



BIRTH DEFECT



RES
ARCH FOR CHILDREN



National Birth Defect Registry

- Based on concept of “alert practitioner”
- Identifies patterns of birth defects with the same or similar exposures
- Collects data on maternal/paternal pre-conceptual and prenatal exposures
- Cases dually identified by individual symptoms and overall syndrome or category name
- Designed to raise hypotheses

Teratogens Identified by Alert Practitioners

- Thalidomide
- Rubella
- Dilantin
- DES
- Alcohol
- Methyl Mercury
- Radiation

Scientific Advisory Board

- Peter Kahn, Ph.D.
Rutgers University
- James Murphy, Ph.D.
University of Colorado
- Theo Colborn, Ph.D.
World Wildlife Fund
- Stuart Newman, Ph.D.
New York Medical College
- Shanna Swan, Ph.D.
California Department of
Health Services
- Maureen Paul, M.D.
University of Massachusetts
- Wayland Swain, Ph.D.
Eco Logic Company
- Janette Sherman, M.D.
Wayne State University

Registry Projects

- Bendectin
- Agent Orange
- Gulf War
- Community based
 - Dickson, TN - oral cleft cluster

Gulf War Exposures

- DEET
- Permethrin
- Pyridostigmine
- Pentachlorophenol
- Benzocaine sulfur
- Aluminum phosphide
- Baygon
- Boric Acid
- Sevin
- Amidinohydrazone
- Diazinon
- Dursban
- Dichlorvos
- Ficam
- Carbaryl
- Lindane
- Malathion
- Oil Well Fires
- Leaded fuels
- Depleted Uranium
- Solvents
- Decontam agent
- Malaria Pills
- Campfires
- Leishmaniasis
- Chemical warfare agents
- CARC
- Vaccinations
- D-phenothrin
- Allethrin
- Paint
- Others

Disability Frequency

• Resp. Infect.	117	• VSD	35
• Ear Infect.	92	• Drug Reaction	34
• Motor Delay	86	• Hypotonia	34
• Colic as Baby	62	• Seizures	33
• Speech	62	• Acne-like Rash	33
• Allergies	57	• Thrush	32
• Jaundice	56	• Mood Swings	32
• Reflux	52	• Pneumonia	29
• Heart Murmur	51	• Birth Mark	28
• High Fevers	46	• Stomach problems	28
• Ext. Ears	40	• Sleep disorder	26
• Asthma	38	• Walks on tiptoes	26
• Food Sens.	38	• Goldenhar	26
• Eczema	35	• Up. Limb Reduction	25

Male-Mediated Birth Defects

Evidence from Experimental and Epidemiological Studies

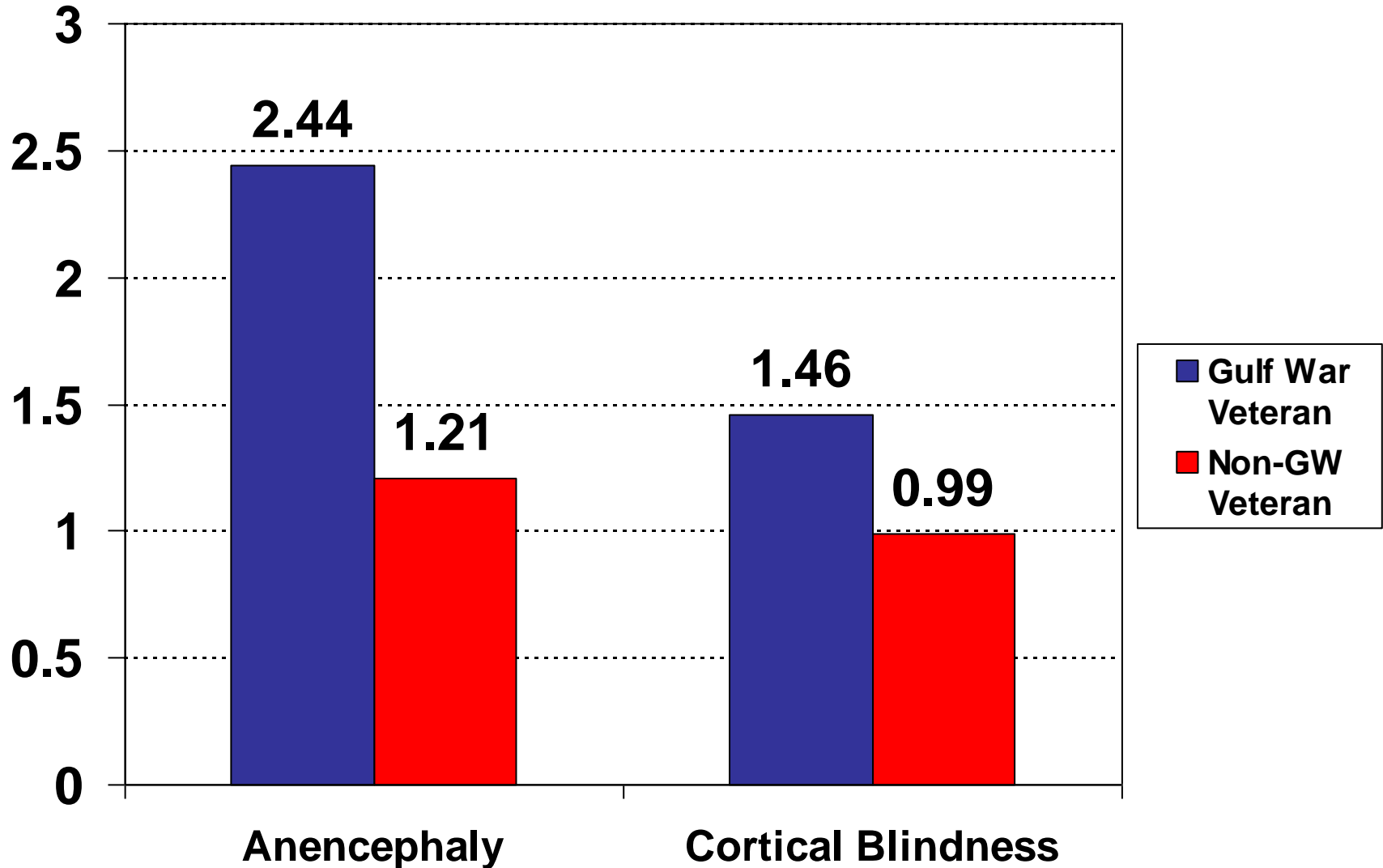
- Toluene
- Benzene
- Lead/mercury
- Trichloroethane
- Solvents
- Dyes
- Cigarette smoke/alcohol
- Drugs

