



Understanding Disasters in the Gulf Coast

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Louisiana Disasters 10 to 20 Years Ago (1992 – 2001)



1992

Hurricane
Andrew



1998

Tropical Storm
Frances &
Hurricane
Georges



2001

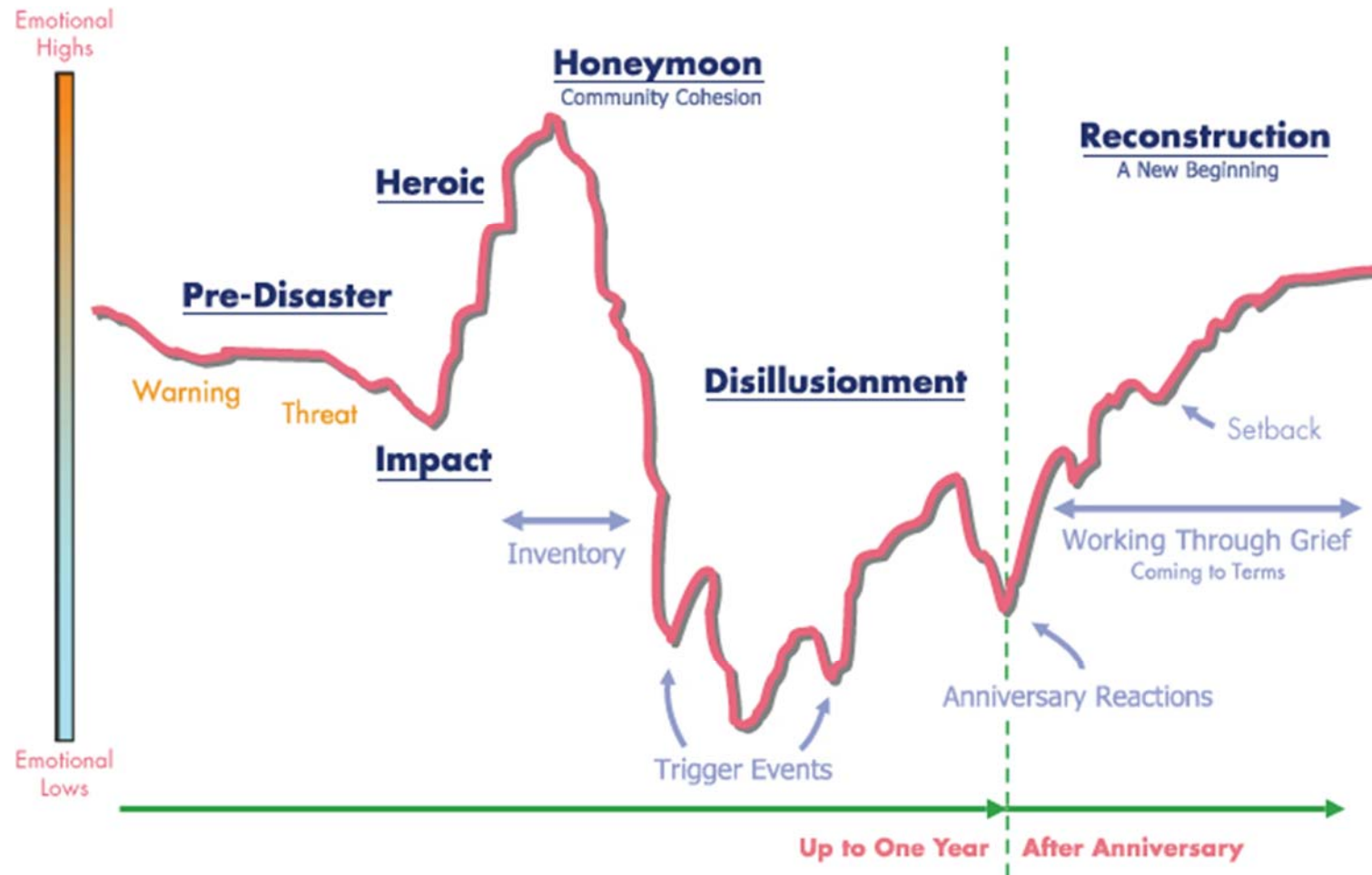
Tropical
Storm Allison



Louisiana Disasters During the Last 10 Years (2002 – 2011)

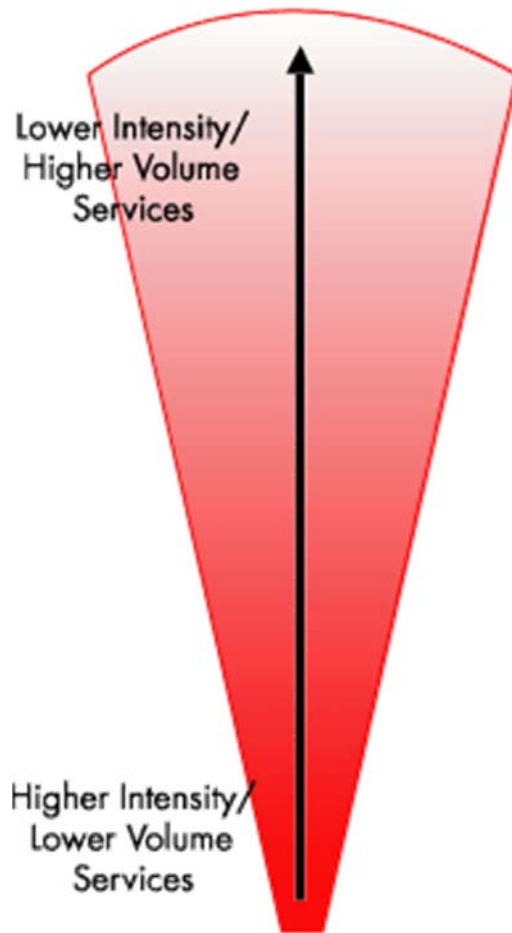


Typical Phases of Disaster Response and Recovery



Source: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration

Snapshot of Crisis Counseling Program (CCP) Service Model



Secondary Services

- Media and Public Service Announcements
- Distribution of Educational Material

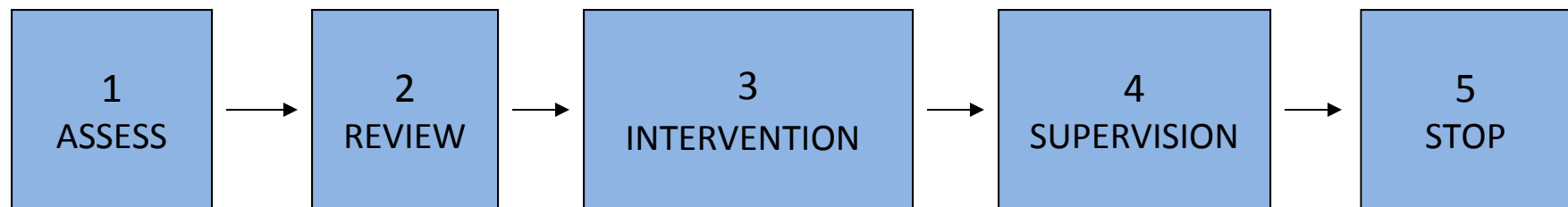
Primary Services

- Public Education Presentations
- Community Networking
- Support Groups
- Brief Educational or Supportive Contact
- Assessment, Referral, and Resource Linkage
- Individual Crisis Counseling

Source: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration

Snapshot of Specialized Crisis Counseling Services (SCCS)

