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“The Effects of Military Deployment on Family Health”

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The Military Child: Deployment Effects on Health



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Disclaimer

- The views expressed are my own and do not represent those of the U.S. Navy or the Department of Defense

Deployment is a Unique Military Child Experience

- Frequent separation from a parent
- Risk of parent injury or death
- Poorly understood by non-military peers



Deployments during OEF/OIF

- Operation Iraqi Freedom (OIF) and Enduring Freedom (OEF) differ from recent conflicts



New Stressors in OEF/OIF

- **6 times more casualties than Gulf War 1**
 - Improved medical care for wounded warriors
 - New ‘signature’ injury – Traumatic Brain Injury
- **Frequent recurring deployments**
 - Two simultaneous wars
 - No draft to augment during wartime
- **All volunteer fighting force**
 - Indirectly have led to more spouses and children

Effects on Soldiers

- Absence at events
- Disability
- PTSD
- Depression
- Substance Abuse
- Suicide



Vastering, 2006

Deployment Effect on Spouses

- Marital dissatisfaction
- Depression
- Unemployment
- Declining Mental Health



Deployment & Mental Health of Spouses

- For every 1000 women, deployment accounted for
 - 27 to 39 excess visits for depression
 - 16 to 19 excess visits for anxiety
 - 12 to 24 excess visits for sleep disorders
 - 12 to 16 excess visits for stress disorders

Mansfield , 2009

Effects on Children



Stranger Anxiety
Tantrums
Eating Habits

Mood Changes
School Issues
Somatization

Anger
Acting Out
Apathy

World War II Studies



Old Navy Studies on Children

- “Routine” deployments common in the Navy
- Increased psychiatric hospitalization in children of Navy parents
- More “needy” families during Navy deployments



Jensen and others

Surveys of Parents about their Children and Deployment

- 25% said kids responded poorly
- 1/3 reported academic problems
- 15% clinically diagnosable depression in children of military casualties

Toddler Behavior Symptoms

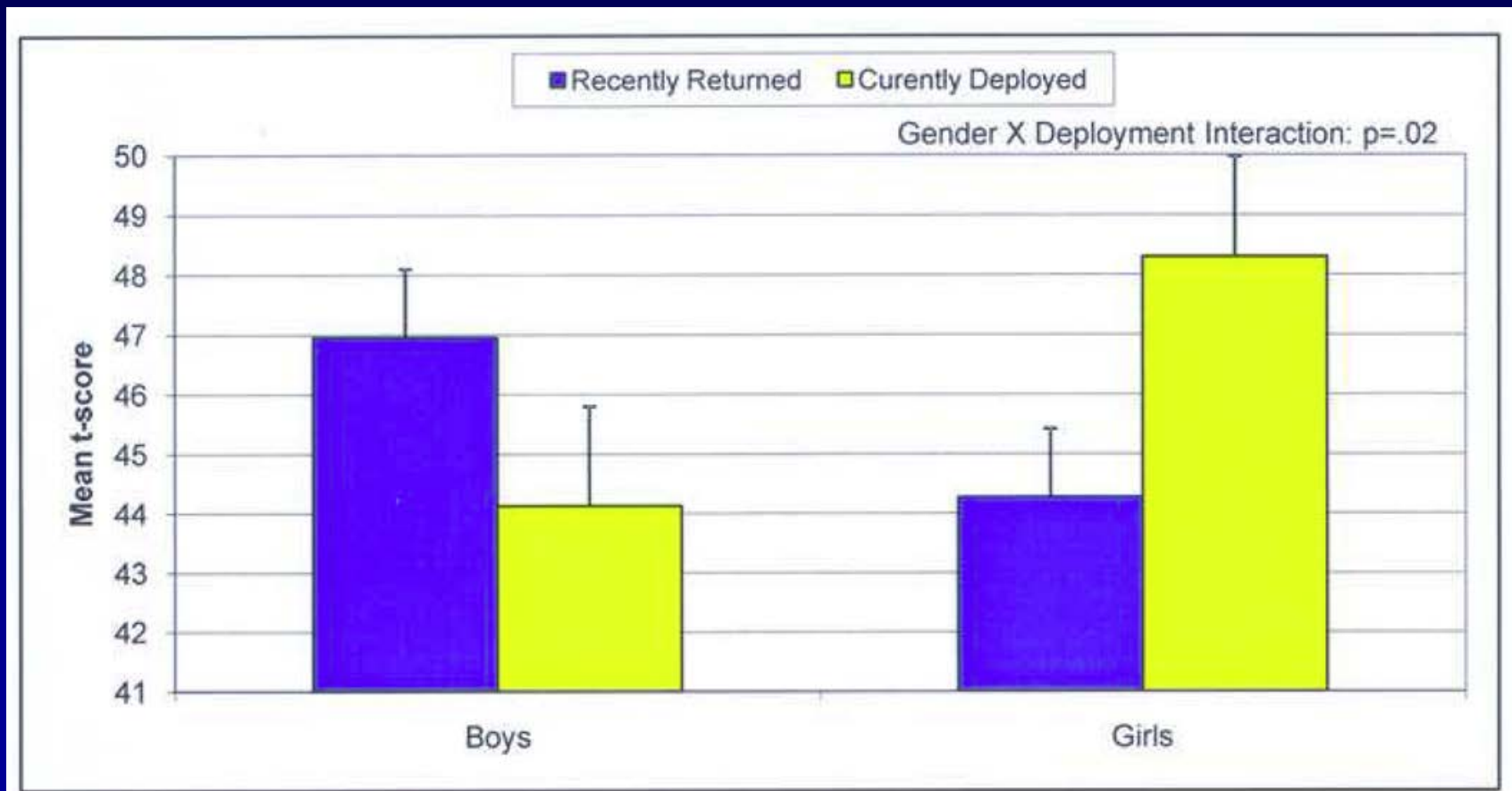
Table 4. Unadjusted Rates of Clinically Significant Scores on CBCL and TRF for Children Aged 3 Years or Older