Possible Outcomes

- Congenital malformations
- Spontaneous abortions
- Low birth weight
- Childhood cancers
- Developmental, neurobehavioral, neuroendocrine, neurochemical abnormalities

Birth Defect Research for Children, Inc.

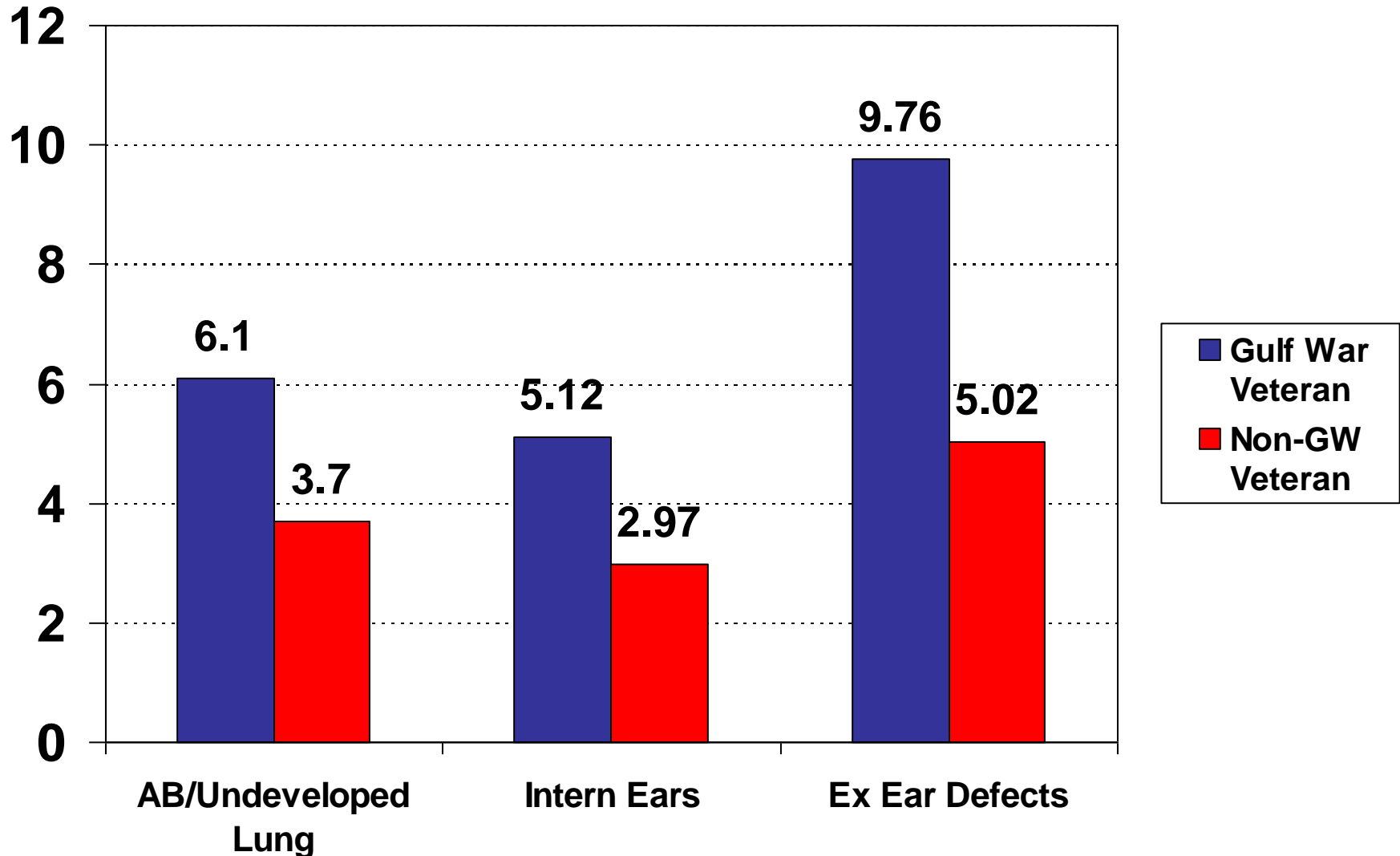
National Birth Defect Registry – Children of GW Vets/ Non-GW Vets



N=3137 GW VETERAN: 410 NON-GW VET: 2727 – CNS Comp Cases per 100

Birth Defect Research for Children, Inc.