SCCS 5-Step Model



1. Interview to assess needs of survivor

2. Team meeting to discuss appropriate services

3. Contact with survivor to provide SCCS

4. Case is reviewed in weekly supervision meeting

5. Final visit with survivor

Louisiana Crisis Counseling Programs: Scope of Impact on Community

- **Hurricanes Katrina, Rita and Gustav CCP Services:** Over 4.2 million face-to-face CCP encounters with survivors.
- **Hurricanes Katrina, Rita and Gustav SCCS Services:** Over 17,000 face-to-face SCCS encounters with survivors.
- **Deepwater Horizon Oil Spill Services:** Over 138,000 face-to-face encounters with survivors.
- **Over 4.35 million face-to-face encounters through crisis counseling programs in Louisiana since 2005.**

Behavioral Health Services Following the Deepwater Horizon Oil Spill Disaster

Behavioral health model components:

- **Louisiana Spirit Coastal Recovery Counseling Program**
 - Community and individual outreach-engagement-intervention-referral administered through the local behavioral health entities
 - Based on the Substance Abuse and Mental Health Services Administration (SAMHSA) Crisis Counseling Program (CCP) model
- **Clinical treatment services for mental and substance abuse disorders**
 - Services linked with pharmacological supports and managed through local behavioral health entities
- **State-level best practice monitoring and technical assistance**
 - Provider competency in specific disaster behavioral health interventions
 - Workforce training in trauma, grief/loss, life adaptation/change, addiction/substance abuse intervention and treatment
 - Quality assurance and best practice fidelity assessment
 - Ongoing evaluation and surveillance of population and individual indicators of psychosocial well-being

Common Risk Factors Among Survivors

Hurricanes Katrina, Rita and Gustav:

- Damage to Home, Community and Belongings
- Prolonged Displacement from Home
- Prolonged Separation from Family
- Evacuation with Little or No Time to Prepare
- Unemployment and Other Financial Loss
- Past Trauma

Deepwater Horizon Oil Spill:

- Past Trauma, Including from Prior Disasters
- Close Friends and Family Impacted by the Oil Spill
- Employment in an Industry Affected by the Oil Spill
- Unemployment and Other Financial Loss

Common Adverse Reactions

- Feeling Depressed or Hopeless
- Feeling Anxious or Fearful
- Poor Sleep or Feeling Fatigued
- Difficulty Concentrating or Making Decisions
- Irritability or Anger
- Intrusive Memories/Nightmares
- Concerns about Ability to Overcome Problems
- Lost Enjoyment
- Reactions that Interfered with Relationships
- Physical Health Issues

What Helps Survivors

- Believing that it is ok to ask for help
- Feeling empowered to help themselves
- Taking better care of themselves
- Feeling confident about themselves
- Accessing needed resources
- Maintaining supportive relationships



Knowledge Gleaned following Cumulative Traumas in Louisiana

**Louisiana Office of
Behavioral Health SERG Project**
Behavioral Health Surveillance



LSU HEALTH SCIENCES CENTER DEPARTMENT OF PSYCHIATRY

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Adult Psychosocial Needs Assessments

- Data collected via survey from impacted parishes in two phases
 - Phase 1: June 2010 – May 2011
 - Phase 2: June 2011 – December 2011
 - Phase 3: June 2012 – present
- Funded by SAMHSA Emergency Response Grant (SERG), Coastal Recovery Grant, and DHH Office of Behavioral Health

Adult Psychosocial Needs Assessments

- Areas assessed:
 - Demographic items
 - Impact of Hurricane Katrina
 - Impact and concerns about oil spill
 - Mental health symptoms – PTSD, serious mental illness, depression, and anxiety
 - Physical health symptoms
 - Alcohol use
 - Resiliency
 - Quality of life
 - Added section on impact of recent flooding in spillways

Adult Data Parish Distribution

- Phase 2: 1532 assessments collected from 13 parishes

Parish	Number of surveys collected as of 12/13/11	% of sample
St. Bernard	286	19
Plaquemines	267	18
Orleans	252	17
Jefferson	222	15
Terrebonne	198	13
Lafourche	115	8
Other	153	10
Total surveys	1493	100

Adult Data (N=1532)

Income and Impact

- ***Annual Income in 2009***

Income	%
Under \$20,000	49
\$21,000-\$40,000	27
\$41,000 +	24

- **64%** said the oil spill has caused at least moderate disruption in their work, social life, and/or family responsibilities.
- **37%** applied for financial assistance following the oil spill
- **15.2%** received compensation.

Adult Data (N=1532)

Oil Spill Concerns

Oil Spill Concerns	Phase 1	Phase 2
	%	%
Health concerns about food sources from local waters	74	81
Damage to wildlife and the natural environment	84	80
Loss of usual way of life	66	72
Loss of job opportunities	60	72
Loss of tourism	55	56
Loss of personal or family business	33	42
Personal health effects	50	62
Needing to relocate	24	33

Adult Data (N=1532)

Mental Health

- Mental Health Symptoms Comparison to Phase 1***

Mental Health Symptoms	Phase 1	Phase 2
	%	%
Serious Mental Illness (K-6)	18	18
PTSD (PCL-C)	16	18

Note. Cutoff scores: K6 ≥ 13 ; PCL ≥ 50 . These data and results are preliminary. Further analyses are needed before formal conclusions can be drawn.

Adult Data (N=1532)

Mental Health

- Phase 2 Additional Mental Health Symptom Indexes***

Mental Health Symptoms		%
Depression (CESD)		35
Anxiety (GAD)		
	Mild	22
	Moderate	14
	Severe	16

Note. Cutoff scores: CESD ≥ 11 ; GAD, Mild ≥ 5 , Moderate ≥ 10 , Severe ≥ 15 . These data and results are preliminary. Further analyses are needed before formal conclusions can be drawn.

Adult Data (N=1532)

Mental Health

- ***Physical Health Symptoms***

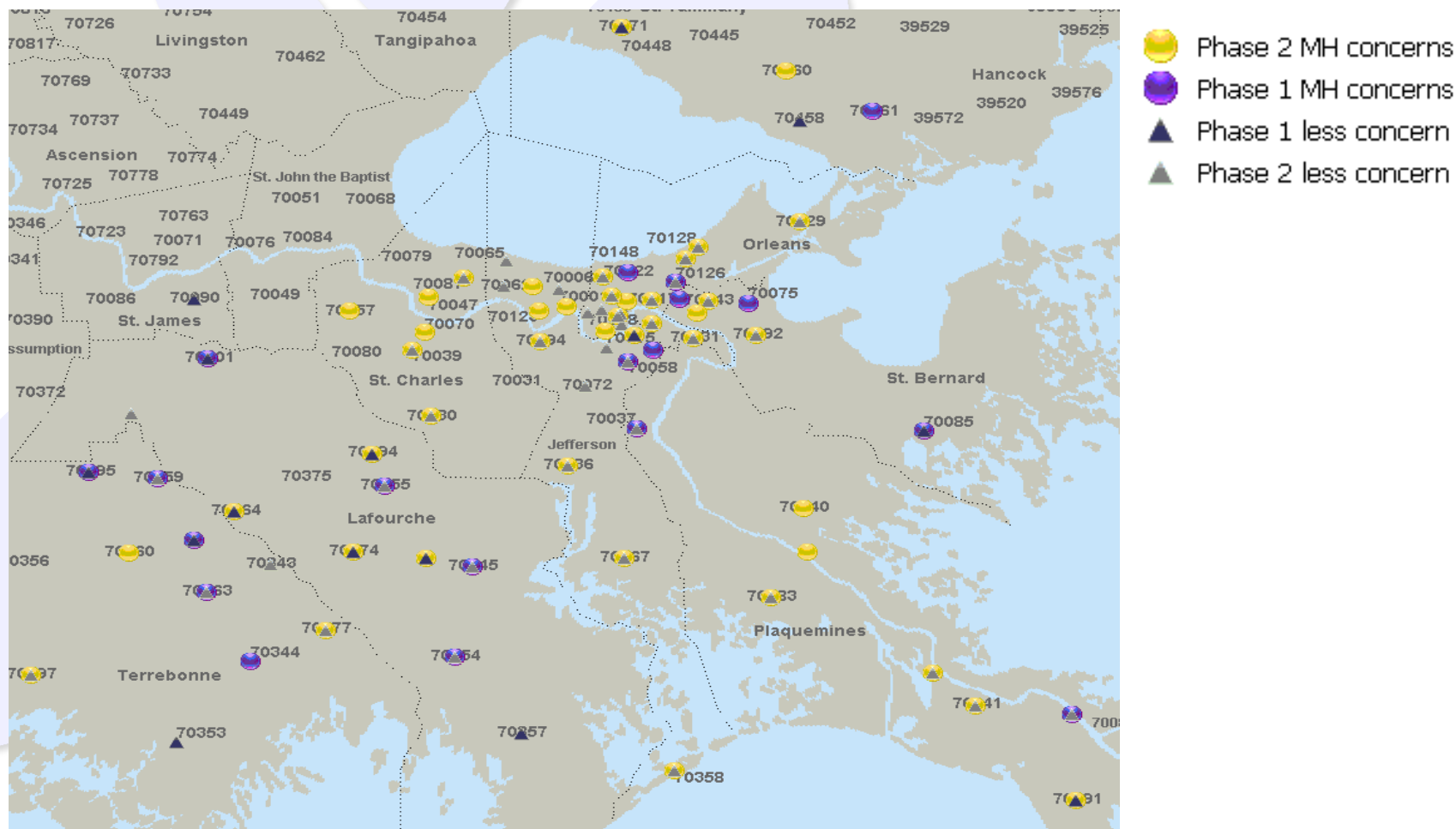
Physical Symptoms	%
Headaches	63
Feeling tired out or low in energy	63
Back pain	60
Trouble sleeping	60
Pain in your arms, legs, or joints	57
Stomach pain	43