Outcome	Children, No. (%)		<i>P</i> Value ^a
	With Deployed Parent (n=31)	Without Deployed Parent (n=65)	
Parent CBCL score			
Internalizing	6 (19.4)	1 (1.5)	.004
Externalizing	6 (19.4)	4 (6.2)	.07
Total	5 (16.1)	3 (4.6)	.10
TRF score			
Internalizing	5 (16.1)	2 (3.1)	.03
Externalizing	7 (22.6)	6 (9.2)	.10
Total	6 (19.4)	6 (9.2)	.20

Abbreviations: CBCL, Child Behavior Checklist; TRF, CBCL-Teacher Report Form.

^a Fisher exact test.

School-Age Behavior Symptoms: Externalizing Behaviors



Teenage Behavior Symptoms

Odd Ratio of Self-Reported Symptoms in Adolescent Boys of Deployed Military Members: 2008 Washington State Healthy Youth Survey

Suicidal Thoughts	Low Quality of Life	Depression
1.64 [1.13-2.38]	2.74 [1.79-4.20]	1.50 [1.02-2.20]

Increased Child Maltreatment

Table 2. Child Maltreatment Incidents During Periods of Deployment and Nondeployment^a

	During Deployment		During Nondeployment		Adjusted RR (95% CI) ^b
	No. (%) of Incidents (n = 942)	No. of Child Days at Risk (n = 713 626)	No. (%) of Incidents (n = 2392)	No. of Child Days at Risk (n = 2.6 million)	
Severity of maltreatment					
Moderate or severe	638 (67.7)	447 647	1421 (59.4)	1.6 million	1.61 (1.45-1.77)
Mild	304 (32.3)	286 005	971 (40.6)	1.1 million	1.15 (0.99-1.30)
Type of maltreatment					
Neglect	761 (80.8)	470 657	1407 (58.8)	1.6 million	1.95 (1.77-2.14)
Physical abuse	97 (10.3)	80 033	451 (18.9)	318 326	0.76 (0.58-0.93)
Emotional abuse	28 (3.0)	125 565	340 (14.2)	475 581	0.31 (0.19-0.43)
Sexual abuse	18 (1.9)	19 416	60 (2.5)	70 765	1.07 (0.47-1.66)
>1 type	38 (4.0)	39 365	134 (5.6)	146 281	1.06 (0.66-1.46)

Clinical Health Effects

- Prior studies looked at parent/teacher reports
- Differ from prior studies in that the outcome is by definition “significant”

Study of Clinical Health Issues

- 900,000 children aged 0-8 years
- 8 million outpatient visits over 2 years
- Linked to parents' deployment dates