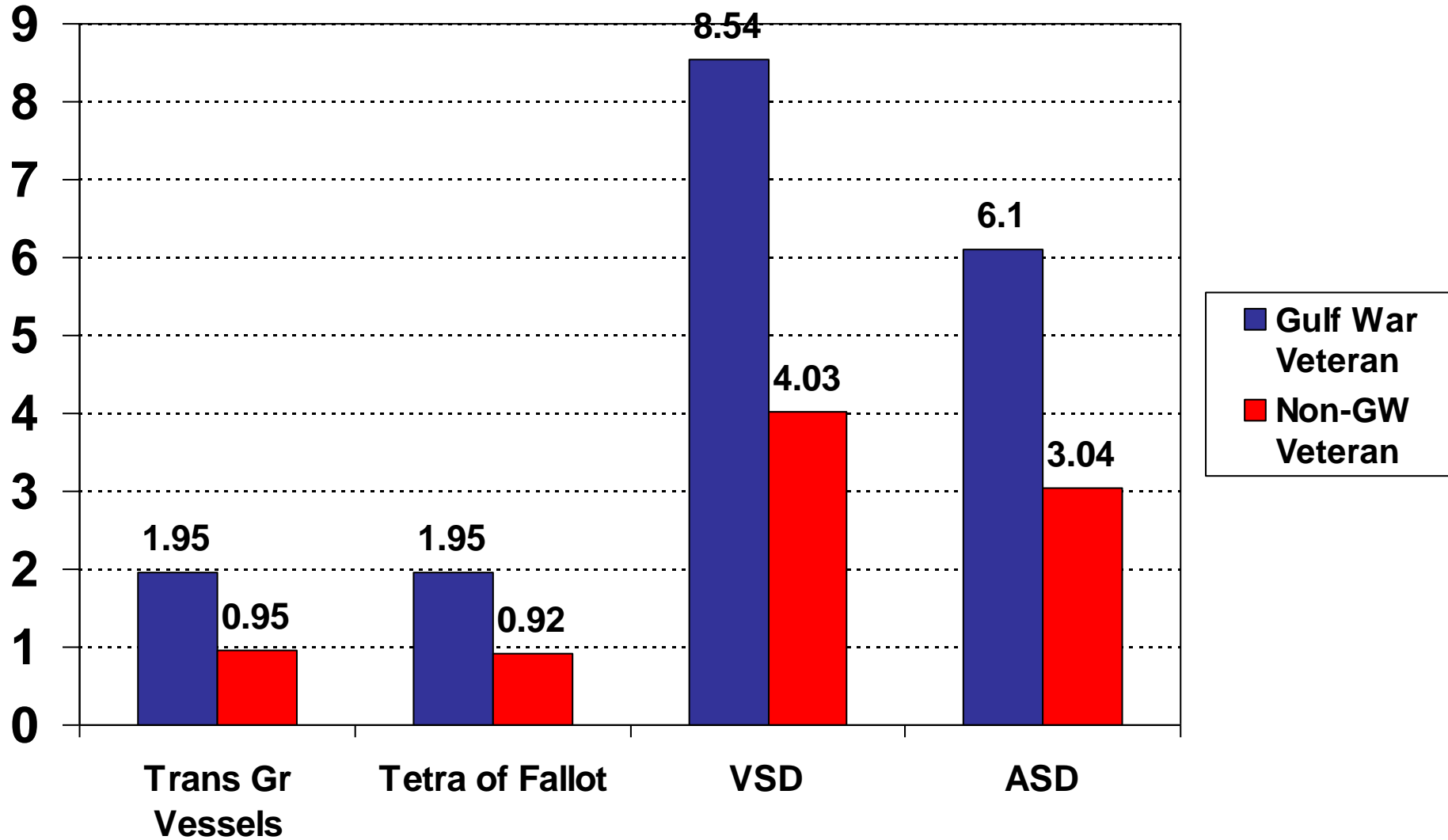
National Birth Defect Registry – Children of GW Vets/ Non-GW Vets



N=3137 GW VETERAN: 410 NON-GW VET: 2727 – Lung/Ear Comp Cases per 100

Birth Defect Research for Children, Inc.