- **Alcohol Use**

- **10%** of individuals increased alcohol use after the oil spill
- **6%** met CAGE criteria for current abuse
- **7%** met CAGE criteria for current dependence

Location, location, location!

Areas of mental health concern for individuals affected by the oil spill by zip:



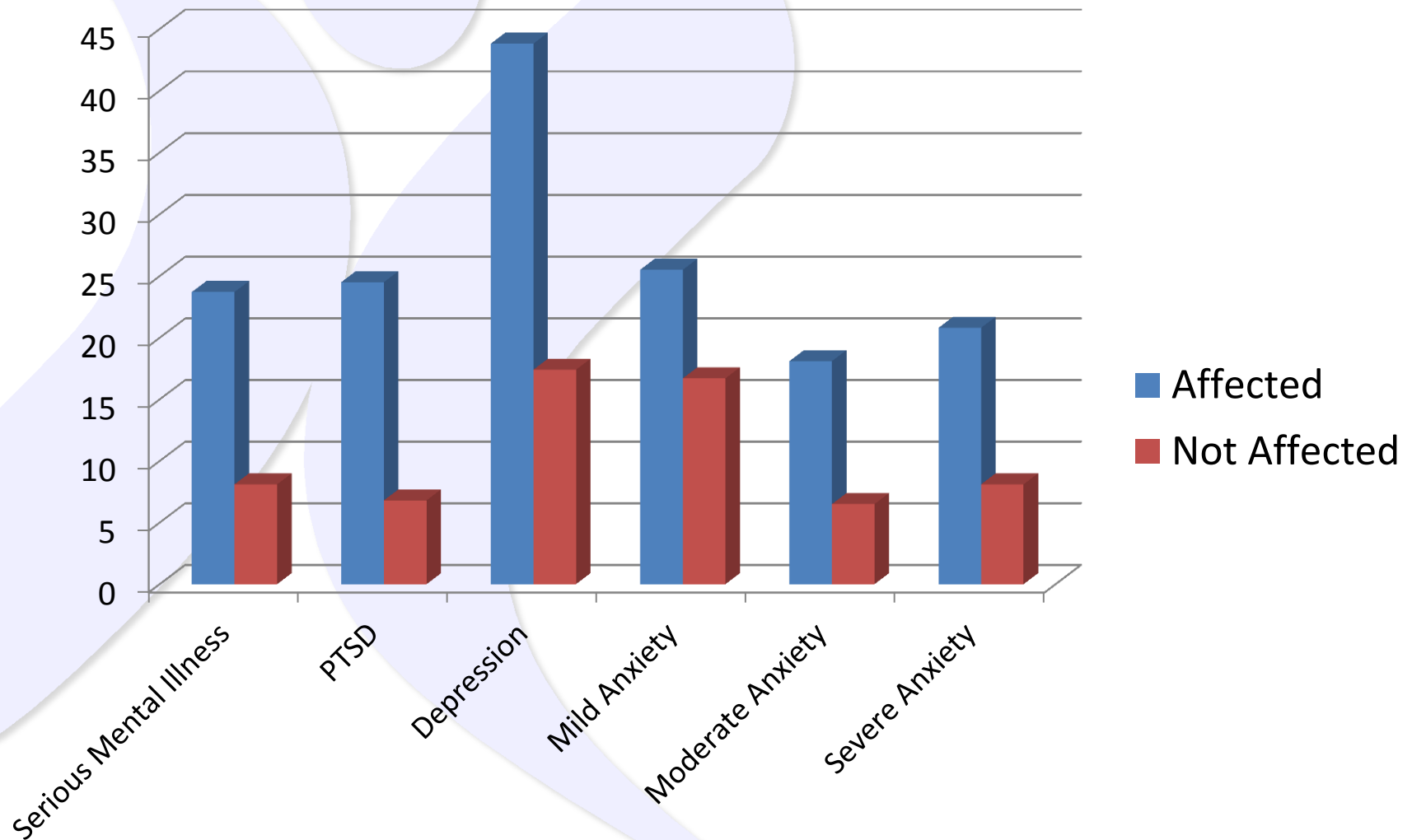
Resiliency

- **Resiliency**
 - **57%** reported that they were often or nearly always resilient
 - **89%** reported that they were at least sometimes resilient
 - **59%** said that they were able to keep their spirits up when they suffer hardships
 - **56%** said that they overcome discouragement when nothing you try seems to work

