation is recommended, with CBT as a secondary treatment option. For severe, recurrent (ie, ≥ 3 episodes), or chronic major depression, CBT in combination with pharmacotherapy is recommended.</p> <p>Continuing therapy (up to 9-12 months after acute symptoms resolve) decreases the incidence of relapse of major depression.</p> <p>Electroconvulsive therapy, with some medical caveats, should be considered for patients with severe major depressive disorder who cannot tolerate or have not responded to several trials of antidepressant treatment.</p>	<p>Additional CAM approaches that have some support include exercise, St. John's wort, and light therapy (for seasonal pattern depression).</p>
SUDs [5, 7]	<p>Initial and ongoing screening is strongly recommended, and specific screening instruments are recommended.</p> <p>A combination of medications and addiction-focused counseling is recommended, with consideration of the patient's previous treatment experience, the patient's preference, and the use of motivational interviewing.</p> <p>Medications: Naltrexone and disulfiram should be offered as a treatment strategy for alcohol-use disorders, if indicated, and there is some preliminary evidence they may have some direct benefit for PTSD symptoms. Benzodiazepines are generally recommended only for alcohol detoxification/withdrawal stages. Buprenorphine/naloxone should be used, when clinically indicated, for opiate dependence.</p> <p>Addiction-focused counseling: Psychotherapy options that are rated include behavioral couples therapy, cognitive behavioral coping-skills training, the community-reinforcement</p>	<p>...</p>

TABLE 3 CONTINUED.
Common Mental Health Conditions and Treatment Recommendations for Veterans Who Served in Operation Enduring Freedom or Operation Iraqi Freedom

Condition	Recommendations	
	General	Other
	<p>approach, contingency management/motivational incentives, motivational enhancement therapy, and 12-step facilitation.</p> <p>Coordinate addiction-focused interventions with evidence-based interventions for other biopsychosocial problems (eg, CBT for PTSD) in the least restrictive setting necessary for safety and effectiveness.</p> <p>Tobacco-cessation treatment should be offered to all patients with nicotine dependence.</p> <p>Employ stabilization/relapse-prevention interventions, such as motivational interviewing techniques and Seeking Safety therapy.</p>	
TBI [5, 7]	<p>Specific behavioral and medication interventions are based on severity of TBI and co-occurring symptoms and are patient specific. Since 90% of patients have mild cases and experience full recovery, early intervention involving education and a focus on recovery is strongly recommended.</p> <p>PTSD treatments such as cognitive processing therapy, prolonged exposure, or SSRIs can also work well for veterans with mild TBI and emotional trauma.</p> <p>Memory aids, occupational rehabilitation, and case management should be considered, depending on the severity of the injuries.</p> <p>Patients should be referred to specialists (ie, neurologists, neuropsychologists, and substance abuse counselors) as needed.</p> <p>Collaborative interdisciplinary care is a critical element of treatment success, especially for more-severe cases.</p>	<p>Comprehensive neuropsychological/cognitive testing should not be done within 30 days after injury.</p>

Note. CAM, complementary and alternative medicine; CBT, cognitive behavioral therapy; PTSD, posttraumatic stress disorder; SNRI, serotonin norepinephrine reuptake inhibitor; SSRI, selective serotonin reuptake inhibitor; SUD, substance use disorder; TBI, traumatic brain injury.

for all service members, and collaboration across support services and national veterans programs.

Family impact. Psychological stress among family members of deployed and returning OEF/OIF veterans, while yet to be fully quantified, is also an area of concern [6]. Family members experience high caregiver burdens and stress related to caring for veterans who have sustained physical and psychological wounds of war. Additionally, more than 5,500 US service members have been killed in action during OEF/OIF [1], and their bereaved family members often require support and, sometimes, mental health care. The VA has declared family support a top priority for mental health research, assessment, and treatment.

Population-Based Approaches

On a final note, the VA has partnered with the Citizen Soldier Support Program [9], administered by the Odum Institute for Research in Social Sciences at the University of North Carolina–Chapel Hill, and the North Carolina Area Health Education Centers, to improve access to quality care for service members, veterans, and their family members who seek services outside of DoD and VA medical systems. The educational public health initiative Painting a Moving Train: Working with Veterans of Iraq and Afghanistan and

Their Families provides military cultural-competence training for mental health and primary care providers, informs them about the nature of deployment stress, introduces them to DoD and VA treatment resources, and reviews available best practices and community resources. Particular emphasis has been made in working with rural providers, who may be treating reserve-component members and veterans who do not have immediate access to a DoD or VA medical center. To date, more than 9,000 providers have completed at least 1 of the 3 Painting a Moving Train program trainings in PTSD, TBI, and Issues Facing Women Veterans (Table 2).

Conclusion

A broad range of mental health problems, including PTSD, depression, substance use, and TBI, may affect returning OEF/OIF veterans and their family members. Early interventions may increase the likelihood of recovery and readjustment and are now described in new national clinical practice guidelines. Although the majority of service members will transition to civilian life without developing a mental health problem, ready access to best treatments and an understanding of key issues for service members, veterans, and their families are foundational if North Carolina medical providers are to deliver informed care. **NCMJ**

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Acknowledgments

We are grateful for the input and ongoing dedication of our US service members, who have sacrificed so much for us all.

Financial support. Office of Mental Health Services, US Department of Veterans Affairs (grant to the Mid-Atlantic Mental Illness Research, Education, and Clinical Center).

Potential conflicts of interest. All authors have no relevant conflicts of interest.