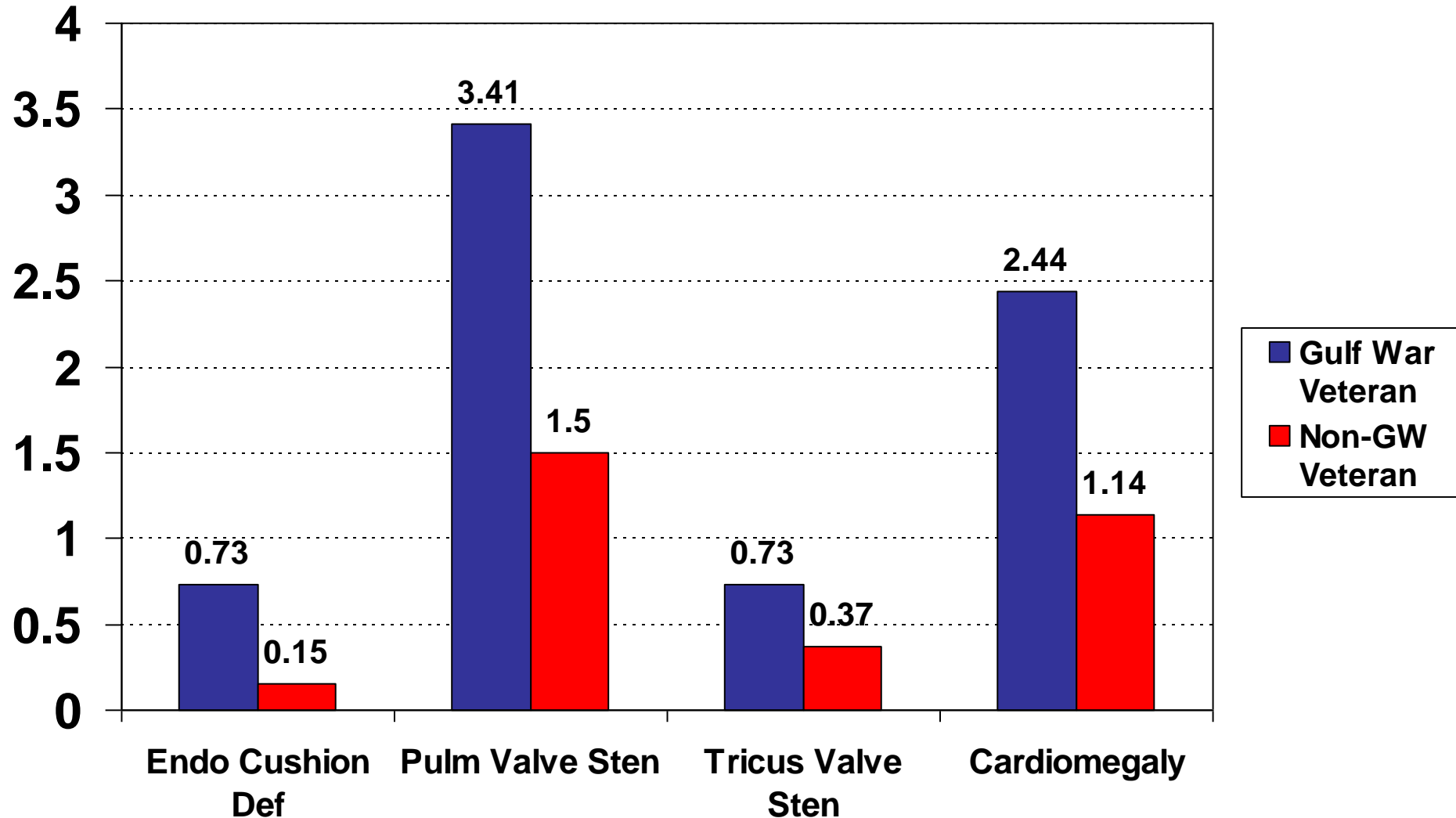
National Birth Defect Registry – Children of GW Vets/ Non-GW Vets



N=3137 GW VETERAN: 410 NON-GW VET: 2727 – Heart Defects Comp Cases per 100

Birth Defect Research for Children, Inc.