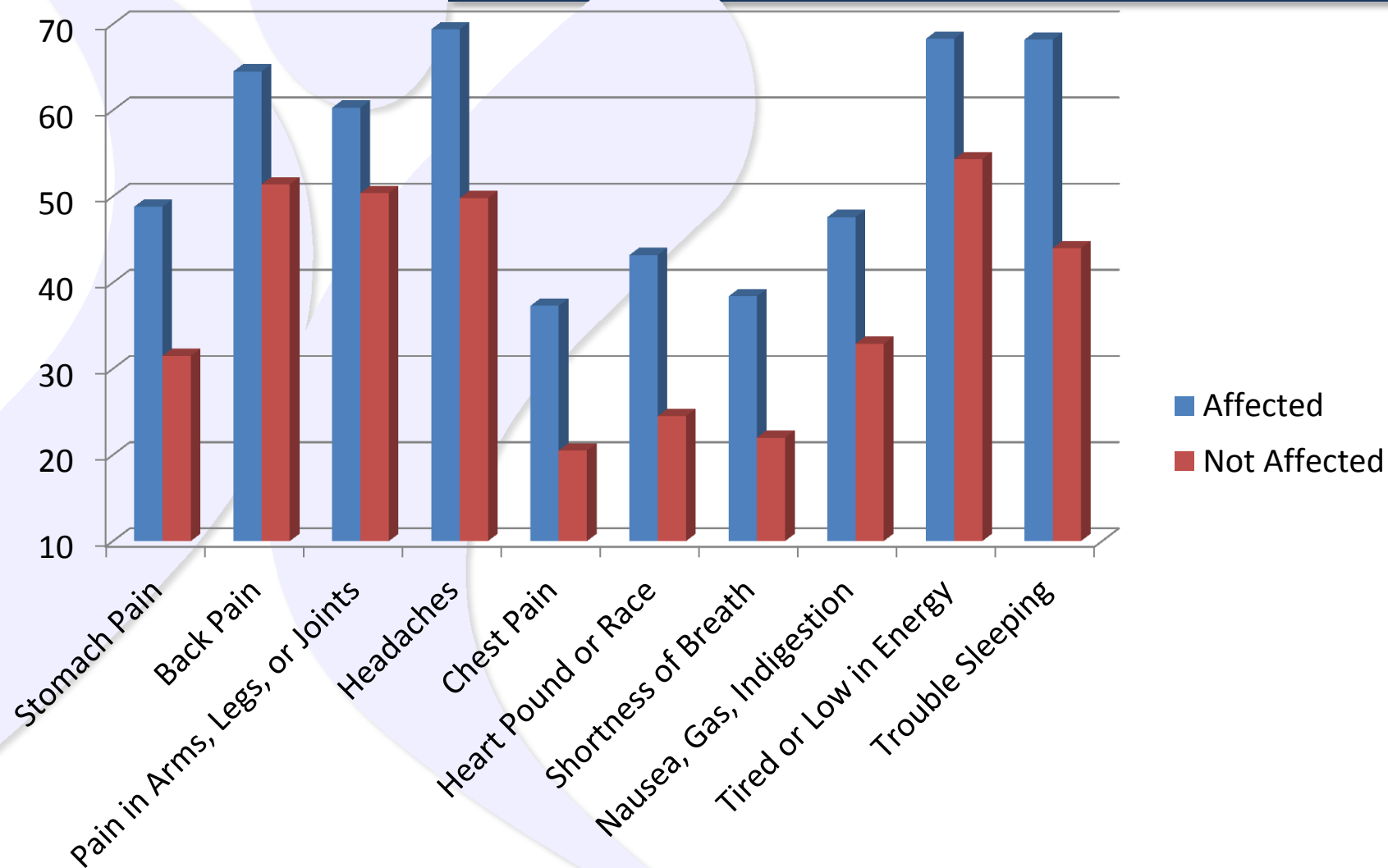
Katrina and Other Hurricanes

- **Effects of other traumas**
 - **46%** had home destroyed
 - **75%** had home damaged
 - **63%** lost income
 - **64%** lost personal property other than home
 - **73%** had friend or family member with home destroyed

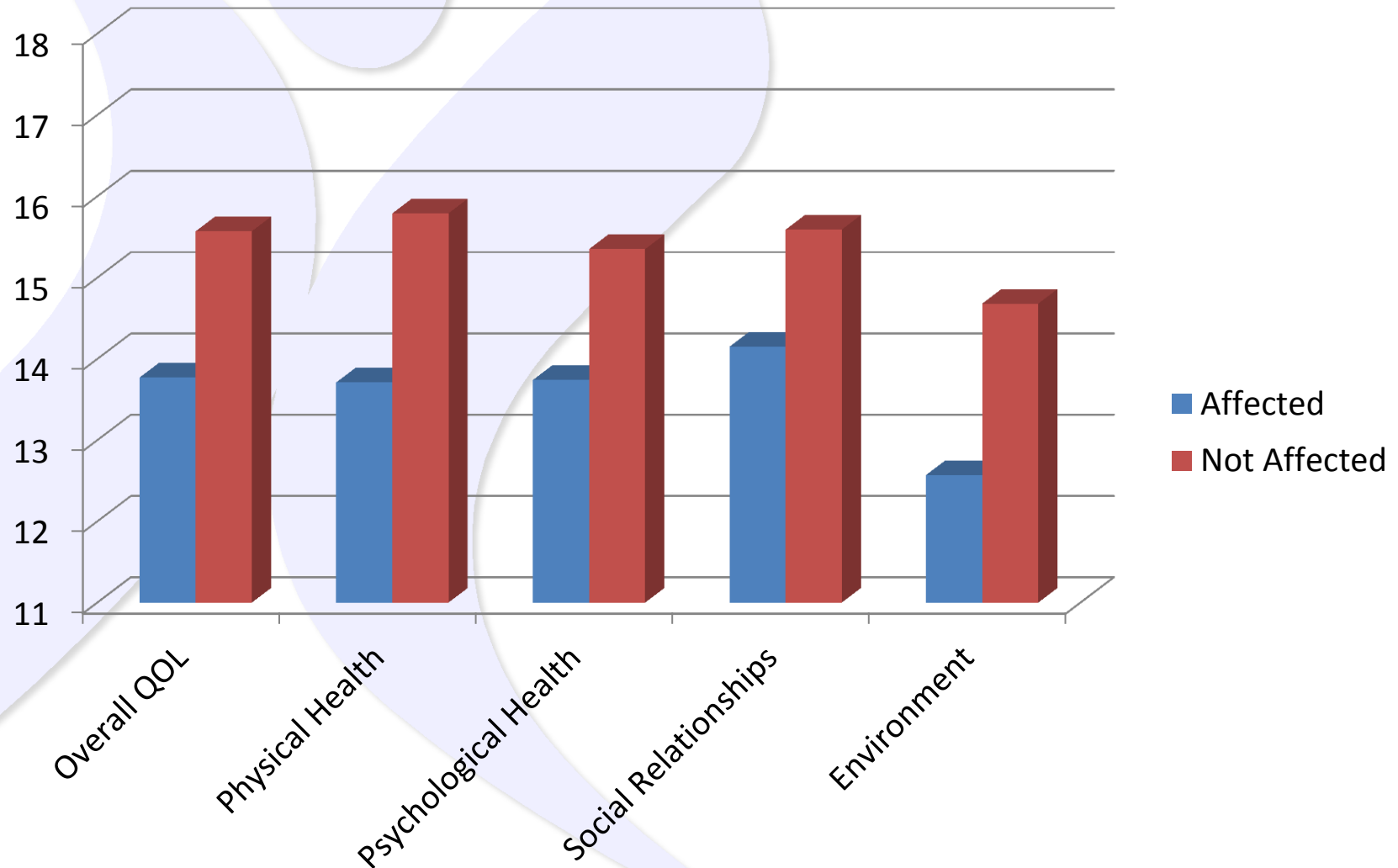
Effects of Oil Spill – Mental Health



Effects of Oil Spill – Physical Health



Effects of Oil Spill – Quality of Life



Phase 3

Psychosocial Assessments

- Began following 2nd anniversary of DWH
- Following up with participants from Phase 1 and Phase 2 for longitudinal data
- Assessing same areas of functioning in abbreviated form. Using same mental health measures to track needs over time.
- Currently, N = 639