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Behavioral Health Services, Projects, and Programs Available to North Carolina Military Personnel and Their Families

Christie Silbajoris

North Carolina is home to the fourth-largest number of active-duty military personnel in the country. There are military personnel in each branch of the military and in every county of the state. Approximately one-third of North Carolina's population is connected to the military, either as an active- or reserve-component service member, a veteran, a spouse, a surviving spouse, a parent, or a dependent. North Carolina ranks fifth nationally in the number of military retirees and ninth in the number of veterans residing in the state.

Multiple deployments associated with the current engagements in Iraq and Afghanistan can increase the risk of physical and psychological harm among service members. Recent medical advances translate to increasing numbers of returning service members with significant physical injuries and mental health and behavioral health challenges. Almost half of all veterans who served in Iraqi and Afghanistan report symptoms of posttraumatic stress disorder (PTSD), traumatic brain injury (TBI), depression, affective psychoses, neurotic disorders, suicidal ideation, and drug and alcohol dependence.

Military service affects not only service members but also their families throughout the deployment cycle. More than 100,000 North Carolina children and adolescents have parents who are active-duty service members or in the National Guard or reserves. Military children and spouses experience emotional and behavioral health problems more often than do their counterparts in the general population.

The North Carolina General Assembly directed the North Carolina Institute of Medicine (NCIOM) to form the Task Force on Behavioral Health Services for the Military and Their Families, which examined Medicaid- and state-funded mental health, developmental disabilities, and substance abuse services available to military personnel and their families. This article describes the behavioral health resources, services, projects, and programs that were discussed by the task force.

NATIONAL GUARD PROGRAMS AND SERVICES

North Carolina National Guard (NCNG) Programs

800-621-4136

<http://www.nc.ngb.army.mil/index.php/fp>.

The NCNG provides support services to increase soldier resilience, prevent suicide, support psychological fitness for operational readiness, and re-integrate service members back into civilian society. Free training, education, assistance, and other services prepare NCNG service members and their families who are not located on a military facility for the call to state or federal active duty. Family Assistance Centers located throughout the state provide subject-matter specialists on health care issues, personal and financial matters, US Uniformed Services Privilege and Identification Cards, Defense Enrollment Eligibility Reporting System registration, TRICARE, and other matters of importance to military families.

NCNG Integrated Behavioral Health System

800-621-4136

The Integrated Behavioral Health System provides service members and their families with a telephone-based assessment of risk and needs (clinical and other) and, as necessary, immediate and appropriate referrals to internal and external resources. Although the 1-800 number is not a hotline, all calls are returned in a timely fashion.

Yellow Ribbon

<http://www.yellowribbon.mil>

Yellow Ribbon provides information about services, entitlements, benefits, and resources that are available to National Guard members, reservists, and their families. Information is provided during 1-day briefing seminars before deployment, during deployment, and twice after deployment.

STATEWIDE SERVICES AND PROGRAMS

Alcohol and Drug Council of North Carolina National Guard Project

800-688-4232

<http://www.alcoholdrughelp.org/national-guard-project>

This project improves the state's ability to provide clinical substance abuse interventions, assessments, and treatment referrals to service members at risk for substance abuse disorders. The project helps military organizations determine a soldier's fitness for duty and coordinate the assessments with additional services, as needed.

Brain Injury Association of North Carolina (BIANC)

Family Helpline 800-377-1464

<http://www.bianc.net/index.htm>

BIANC provides a forum for state, military, veteran, and local agencies to work together on service member, veteran, and family needs. BIANC develops, supports, and administers programs, services, and activities for individuals, including service members, veterans, and their families, who are directly or indirectly affected by TBI. BIANC offers help, hope, and a voice for this population, through prevention, education, research, and advocacy.

CARE-LINE and NC careLINK

800-662-7030

<https://www.nccarelink.gov>

CARE-LINE links English- and Spanish-speaking callers to services in government, faith-based organizations, and other agencies. The line is staffed Monday through Friday from 8 AM to 5 PM, except holidays.

NC careLINK.gov helps users find benefits and financial assistance programs, hospital and medical services, and counseling services.

Citizen Soldier Support Program (CSSP)

<http://www.citizensoldiersupport.org>

The CSSP strengthens community support for National Guard and reservists and their families by increasing geographic and financial access to deployment- and postdeployment-related behavioral health services. The CSSP trains primary care and behavioral health physicians, psychologists, psychiatrists, and counselors and enters their contact information in a database (available at: <http://www.warwithin.org>) that service members and their families can access to address their needs.

Governor's Focus on Servicemembers, Veterans, and Their Families

<http://www.veteransfocus.org>

This group promotes evidence-based practices in screening, assessment, and treatment of military personnel and their families. Resilience, prevention, recovery, and clinical services are emphasized as part of a balanced public health and behavioral health approach.

National Alliance on Mental Illness (NAMI)-North Carolina

800-451-9682

<http://www.naminc.org>

NAMI-NC provides support, education, and advocacy for individuals who received a mental illness diagnosis, as well as

for their families and friends. Free psycho-educational classes and support groups are available. NAMI-NC is increasing its accessibility to veterans, with educational programs in 5 VA hospitals around the state. For veterans' resources, visit <http://www.nami.org/veterans>.

North Carolina Division of Veterans Affairs (DVA)

919-733-3851

<http://www.ncveterans.net>

The DVA offers free assistance through a network of district and county Veterans Service Offices. The DVA assists veterans and their families in the presentation, processing, proof, and establishment of claims, privileges, rights, and benefits that they may be entitled to under federal, state, and local laws.