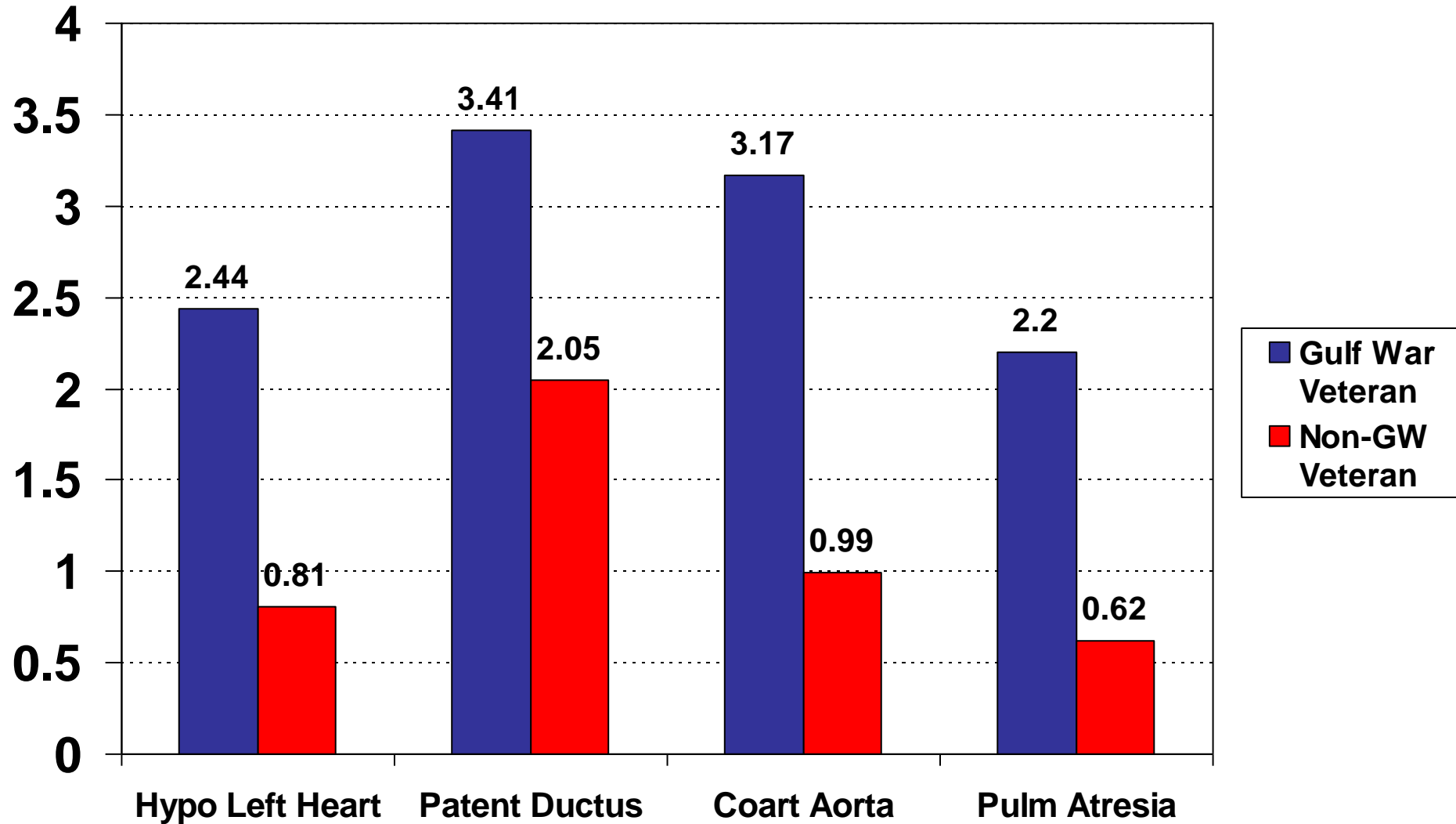
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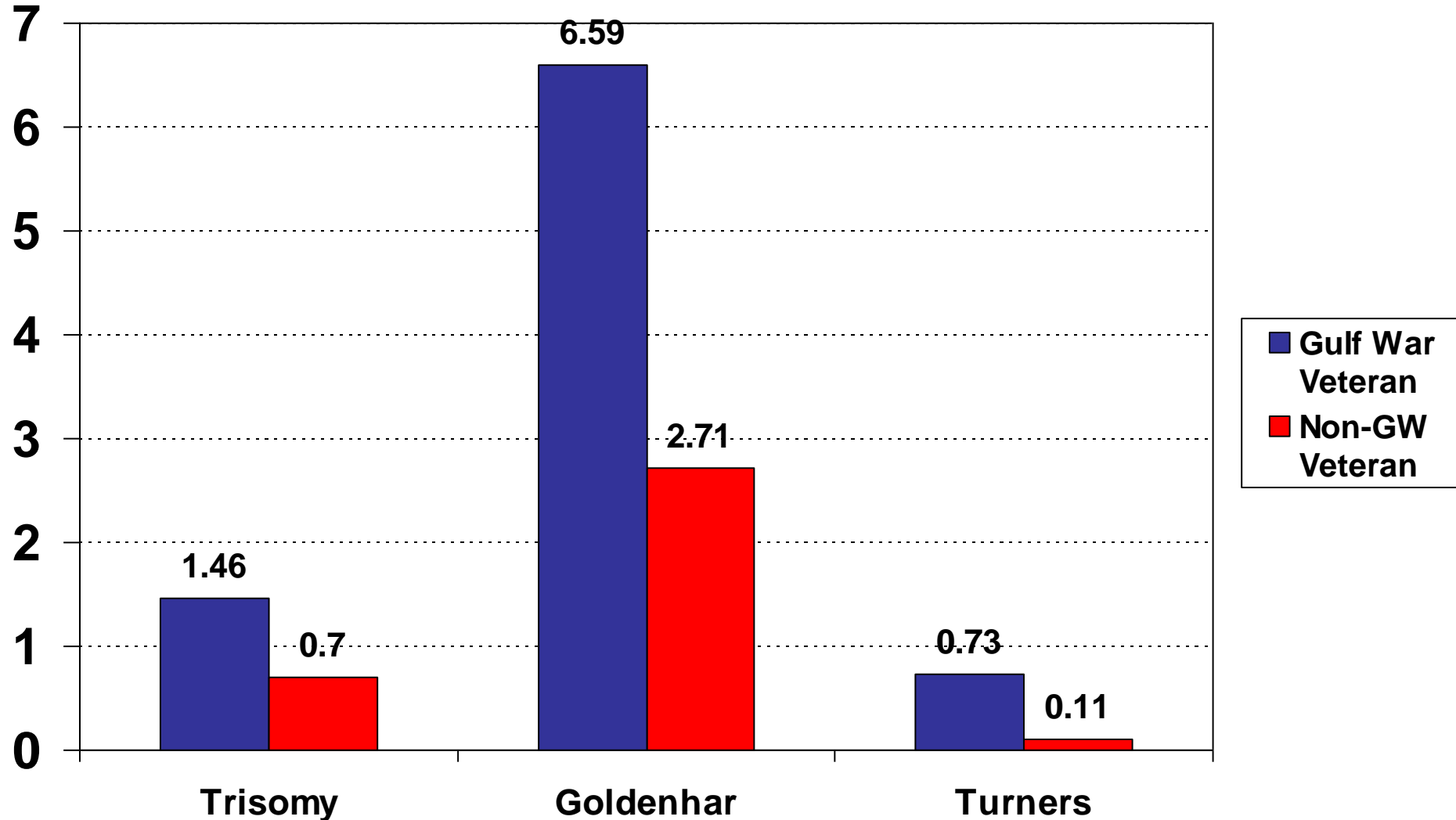
National Birth Defect Registry – Children of GW Vets/ Non-GW Vets