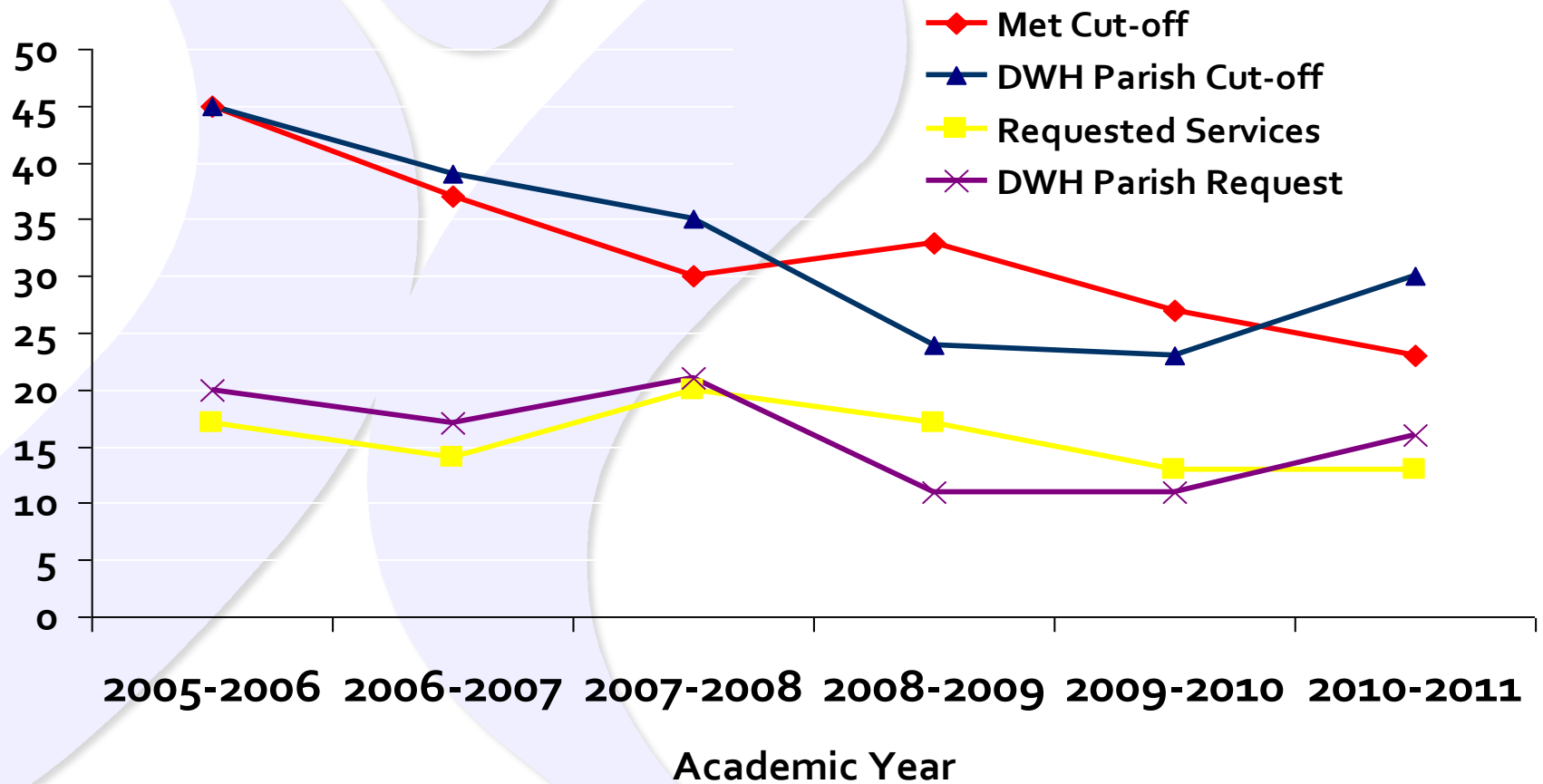


CHILD AND ADOLESCENT DATA

Child and Adolescent Data

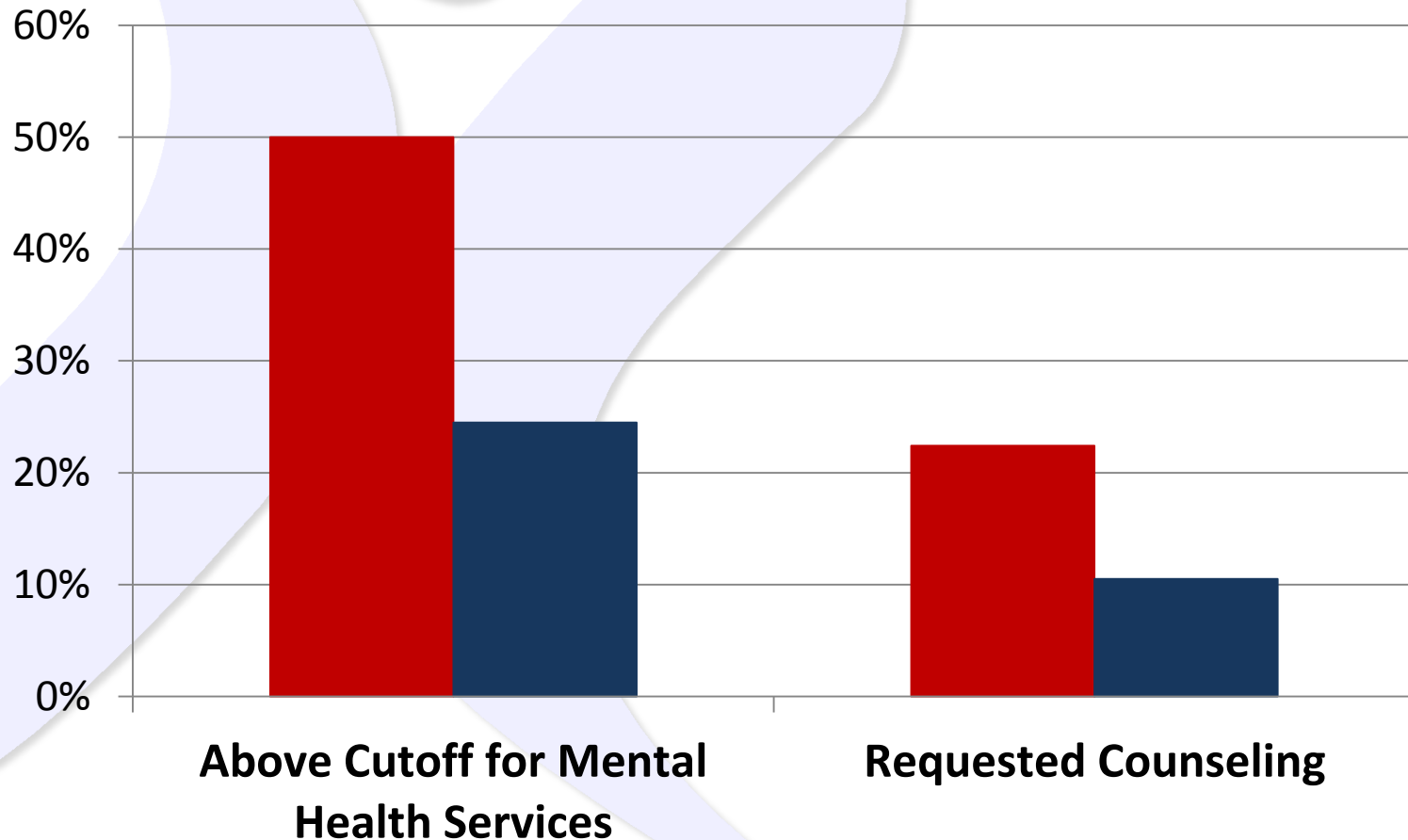
- Collected 4,611 screenings from school children in St. Bernard, Plaquemines, and Orleans parishes for the 2010-2012.
- Areas assessed: impact of oil spill, oil spill concerns, impact of Hurricane Katrina, adapted NCTSN screening tool
- Data for St. Bernard has preliminary analysis ($N = 3559$); 25% met cut-off for mental health services.