North Carolina Division of Mental Health, Developmental Disabilities, and Substance Abuse Services (DMHDDSAS)

919-733-4670

Prevention, treatment, recovery, and support services are provided for individuals in North Carolina, including service members, veterans, and their families, who are experiencing mental illness, intellectual and developmental disabilities (including TBI), and substance use disorders. Services are delivered locally by behavioral health agencies and other providers that are managed by 24 local management entities. Inpatient, residential, and outpatient care, as well as waiver and other services, are available to individuals with needs associated with these disabilities.

Traumatic Brain Injury Program

919-715-5989

<http://www.ncdhhs.gov/mhddsas/tbi/index.htm>

The Traumatic Brain Injury Program is housed within the DMHDDSAS and advocates for TBI survivors and their families and oversees and supports day and residential programs, Community Assistance Centers, support groups, developmental disabilities and substance abuse programs, and education and training.

NC Health Info

919-843-6236

<http://www.nchealthinfo.org>

The Military Health section of the NC Health Info Web site provides easy-to-use, current information on military health, PTSD, TBI, trauma and grief, depression, substance use, deployment issues, TRICARE, and military children's issues. The Go Local section features a comprehensive listing of provider Web sites, searchable by county, that describe services related to the health of service members, including all benefits and services available to NC veterans, health facilities, referral services, and other programs related to military health.

Operation Re-Entry North Carolina

252-744-6012

<http://www.ecu.edu/ornc>

This research initiative supports military service personnel, veterans, and their families by addressing the resilience and reintegration concerns of combat veterans returning from deployment and the challenges facing Department of Defense and VA health providers who care for them. The initiative also addresses gaps in behavioral health and rehabilitation services and applies telemedicine and advanced technology to improve quality and access to services. The initiative is led by East Carolina University and provisionally funded through the Department of Defense.

Public Schools of North Carolina

<http://www.ncpublicschools.org/militarysupport>

The North Carolina Department of Public Instruction and the NCNG Family Readiness Program developed the NC Supports Military Children Web site to help educators identify children with a deployed parent and ensure that schools are sources of stability and routine for these children.

Strengthening Military Families With Children Who Have Developmental Disabilities: OneStop for Family Support

919-962-6542

This project improves access to support services required by military families who are living off base and have children with developmental disabilities. The project achieves this goal by use of an evidence-based model of peer support and an integrated military-civilian family support system, and by increasing public awareness of military family issues.

United for Health

252-808-5978

<http://www.united4health.org>

This program uses a national social marketing campaign that introduces responsible drinking guidelines, to reduce substance abuse problems and injury due to alcohol-related motor-vehicle crashes in Onslow County, including Camp Lejeune, and surrounding counties.

Department of Veterans Affairs (VA) Health Care

<http://www.va.gov/health/default.asp>

The VA provides mental health and substance use services, diagnostic and treatment-planning evaluations, consultation, psychotherapy, referrals to inpatient and residential care programs, PTSD specialists, military sexual trauma clinics, mental health case management, psychosocial rehabilitation services, and individual and group counseling to veterans and their families. Five Vet Centers in North Carolina provide readjustment counseling and outreach services to all veterans who served in any combat zone and to their family members.

Veterans Integrated Service Network (VISN) 6 Mental Illness Research, Education, and Clinical Center (MIRECC)

<http://www.mirecc.va.gov/visn6>

MIRECC provides improved clinical assessment and treatment and develops novel, research-based interventions for prevention and treatment of postdeployment mental health issues. The MIRECC Web site points users to information and resources that focus on behavioral health issues associated with the deployment cycle and the readjustment process. Specific sections serve providers who need education about postdeployment mental health and/or brain injury.

WarWithin.org

<http://www.warwithin.org>

WarWithin.org provides a directory of primary and behavioral health providers who understand the challenges of deployment-related behavioral health issues and who can address a reservist's concern regarding a potential lapse in care during the transition from civilian to military health insurance. WarWithin.org was created by the CSSP.

North Carolina Department of Correction Programs

The Department of Corrections is working with the VA Health Care for Reentry Veterans (HCRV) program to identify inmates who are veterans and to facilitate their receipt of benefits before discharge to the community. A total of 20% of the 42,000 inmates in North Carolina might be veterans. An HCRV specialist provides predischarge assessment services; referrals to medical, psychiatric, and social services; and short-term case management after discharge, to prevent homelessness, reduce the impact of medical and mental health problems on the community, and reduce the recidivism rate.

Jail Diversion and Trauma Recovery Program (<http://www.ncoperationrecovery.org>). This program supports local implementation and statewide expansion of trauma-integrated jail diversion programs to reach individuals involved in the justice system who have PTSD, TBI, and other trauma related disorders. Veterans receive priority eligibility. The Mecklenburg County pilot program screens all inmates for trauma and veteran status, completes assessments on all inmates who screen positive for trauma, and refers veterans involved with the justice system to mental health courts, jail diversion programs, and other services.

North Carolina Treatment Accountability for Safer Communities (TASC) Network (<http://www.ncdhhs.gov/mhddsas/tasc/index.htm>). TASC provides care-management services to people with substance use disorders or mental illness who are involved in the justice system. TASC diverts individuals to community-based services and away from institutional settings. TASC combines the influence of legal sanctions with treatment and support services, to interrupt the cycle of addiction and crime. A total of 88% of TASC care managers are serving veterans, and 45% are serving immediate family members of current members of the armed forces.

REGIONAL PROGRAMS AND SERVICES

Department of Psychological Health, Command Surgeon's Office, 81st Regional Support Command

803-751-4071

The Department of Psychological Health is responsible for more than 54,000 service members and their families in 9 southeastern states, including North Carolina, and Puerto Rico. The department provides outreach, surveillance resilience promotion, intervention and care coordination and caregiver support. It also conducts suicide prevention, PTSD and domestic violence prevention, depression, anxiety, combat stress, TBI, substance abuse, and other behavioral health education programs.