Gorman, Eide & Hisle-Gorman, 2008-2011

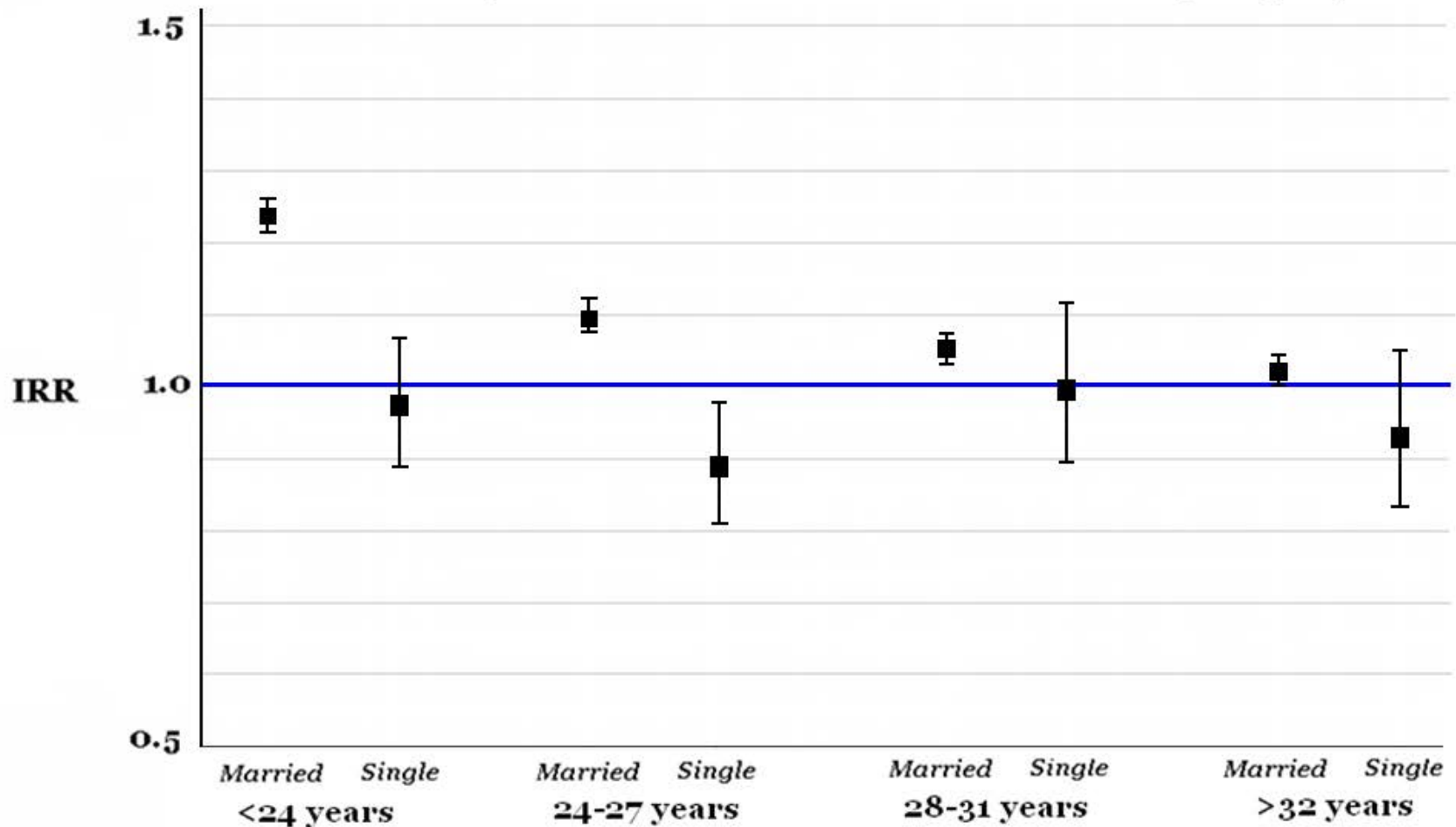
Well Child Visits < 2 year Olds

Unadjusted Incidence Rate Ratio of Outpatient Pediatric Visits and Well-Child Visits by Parental Deployment Stratified by Parent Gender

	Outpatient Visits	Well-Child Visits
All Parents	1.07 [1.06-1.07] p<0.001	1.08 [1.07-1.09] p<0.001
Male Parent	1.08 [1.07-1.10] p<0.001	1.09 [1.08-1.10] p<0.001
Female Parent	0.86 [0.83-0.91] p<0.001	0.89 [0.86-0.93] p<0.001

IRRs determined by longitudinal Poisson regression

Adjusted Incidence Rate Ratio of Well-Child Visits of Children Less Than 2 years Old Based on Parent Military Deployment