Child and Adolescent Oil Spill Data



Post Spill Child and Adolescent Data (all parishes)

■ Oil Spill Affected ■ Not Affected

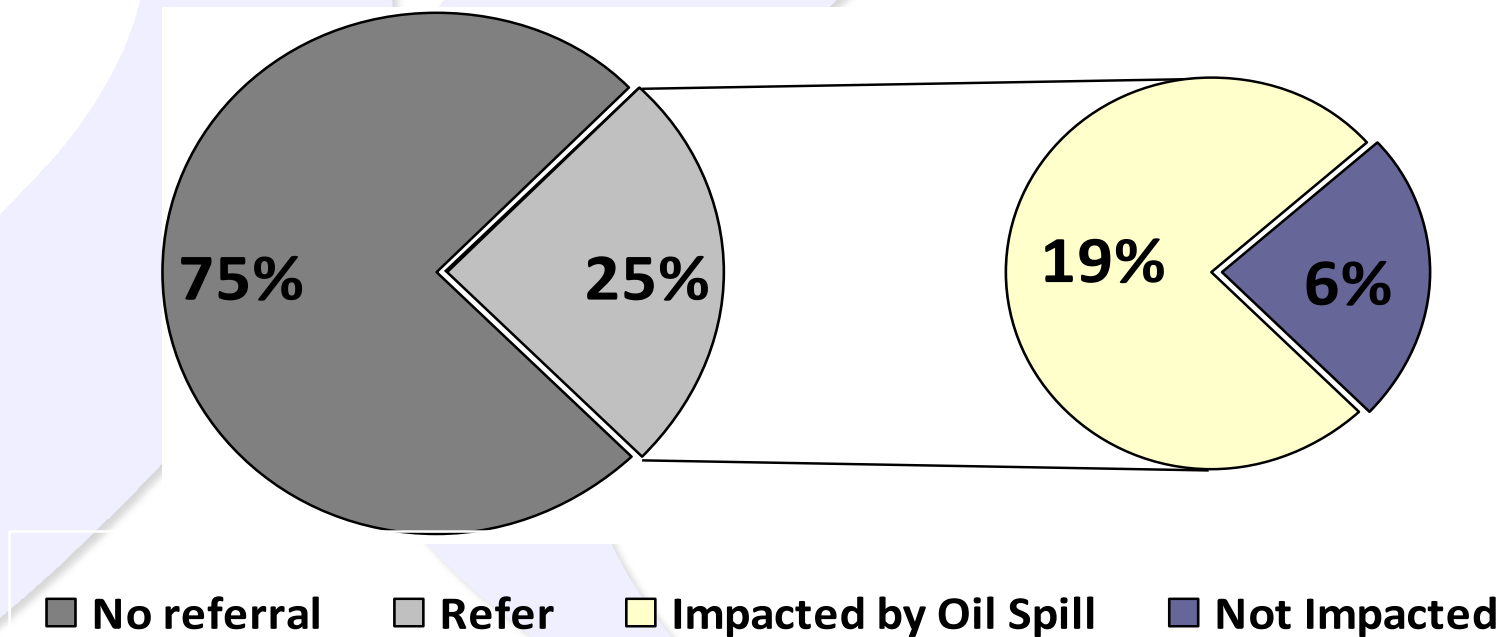


Child and Adolescent Data (St. Bernard Parish, N=3559)

Oil Spill Variables	Percent of Endorsement
Reported Disruptions	
Social life/leisure activities	13%
Family life	11%
School work	4%
Concerns	
Harm to animals	57%
Harm to environment	55%
Loss of fishing, hunting, or water activities	52%
Eating local fish and seafood	48%
Getting sick	28%
Loss of parents job/work	16%
Having to move	13%
Loss of personal/family business	12%

Child and Adolescent Data (St. Bernard Parish, N=3559)

- Students Need for Mental Health Services (Referral vs. Non-referral) and (Impacted by Oil Spill vs. Not Impacted)*



Child Assessments

- Child specific needs receive inefficient attention
- Locating needs is not the issue as schools provide a natural target point for services
- Child assessments help identify who needs services and which types are needed
- Treatment types can include = psychoeducational, trauma treatment, or strengths based/resiliency
- Annual assessments can coincide with academic year
- Brief discussion with school counselor, parents or child following evaluation

Long Term Effects of Oil Spills and Community Models for Response

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Questions Related to Deepwater Horizon Oil Spill

Will there be any long-term health impacts related to the oil spill?

Who will be most vulnerable to these impacts?

What can we do to mitigate or prevent these impacts?

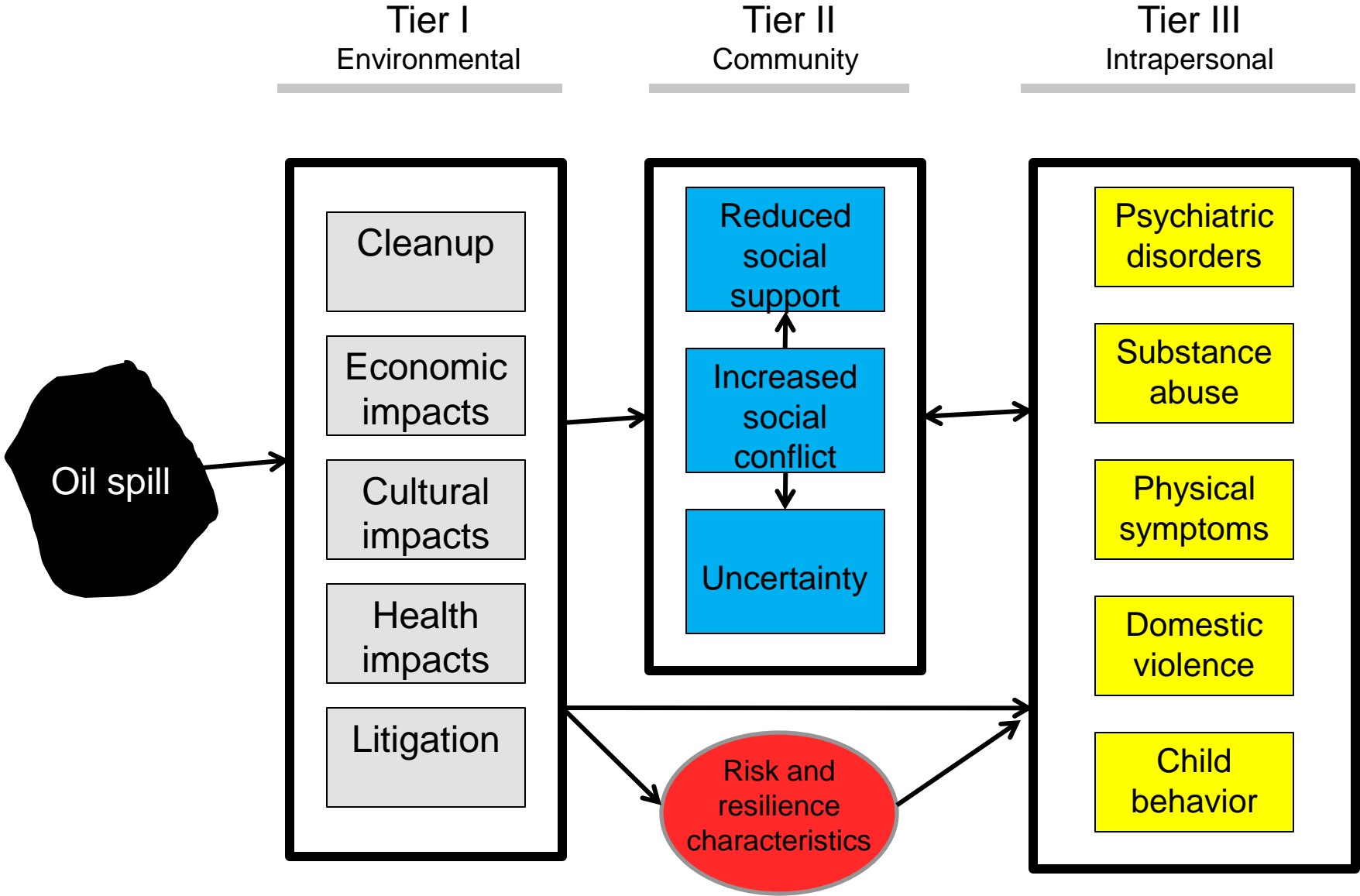


Exxon Valdez Oil Spill



Oiled Mayors Study

- Methods
 - Ethnographic fieldwork in 22 communities
 - Quantitative survey of 600 households in 13 communities
 - Cross-sectional 1 yr post-spill
- Assessment of Exposure (Not, low and high)
 - Affected area used by household
 - Participation in cleanup
 - Other contact with oil
 - Property damaged or lost
 - Damage to commercial fishing areas
 - Effects on hunting, fishing and gathering