TRICARE

877-TRI-CARE

<http://www.healthnetfederalservices.com>

<http://www.tricare.mil>

<http://www.mytricare.com>

TRICARE is an entitlement program providing health care to eligible beneficiaries, including active-duty and retired service members, eligible members of the National Guard and reserves, and their families. Care is provided in military treatment facilities and by network and nonnetwork providers and facilities. TRICARE offers private, Web-based video counseling, tele-behavioral health treatment, an online behavioral health resource center, a behavioral health provider locator, and military and family life consultants.

NATIONAL PROGRAMS AND SERVICES

Military OneSource

800-342-9647

<http://www.militaryonesource.com>

Military OneSource provides free, nonclinical counseling sessions, in person or by telephone, to eligible military personnel and their families. The program focuses on short-term issues such as bereavement, deployment adjustment, work/life management, and combat stress.

National Veterans Suicide Prevention Hotline

800-273-TALK (Veterans: press "1" after connecting)

<http://www.suicidepreventionlifeline.org/Veterans>

The VA, in partnership with the Substance Abuse and Mental Health Services Administration and the National Suicide Prevention Lifeline, founded a suicide prevention hotline to ensure that veterans in emotional crisis have free, 24/7 access to trained counselors.

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Spotlight on the Safety Net

*A Community Collaboration
Kimberly Alexander-Bratcher*

North Carolina National Guard Family Assistant Centers

Family Assistance Centers (FACs) compose a family support system implemented across the country by the National Guard Bureau. FACs are required to provide 5 essential services: financial counseling, TRICARE education, legal support, Defense Enrollment Eligibility Reporting System enrollment, and referrals to community resources. With 6 federally funded FACs, 3 state-funded FACs, and 4 storefront FACs, North Carolina has more FACs than any US state or territory, reflecting its commitment to military families. In addition, the FACs in North Carolina are home to the licensed behavioral health clinicians of the North Carolina National Guard (NCNG) Integrated Behavioral Health System (IBHS).

The state-funded FAC in Greensboro opened in 2004 and was the first of its kind in North Carolina. In addition to an IBHS clinician, this FAC houses 2 of the 23 family assistance personnel available across the state. Collaboratively, they work in various armories in the region to improve family members' access to FAC services. They also provide support to service members who remain behind to operate a unit when the majority of the unit's members are deployed. In addition to overseeing the required services, both individuals work with community groups to conduct informational meetings, programs, and presentations. The Greensboro FAC partners with the local 4-H, cooperative extension centers, American Red Cross, local churches, Kiwanis Club, Rotary Club, and local veterans service organizations and auxiliaries. The FACs enable the NCNG Family Programs to contact service members and their families throughout the state.

As discussed by Nissen and colleagues [1] in the policy forum, the IBHS started in November 2010 as a 1-800 number available 24/7 to help connect service members and their families to appropriate behavioral health resources. As of April 2011, the NCNG IBHS had received more than 400 calls, 64 of which required immediate mental health intervention. IBHS clinicians provide clinical assessments and referrals to direct services and resources, consult with callers who are in dangerous and concerning situations, help family members understand available services and encourage their service members to call directly, respond to command personnel and leaders who are concerned about service members, and provide crisis intervention and behavioral health support services. Through the assessment process, clinicians are able to understand which factors, including family stressors, financial stressors, depression, and anxiety, are adversely affecting the service member's health and/or their safety or the safety of other individuals. Follow-up care to address housing needs and medical problems and to connect the service or family member with other assistance, including that provided by clergy members and financial and legal professionals, is also part of the IBHS. Once an assessment has been completed, NCNG behavioral health case managers can develop an ongoing relationship with the service member and their family to monitor and ensure that the caller receives appropriate follow up.

The presence of family assistance personnel and licensed clinicians in the same FAC is unique to North Carolina and substantially enhances access to services. Rather than having to communicate across the region or state, staff in a single FAC can accurately assess the severity of an emotional crisis, allowing them to respond more quickly to emergencies. In one case, a service member with feelings of hopelessness called the 1-800 number. The service member had very little food in the house and no diapers for their children. The circumstances had lapsed beyond control, and the service member was unable to cope

with the situation. The FAC clinician collaborated with onsite family assistance personnel, and voucher coupons for food and diapers were delivered to the service member and family that evening. After the team addressed this immediate need, they helped the service member access employment and career-building resources for longer-term solutions. This and similar success stories are typical at North Carolina FACs where clinicians and family assistance personnel are co-located.

Service members and their families face unique challenges. NCNG FACs are helping families prepare for and recover from many of these challenges, through the dedication and hard work of their multidisciplinary staff and the community partnerships they continue to create. NCMJ

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Kimberly Alexander-Bratcher, MPH, program director, North Carolina Institute of Medicine, Morrisville, North Carolina, with contributions from the following members of the North Carolina National Guard: Sandy Harrison, family assistance specialist, Greensboro; Jose Alvarez, LCSW, behavioral health clinician, Greensboro; and Captain Richard Scoggins, deputy state public affairs officer, Raleigh.