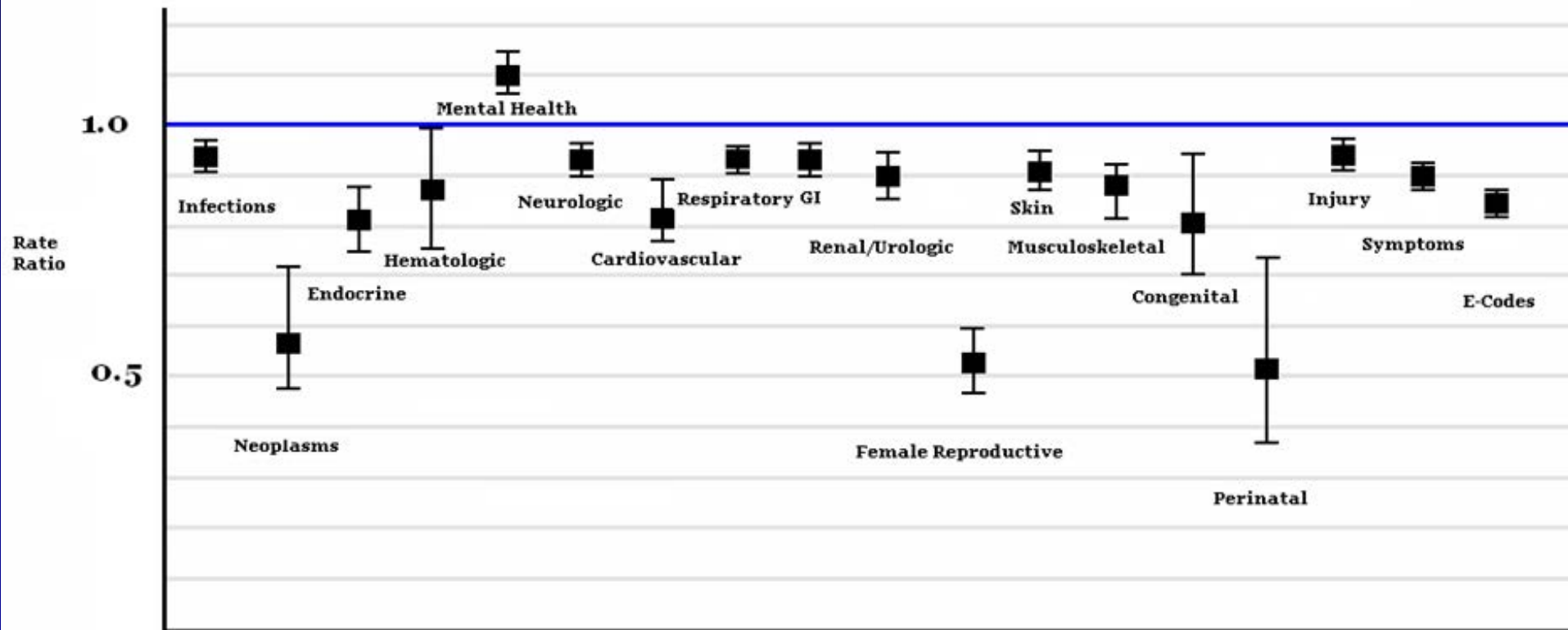


IRR=Incidence rate ratio. Point estimates and 95% confidence intervals for effect of deployment vs. non-deployment derived from Poisson and negative binomial analysis adjusted for birth-order of child and gender . Stratified by age and marital status of military parent.

Characteristics of 642,397 Children and their 442,722 Military Parents

<u>Parameter (mean ± SD or %)</u>	All Patients
Age (Yrs)	5.0 ± 1.9
Female (%)	49 %
Race (%)	
Caucasian	68
African-American	22
Other	10
Parent deployed during time period (%)	32 %
Age of Parent (median; IQR)	34 [28-39]
Male military parent (%)	90
Married parents (%)	90.5
IQR=interquartile range. E1= first and lowest enlisted rank; WO1=first and lowest warrant officer rank; O1=first and lowest officer rank	

Unadjusted Rate Ratios of Outpatient Visits of 3-8 Year Old Children of Military Parents Based on Parental Deployment, by Clinical Category



Point estimates and 95% confidence intervals depicted for effect of deployment vs. non-deployment derived from unadjusted negative binominal regression using longitudinal data analysis. Clinical categories determined by primary ICD9 codes classified by the Clinical Classification System of the Agency for Healthcare Research and Quality.

Leading Mental and Behavioral Health Diagnoses of 642,397 Children of Military Parents during FY 2006 & 2007

Diagnosis	Percentage of All Mental Health Diagnoses
Attention Deficit Disorder	30.1
Adjustment Disorders	14.6
Autistic Disorders	12.1
Speech & Language Disorders	11.0
Mood Disorder	3.6
Anxiety Disorders	3.3
Oppositional Defiant Disorder	2.8
Conduct Disturbance NOS	2.5
Hyperkinetic Syndrome NOS	2.3
Developmental Coordination Disorder	2.2
Developmental Delay NOS	2.0
Post-traumatic stress disorder	1.2
Enuresis	0.7
Separation Anxiety	0.7

Diagnoses classified as CCS5 by the Clinical Classification System of the AHRQ. NOS= Not otherwise specified.