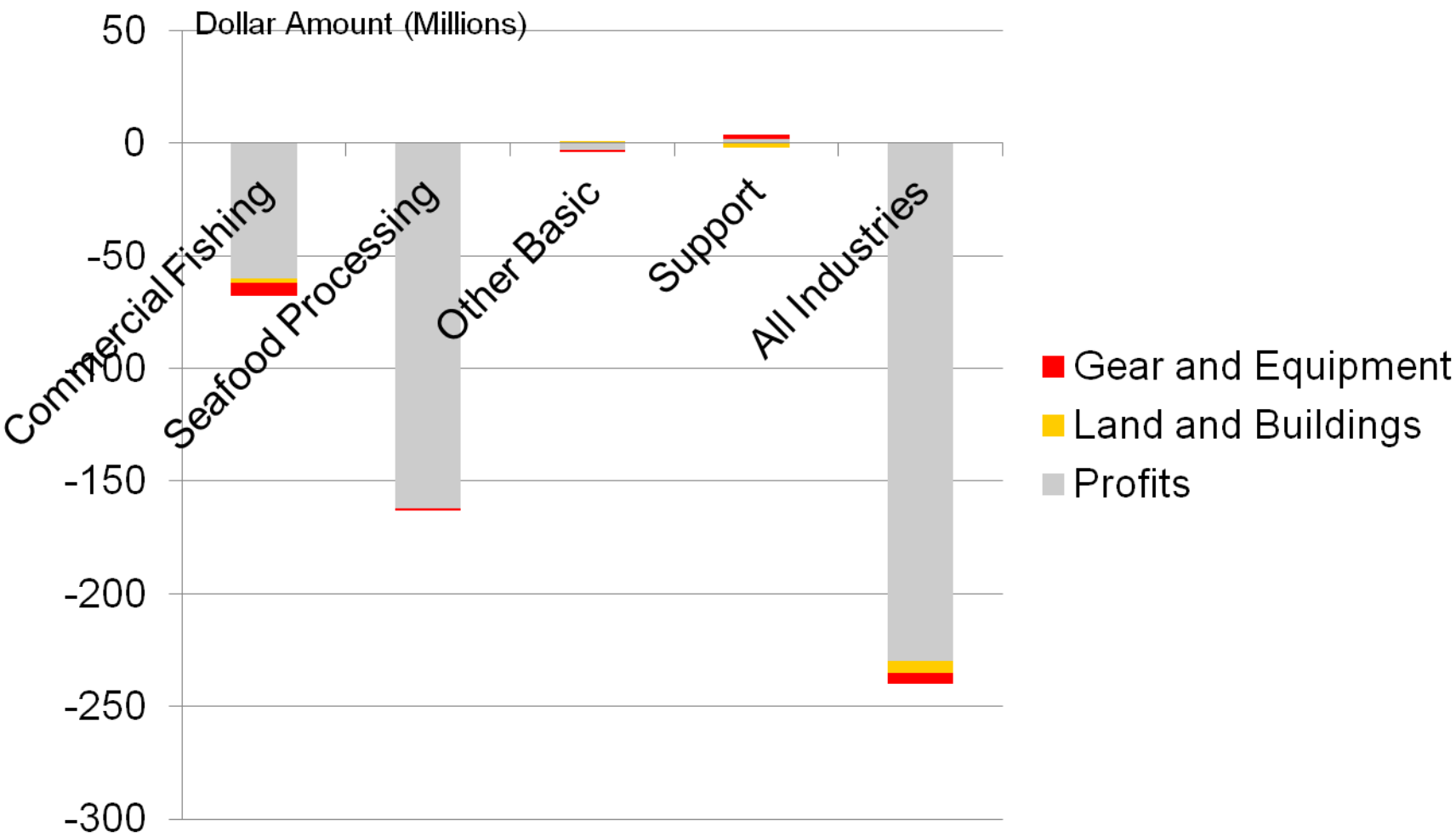
TIER I IMPACTS

Cleanup Activities

- Exxon's cleanup contractor, VECO, hired approximately 11,000 people for cleanup work
 - Cleaning oil off beaches
 - Vessel operators to lay booms
 - Worker transportation, housing, support
- 147 (24.7%) of the households were engaged in cleanup activities
- Cleanup employment and activities helped to offset some of the economic losses, but also produced shortages in available employees in some economic sectors.

Economic Impacts

Summary of Oil Spill Impacts on Oiled Mayors' Study Areas by Sector



Changes in Traditional Subsistence Activities, Alaska, 1990

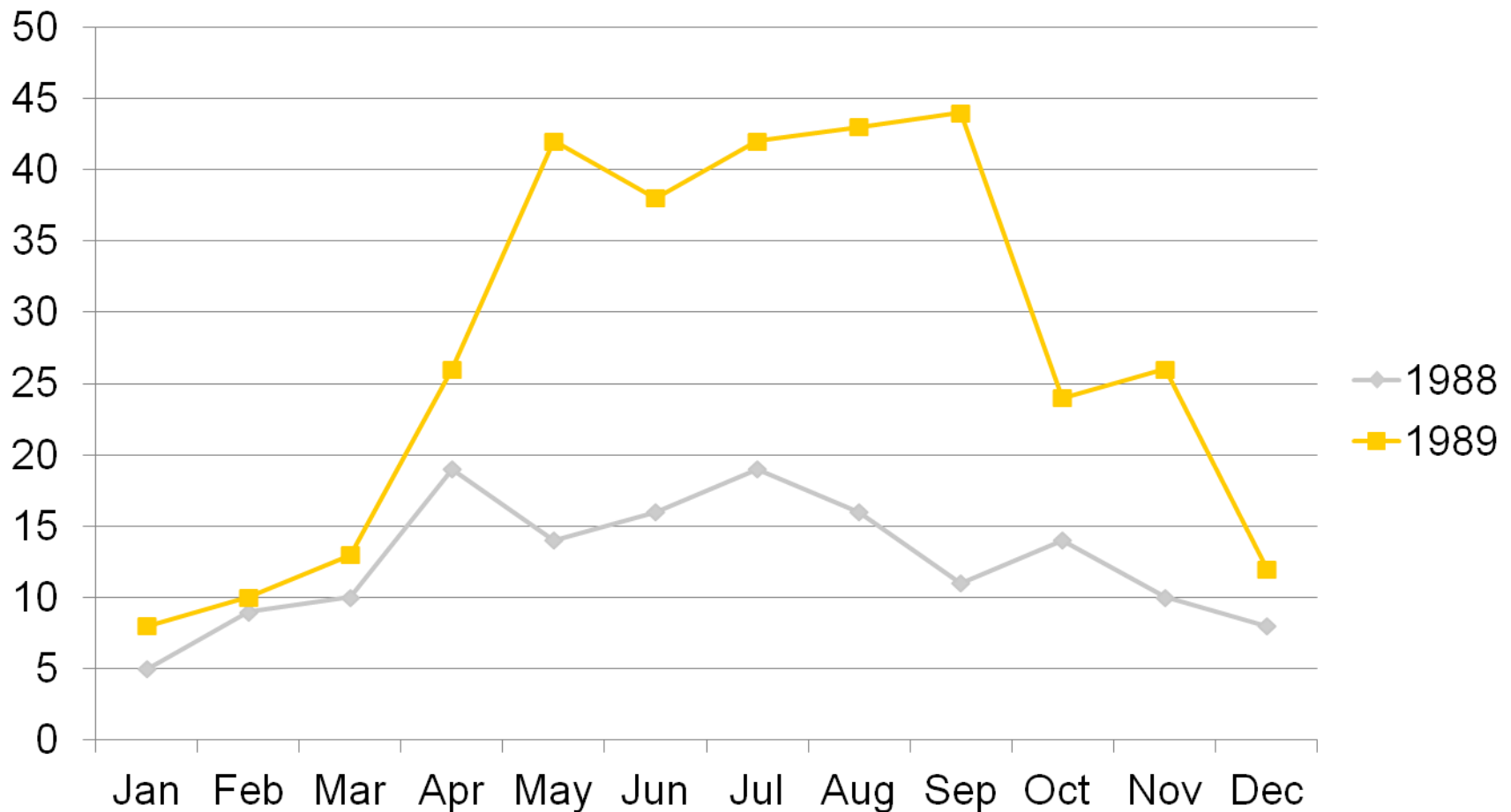
Compared with same period in 1988	Exposure Status						
	High Exposed			Low Exposed		Not Exposed	
	Decreased			Decreased		Decreased	
	N	N	%	N	%	N	%
Time spent hunting, fishing and gathering*	475	162	78.3	50	36.2	11	8.5
Time spent with people from other households hunting, fishing and gathering*	459	141	71.2	42	31.8	4	3.1
Amount of harvested resource foods shared with others*	470	131	64.2	46	34.3	9	6.8
Amount of harvested resource foods received from other families*	382	92	56.1	25	25.3	3	2.5
Number of household members hunting, fishing and gathering*	436	102	54.3	32	26.2	6	4.8
Opportunities for children to learn hunting, fishing and gathering skills*	454	91	46.9	21	16.3	2	1.5