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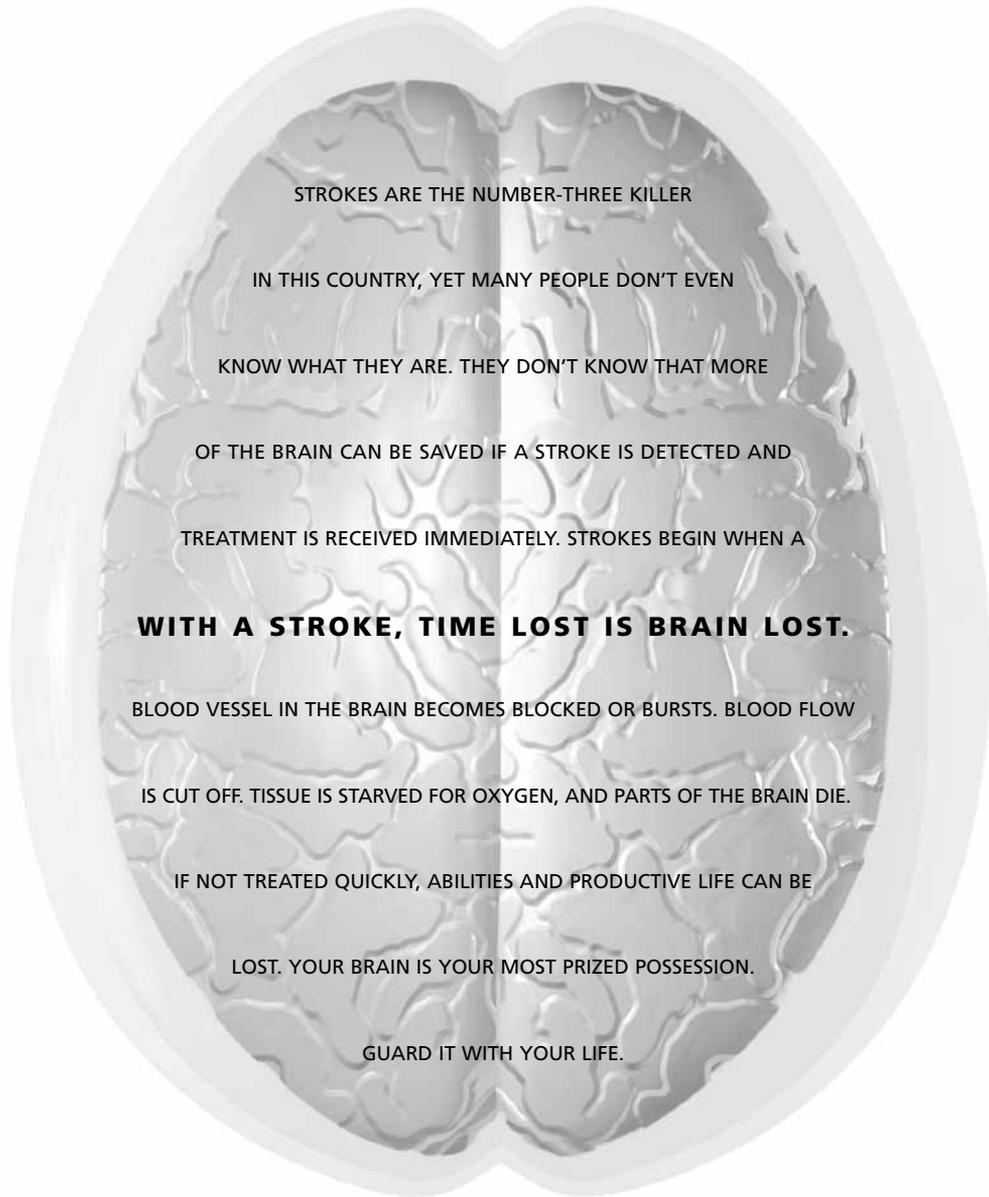


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Philanthropy Profile

The National Organization on Disability's Wounded Warrior Career Demonstration Program

In 2008, the National Organization on Disability (NOD) asked several North Carolina foundations to consider funding a national demonstration project known as the Wounded Warrior Career Demonstration. The project's third demonstration site was to be located at Fort Bragg, North Carolina, with other sites in Texas and Colorado.

The funders immediately saw the value of investing in a project that had the potential to improve the lives of North Carolina soldiers and their families. Fort Bragg is in Cumberland County, near Fayetteville. Built in 1918, it is one of the largest and most active military bases in the eastern United States. Fort Bragg is headquarters to the 82nd Airborne Corps and the Special Operations Command. The base is one of the main garrisons for soldiers deploying to Afghanistan, and it is home to approximately 29,000 people, 4,300 households, and 4,200 families.

After learning more about the project, The Cannon Foundation, the Z. Smith Reynolds Foundation, and The Duke Endowment collaborated to help fund the demonstration for 3 years. The project was launched by NOD in collaboration with the Army to support severely injured soldiers in their transition from active duty and treatment to fulfilling civilian careers, through intensive employment, training, and educational support.

One goal is to develop effective ways to help injured soldiers pursue careers so they can be active, productive members of society. The service model is intensive and high tech, and it includes long-term career counseling and mentoring. In addition to the direct services goal, collection of comprehensive evaluation data and performance of outcomes analysis will provide new knowledge for the Army and its allies, with the hope of sustaining and replicating the project. Findings will also inform public policy and practice.

Progress to date indicates that 68% of participants are in school, training programs, or jobs, compared with approximately 34% of individuals without access to the program. Another significant finding is that 83% of employed participants have stayed in jobs for longer than 12 months. Veterans in the project report a very high level of satisfaction. These statistics, as well as the extreme rate at which the population of Army Wounded Warriors has grown (from 1,500 individuals in 2006 to more than 8,000 at the time of writing), have convinced the Department of Defense that this project needs to be expanded, continued, and opened to Wounded Warrior programs in every military service branch.

The project is now in the second full year of successful operations, and the Fayetteville office of the NOD Wounded Warrior Career Demonstration Project is serving more than 114 veterans and their families. In addition to the original \$450,000 grant, NOD sought and succeeded in raising funds from the Cumberland Community Foundation, and from the McCormick Foundation, through funds from Major League Baseball.