Unadjusted Rate Ratios of Pediatric, Anxiety, Behavioral, and Stress Disorders by Parent Deployment in 642,397 Children Aged 3-8 Years

Diagnoses	Visits		RR	p-value
	Parent at Home (125,219 person-years)	Parent Deployed (923,962 person-years)		
Anxiety Disorders	3,107	20,454	1.12 [1.08-1.16]	< 0.001
Pediatric Behavioral Disorders	15,568	35,052	1.17 [1.14-1.21]	< 0.001
Stress Disorders	13,892	81,904	1.25 [1.23-1.27]	< 0.001

RR=rate Ratio. Diagnoses categorized by primary ICD-9 code and classification system of Mansfield et al.

Mental & Behavioral Complaints Associated with Deployment Increase with Age and Vary by Parent Gender

Adjusted Incidence Rate Ratios of Mental and Behavioral Health Visits of 642,397 Children Aged 3-8 Years During Times When a Parent is Deployed Compared to Time When the Parent is Home

		Male Military Parent			Female Military Parent		
		IRR	95% CI	p-value	IRR	95% CI	p-value
Married Parents							
Age of Child	3 years	1.41	1.23, 1.61	< 0.001	0.78	0.62, 0.98	0.03
	4 years	2.24	1.98, 2.53	< 0.001	1.24	0.99, 1.54	0.06
	5 years	3.55	3.15, 4.01	< 0.001	1.96	1.58, 2.45	< 0.001
	6 years	5.64	4.99, 6.39	< 0.001	3.12	2.50, 3.90	< 0.001
	7 years	8.97	7.85, 10.2	< 0.001	4.96	3.95, 6.22	< 0.001
	8 years	14.2	12.3, 16.4	< 0.001	7.87	6.22, 9.96	< 0.001

*Point estimates and confidence intervals determined by negative binomial regression clustered by child.
IRR=Incidence rate Ratio. CI=confidence interval*

Gorman, 2010

Why the Differences?

HIGHER

Deployment Related Visits

**Married Parents'
Children**

**Children at home with
Mothers**

LESS HIGH

Deployment Related Visits

**Single Parents'
Children**

**Children at home
with Fathers**

*The **ability to recognize** changes in a child's behavior may explain the observed gender and marital status differences in children seeking medical attention for mental health/behavior issues*

Kids with Chronic Conditions

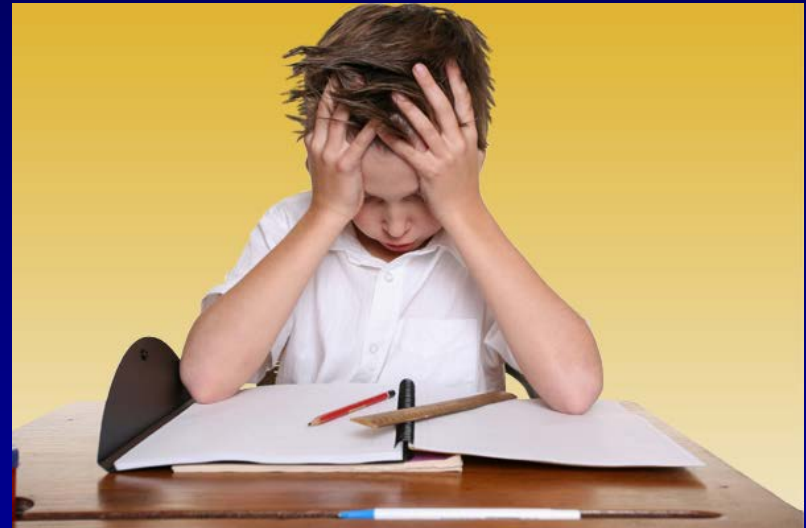
- 53,000 children with asthma, kidney disease, or inflammatory bowel disease
- Major drop in outpatient visits for all causes when a parent deploys
 - 0.6 visits per year vs. 3.1 visits per year
 - 85% decrease in adjusted analyses



Gorman, 2011

ADHD & Deployment

- ADHD was the most common behavioral disorder in this population
- **18%** increased relative rate of visits due to deployment
- Children who were on medication for ADHD had increased visit rates than those not on medication



Gorman, 2011

ADHD Medications & Deployment

- Deployment had no effect on
 - 1st time prescriptions of ADHD medications
 - Dose changes
 - Additional medication prescription





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of the Health Sciences