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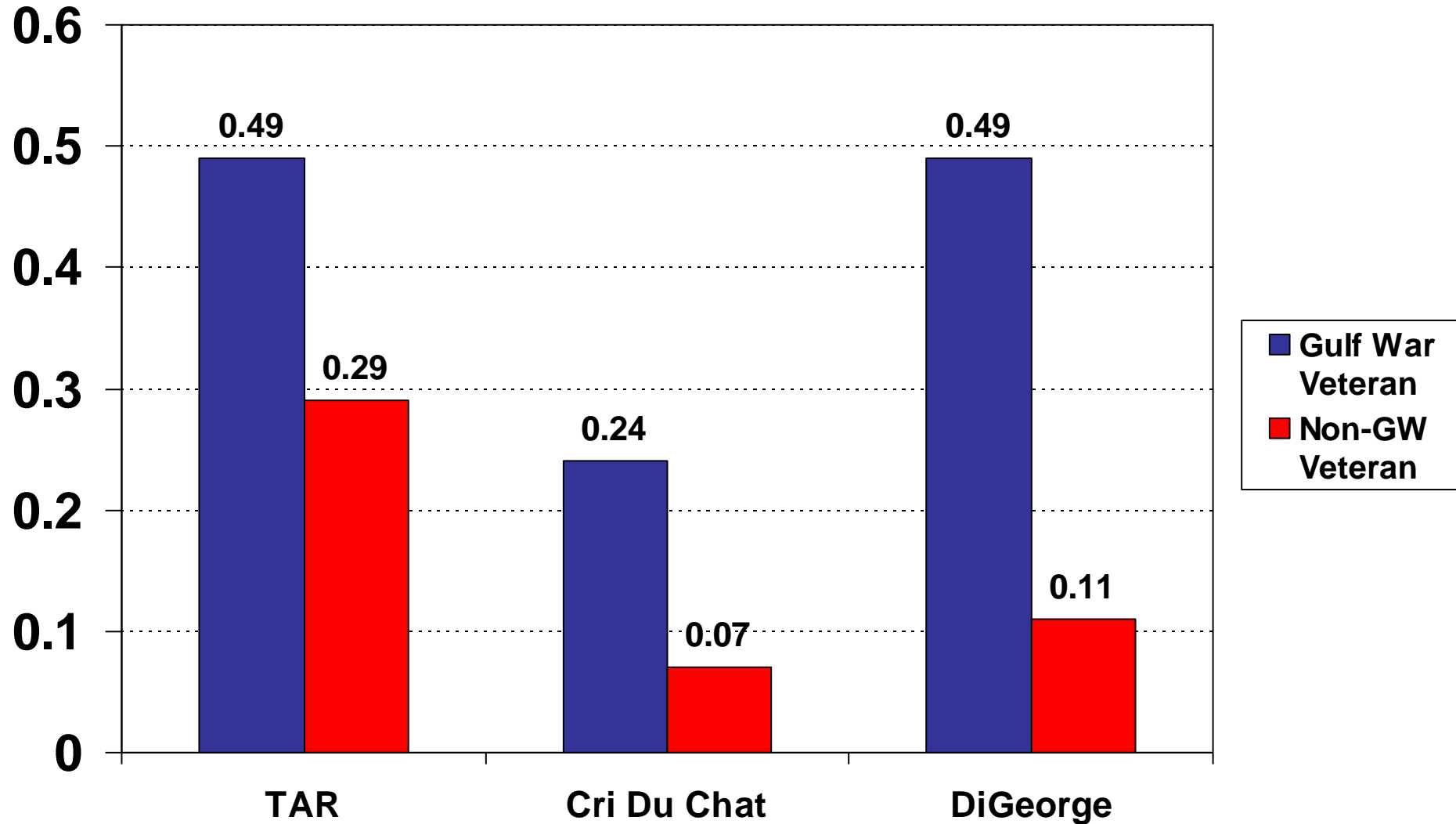
National Birth Defect Registry – Children of GW Vets/ Non-GW Vets