Significant progress has been made on Capitol Hill. To serve more veteran families in North Carolina and elsewhere, NOD has undertaken an effort to expand the program to 12 sites operating for 5 years, as requested by the Department of Defense, and is pursuing both private and public funding. In the past year, NOD met with more than 75 members of Congress and a number of senior officials from the executive branch of the federal government. A total of \$1.6 million in funding for NOD was written into the fiscal year 2011 appropriation bill, but Congress failed to enact this legislation.

Senator Michael Bennet of Colorado introduced legislation last year that would expand and continue the program for 5 years (as described above), as well as open it up to the other military branches. Senator Bennet is preparing to reintroduce this legislation in concert with significant bipartisan support from the

House of Representatives and the Senate. NOD counts the majority of the North Carolina congressional delegation (including Senators Hagan and Burr and Representatives Jones, Price, Coble, Kissell, McIntyre, Myrick, and McHenry) among the supporters of the program. NOD is optimistic that Senator Bennet's legislation will be enacted and provide funding for the program's continuation and significant expansion during 2012-2013.

As a result of strong support from the Department of Defense, and to bridge the 3-year demonstration to a larger program, the project requires additional private funding to extend its planned operation period of 3 years until expansion is enabled through legislation. This funding also ensures that the lessons and outcomes of the demonstration project can be fully realized and that the services to North Carolina veterans will continue, pending expansion. NOD is also exploring a cost-benefit analysis to fully demonstrate the efficacy and efficiency of the model. The significant costs that are borne by the nation when veterans do not receive necessary support are anticipated to be far larger than the costs to provide targeted career counseling and support to those who are most at risk. The North Carolina funders are proud to support the project and help North Carolina soldiers and their families transition to self-sufficiency and success. NCMJ

Mary L. Piepenbring, vice president, The Duke Endowment, Charlotte, North Carolina.

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The Bill of Rights.
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The Affordable Care Act and the Triple Solution for a Healthier America

J. Andrew Hartsfield, Jean Hetherington

GlaxoSmithKline promotes improvement in the health of Americans through the Triple Solution for a Healthier America, which focuses on prevention, intervention, and innovation. The Affordable Care Act includes provisions that embody the Triple Solution and provides unprecedented funding to further develop comparative effectiveness research, health information technology, and quality standards.

The Affordable Care Act (ACA) is ushering in sweeping changes to the US health care system. Although the ACA's primary focus is reforming health insurance and decreasing the number of uninsured citizens in the United States, it includes several provisions affecting the innovative medicines GlaxoSmithKline develops and produces, the health care professionals who prescribe these products, the payers who help ensure access to them, and the patients who use them. GlaxoSmithKline supported the passage of comprehensive health reform legislation because it recognized that too many Americans currently lack access to high-quality, affordable health care coverage and services. While the new law presents the pharmaceutical industry with financial challenges in the form of expanded rebates and new fees, it also offers opportunities to move the US health system in a positive direction.

Among the many significant provisions included in the ACA, 3 seemingly independent topics—comparative effectiveness research (CER), health information technology (HIT), and quality standards—are foundational elements in the law, particularly if they are employed in concert to fuel dramatic patient-centered improvements in the health care system. The ACA also includes important provisions aimed at reducing the human toll and financial cost of diseases through a sharper focus on wellness and prevention.

The Triple Solution

Health care reform is in large part a response to the realization that health care spending in the United States is unsustainable. Often, policymakers aim cost-reduction efforts at seemingly expendable cuts in spending for health care services and treatments, including medicines. The problem with that “supply side” approach is that it does nothing to stem the long-term need for medical services

and treatments that naturally develop with an aging population, rising obesity rates, continued tobacco use, and other unhealthy behaviors that lead to chronic diseases. Health economists attribute almost 30% of the growth in health care costs during 1987-2001 to the rise in obesity alone [1]. By not addressing the need or demand for health care services, costs continue to rise unabated, and health outcomes do not improve. To effectively lower costs, incentives in the health care system need to encourage keeping people well rather than just treating people after they get sick.

For several years, GlaxoSmithKline has, through the Triple Solution for a Healthier America (<http://www.forahealthieramerica.com>), supported policy changes that address rising health care costs by improving health. Specifically, the Triple Solution supports prevention, by promoting health and wellness to prevent disease; intervention, by managing disease to avoid costly complications; and innovation, by developing new treatments for costly health conditions, such as Alzheimer disease and stroke. Several provisions in the ACA address prevention, intervention, and innovation and the linkages these 3 factors have to managing health care costs.

Prevention

Encouraging active lifestyles, healthy choices, smoking cessation, cancer screenings, vaccination, and other preventive measures will go a long way to lowering costs overall. A study by the Milken Institute estimated that modest health improvements and treatment advances by 2023 would lower the number of people with chronic conditions by 40 million and save the economy more than \$1 trillion per year [2]. Prevention-related activities can lower the burden and associated costs of illness. The ACA includes several measures that help shift the US health care system's focus toward wellness and prevention. For example, the ACA requires all health plans to waive out-of-pocket costs for recommended preventive care services. Studies show that people are sensitive to the price of health care and that lowering costs can

Electronically published March 28, 2011.

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N C Med J. 2011;72(1):75-77. ©2011 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2011/72104

encourage more people to seek preventive services such as cancer screenings or regular check-ups [3, 4]. The ACA also requires the development and implementation of a National Prevention Strategy and establishes a Prevention and Public Health Fund to support efforts to realize the goals of the strategy and enhance community-level efforts to encourage healthier lifestyles and promote wellness [5].