N=3137 GW VETERAN: 410 NON-GW VET: 2727 – Syndromes Comp Cases per 100

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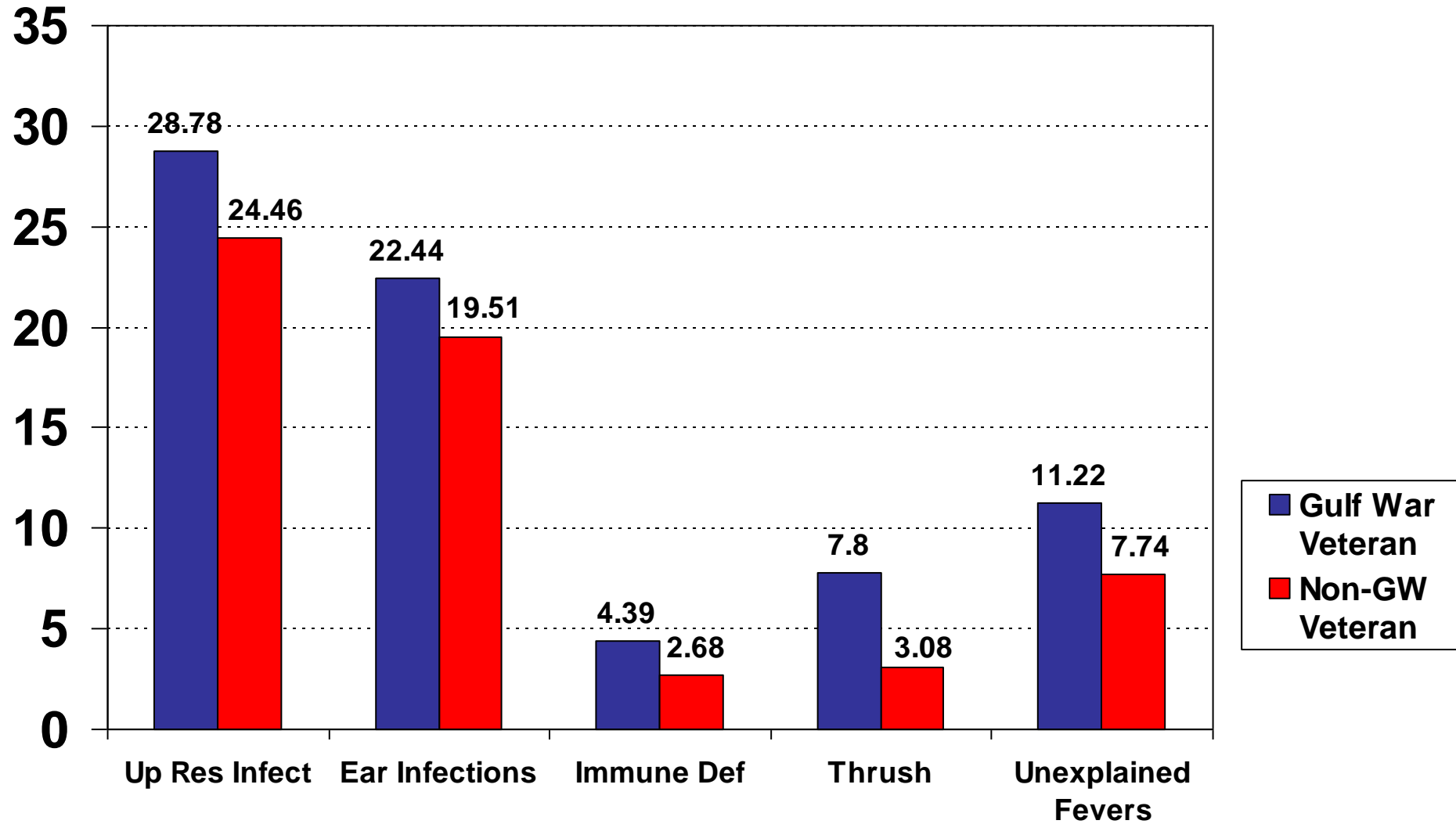
National Birth Defect Registry – Children of GW Vets/ Non-GW Vets



N=3137 GW VETERAN: 410 NON-GW VET: 2727 – Syndromes Comp Cases per 100

Birth Defect Research for Children, Inc.

National Birth Defect Registry – Children of GW Vets/ Non-GW Vets



N=3137 GW VETERAN: 410 NON-GW VET: 2727 – Immune Comp Cases per 100

Goldenhar Syndrome

- Incidence ranges from 1/14,699 to 1/45,000 births
- Associated with teratogens
 - Thalidomide
 - Primidone
 - Accutane
- Some cases familial
- Others “phenocopies”
- Aranetta study found tripling of Goldenhar in GW children born in military hospitals

Goldenhar Case Study

- 24 Goldenhar – fathers deployed
- 7 Goldenhar criteria fathers deployed
- 2 Goldenhar fathers in Gulf after war
- 33 Goldenhar associated with Gulf service

Goldenhar Case Study

7 Goldenhar fathers non-deployed

23344	Steel worker
22970	Shots/solvents
26815	Cont gear
26896	Shots/Naptha
30868	Shots/lead fuel
45947	mechanic
48695	Cont gear

Goldenhar Case Rates

- 16 D Goldenhar DOB prior 10/1/93
- 3 ND Goldenhar DOB prior 10/1/93
- 56,782 births to deployed vets*
- 68,908 births to non-deployed vets*

Crude rates for Goldenhar:

Deployed – 28 per 100,000

Non-deployed – 4 per 100,000

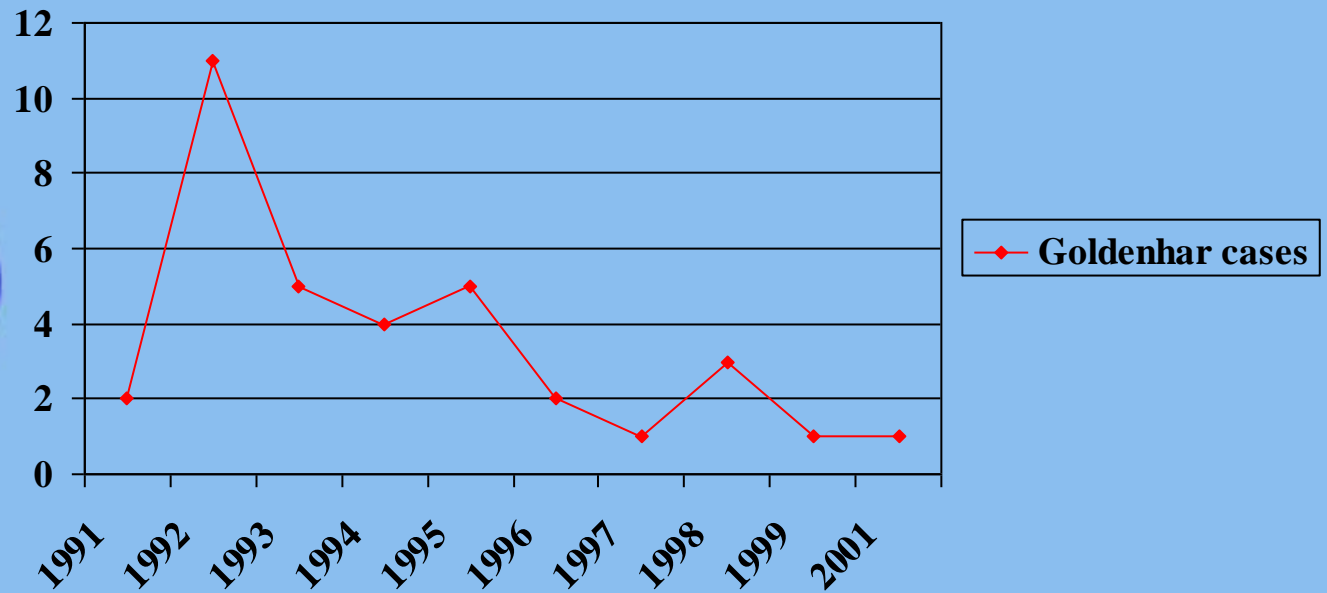
*Araneta, Teratology, 1997.

Goldenhar Details

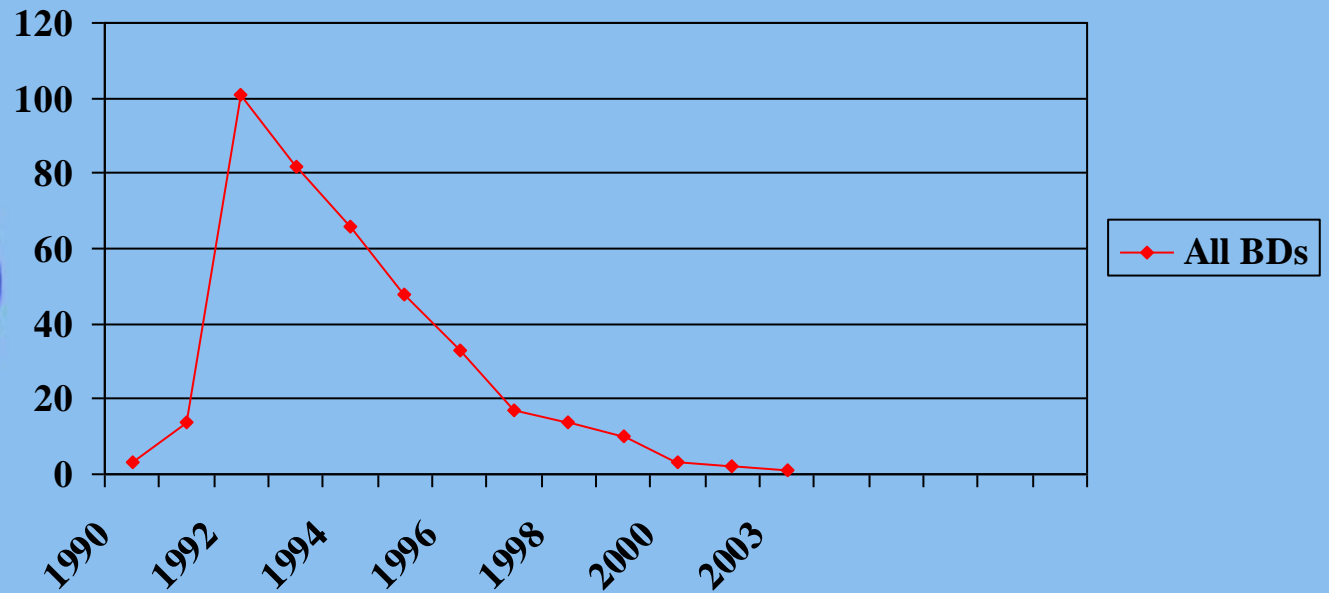
- Medical records confirmation 14/19
- 9/16 healthy children before GW
- 2/16 healthy children after birth of child with Goldenhar Syndrome
- 16/16 Goldenhar first born after GW

Goldenhar Case Study

DOB Distribution



All GW Birth Defects DOB Distribution



Published Studies

- 1997 ***Teratology*** – Aranetta - tripling of Goldenhar Syndrome in GWV infants born in military hospitals
- 2001 ***Ann of Epidemiology*** – Kang – increased reporting of birth defects significantly associated with military service in the Gulf War
- 2003 ***Birth Defects Research*** – Aranetta – higher prevalence of tricuspid valve insufficiency, aortic valve stenosis and renal agenesis in infants conceived postwar by GWV fathers; hypospadias in boys born to GWV mothers
- 2004 ***Internat. J. of Epidemiology*** – Doyle – increased risk of miscarriage, malformations of genital system, urinary system, digestive system, musculo-skeletal system and non-chromosome anomalies in children of GWV fathers

National Birth Defect Registry

Now available on-line 24 hours a day.....

www.birthdefects.org

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Birth Defect Research for Children