Intervention

Even with enhanced prevention efforts, people can become ill. When they do, ensuring that they receive and follow through on appropriate, timely treatment that optimizes their health and minimizes the potential for costlier complications can lower health care costs. The United States has the tools and knowledge to manage many diseases and greatly reduce many of their severe, costly consequences. Too often, however, the tools and knowledge are not used effectively and consistently. Medications, supported by lifestyle changes in the form of physical activity, healthier eating, and avoiding tobacco, are relied on often to address disease symptoms, delay or stop disease progression, and avoid complications.

The ACA establishes several quality-driven, patient-centered initiatives aimed at lowering costs by improving the management of costly diseases. For the Medicare program, in which more than 95% of costs are attributed to treating chronic diseases, better management of illness and promotion of health are critical to managing costs. The ACA includes several new efforts within public programs, particularly Medicare and Medicaid, and across the health care system that work to align the quality of care delivered and the health outcomes achieved with the amount paid for health care services. Specifically, the ACA provides for the development of patient-centered medical homes, which allow primary care professionals to serve as centralized coordinators of care. It establishes accountable care organizations, which allow health care professionals who meet or exceed set quality standards to share in the savings generated for Medicare. The ACA also establishes the Center for Medicare and Medicaid Innovation, which will allow for experiments in quality improvement and cost reduction within Medicare and Medicaid. The Center for Medicare and Medicaid Innovation includes a focus on medication therapy management for people with or at risk for multiple chronic conditions.

Private-sector successes, such as the Asheville Project, demonstrate the potential for these efforts to improve quality while lowering costs. In the Asheville Project, the city of Asheville and local private employers helped employees with chronic conditions, including diabetes and asthma, manage their health. Employees were paired with a pharmacist coach, and employees' costs for medicines and supplies were waived. As employee health improved, annual health care costs dropped. For instance, the annual average cost per patient for the treatment of diabetes decreased by more

than 34% (from \$7,082 to \$4,651) between baseline and year 5 of the project, despite increased spending per patient on prescription medicines [6].

Innovation

Innovation is paramount to GlaxoSmithKline's mission to enable people to do more, feel better, and live longer through the discovery and development of breakthrough medicines and vaccines. Changes in policy that affect GlaxoSmithKline's business affect its ability to innovate. Because sales of GlaxoSmithKline's medicines fund its research and development, new fees and changes in payment for the company's products affect funding for its research projects. Development of new medicines takes, on average, 12-15 years, and each new medicine that makes it to market requires a substantial investment of approximately \$1 billion. In 2009, GlaxoSmithKline invested \$6.9 billion—15.7% of its sales—in the research and development of new products. Its pipeline includes potential medicines that address some of the leading drivers of health care costs—Alzheimer disease, diabetes, depression, heart disease, and cancer—and hold the promise of better health.

Although innovation was not a primary focus of the ACA, it does include 2 policy changes that support medical innovation. Specifically, the ACA establishes a pathway for the development and approval of biosimilar products that allows for 12 years of data exclusivity for the innovator product. This balance encourages innovation in biologic medicines while addressing the need for increased competition to help lower costs. The ACA also establishes the Cures Acceleration Network within the National Institutes of Health. Once funded, the Cures Acceleration Network will award grants to universities, foundations, and other public and private researchers to pursue promising research in areas of high unmet needs that could be translated into new medical technologies. Answering unmet medical needs through medical innovation is essential to addressing health care costs and patient needs in the long-term.

There are many diseases for which few treatment options exist. For example, it not known how to prevent Alzheimer disease, and available treatments for this condition are limited. Advances in prevention and treatment would mean a better life for individuals at risk for Alzheimer disease and their families. In fact, a breakthrough treatment that delays the onset of Alzheimer disease by 5 years would mean 1.6 million fewer people affected and savings of \$50 billion—all within 5 years after the treatment becomes available [7].

Medical research and innovation are transformative and hold tremendous promise for addressing medical challenges for which better answers are desperately needed. GlaxoSmithKline and other research-based biopharmaceutical companies have thousands of research programs underway with the potential to improve health and lower costs. Realizing this promise requires policies that reflect a prudent balance between managing costs and encouraging public

and private investment to fuel medical innovation in North Carolina, across the United States, and around the world.

The Future of Health Care

Achieving the promise of the Triple Solution depends on the ability to align incentives in the health care system to reward the value of care rather than the volume of care. The ACA supports the development and use of 3 foundational elements that hold tremendous promise in achieving an outcomes-based, coordinated, and connected health care system: HIT, CER, and quality standards. Considered independently, HIT, CER, and quality standards initiatives could move the US health care system in a positive direction, but when considered together, the magnitude of the possible benefits increases substantially.

In concert, HIT, CER, and quality standards allow and encourage access to real-time information at the point of care to inform treatment decisions. HIT, specifically the use of electronic medical records with decision-support technology, is needed to enable these decisions. CER can provide data to tailor treatment to achieve the best outcomes for the individual patient. Quality standards are necessary to measure and evaluate the results of treatment, inform future decisions about treatment, and reward improvements in health care quality.

The ACA provides unprecedented funding to further develop HIT, CER, and quality standards over the next several years. Thoughtful implementation of these elements could help shift the US health care system to one that rewards for quality of care, but that positive direction is not guaranteed. These powerful tools could also be used to cut costs in ways that place less emphasis on health outcomes and value. For example, an HIT infrastructure that uses information gleaned from CER to require medication substitutions without regard to the needs of individual patients would be a setback for patients. On the other hand, an HIT infrastructure that uses the latest CER information and

clinical practice guidelines to help clinicians and patients make consistent, informed treatment decisions that reflect treatment advances and individual patient needs would be a step forward for patients and improve health care quality. The US health care system faces many cost and health challenges. Having a system equipped with the technology, information, and evaluative tools to prevent the onset of illness, intervene effectively to improve health and avoid disease progression, and innovate to address unmet medical needs will go a long way to address these challenges. **NCMJ**

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Acknowledgments

Candace DeMatteis (managing director, Policy Breakthroughs) and Emily Beamer (manager, Public Policy Unit, GlaxoSmithKline) also contributed to this article.

Potential conflicts of interest. J.A.H. and J.H. have no relevant conflicts of interest.

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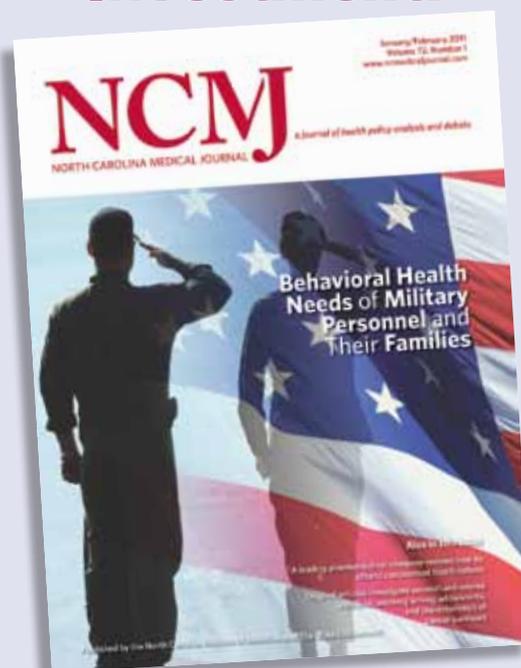
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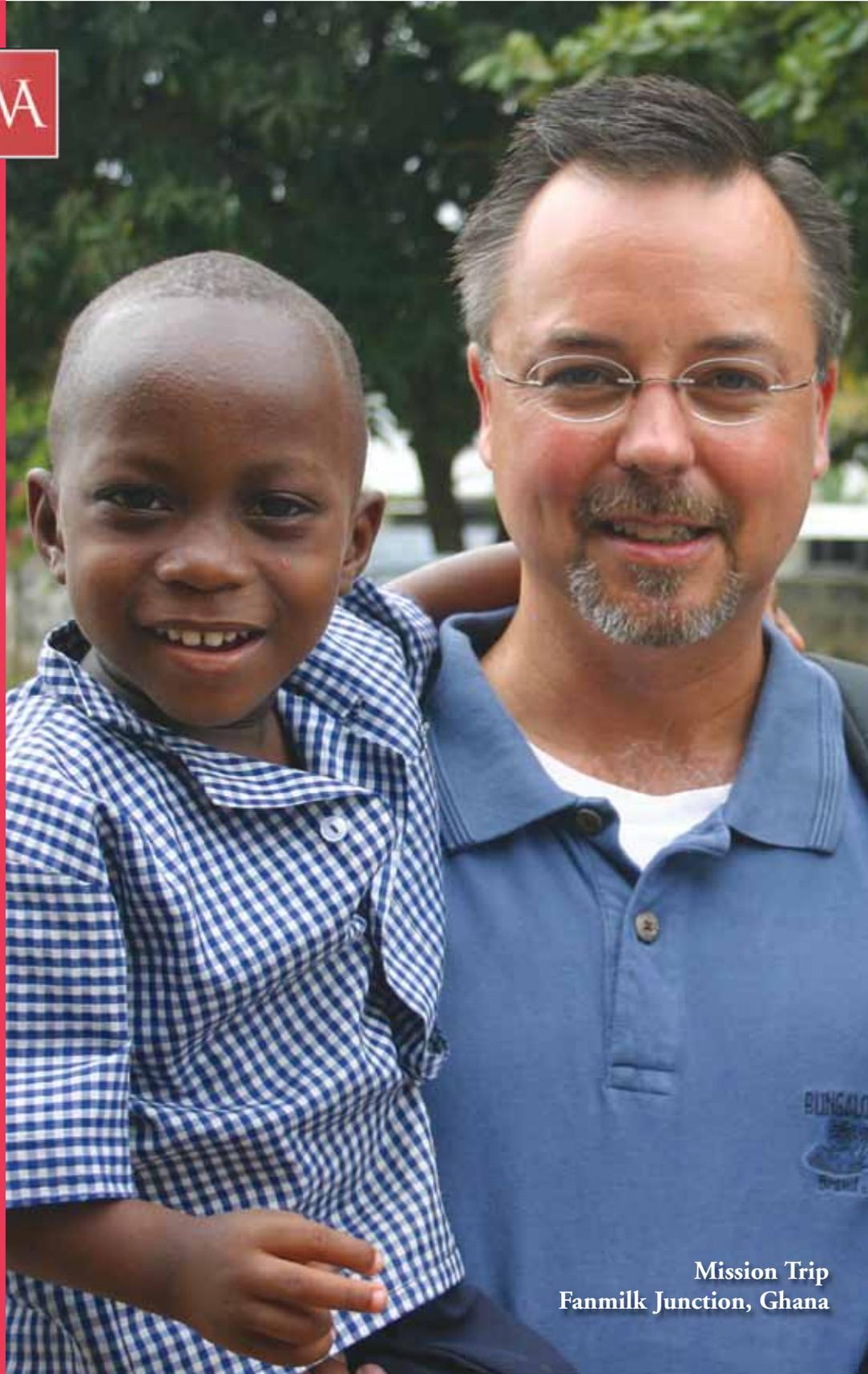
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