χ^2 test for trend * $p < 0.0001$

(Source: Palinkas et al., 1993)

Health Care System Impacts

Emergency Medical Services Calls, City of Valdez 1988-89



(Source: Impact Assessment, Inc., 1990)

Litigation

- In 1994, an Anchorage jury awarded \$287 million for actual damages and \$5 billion for punitive damages.
- In 2002, Judge Holland announced that he had reduced the damages to \$4 billion.
- In 2006, 9th Circuit Court of Appeals cut the damages award was cut to \$2.5 billion.
- In 2008, U.S. Supreme Court limited punitive damages to the compensatory damages, which for this case were calculated as \$507.5 million.
- During the past 20 years since litigation was initiated, 6,000 of the original 38,000 plaintiffs have died.

TIER II IMPACTS

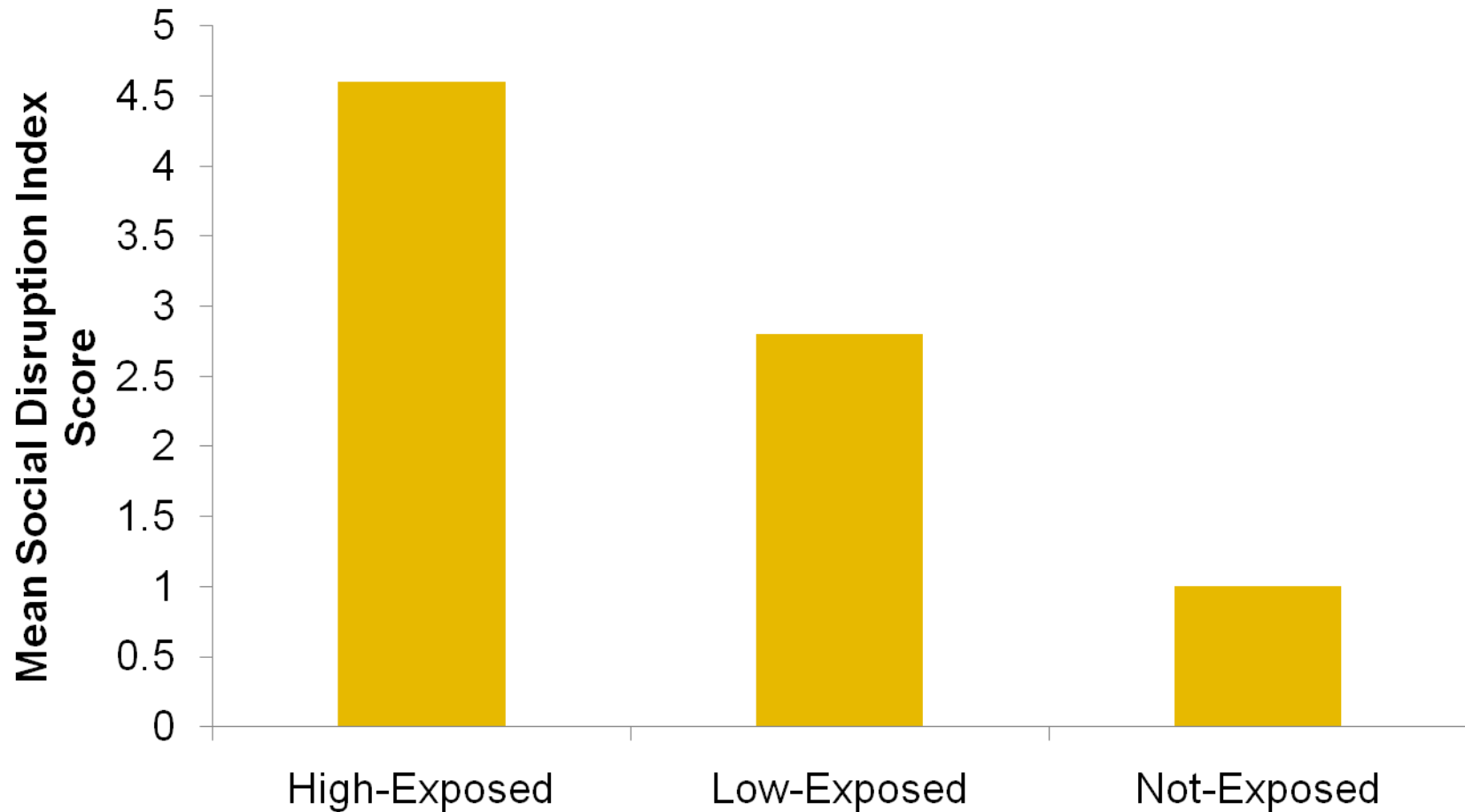
Changes in Traditional Social Relations, Alaska, 1990

Not getting along as well compared with same period in 1988	Exposure Status						
	High Exposed			Low Exposed		Not Exposed	
	N	N	%	N	%	N	%
Spouse or partner**	444	25	14.5	7	4.6	0	0.0
Children living at home**	371	14	10.1	5	4.2	1	0.9
Other relatives living at home**	188	11	17.2	2	3.7	0	0.0
Relatives not living at home**	536	24	11.6	9	4.9	0	0.0
Neighbors and friends**	565	28	13.1	9	4.5	1	0.7
People from other communities**	447	28	13.7	14	7.8	2	1.3
Co-workers*	483	20	10.6	15	8.9	5	4.0
Increased conflicts with							
Outsiders**	593	106	47.5	47	22.6	5	3.1
Friends**	591	89	40.3	30	14.4	4	2.5

χ^2 test for trend * $p < 0.05$; ** $p < 0.001$

(Source: Palinkas et al., 1993; Russell et al., 1996)

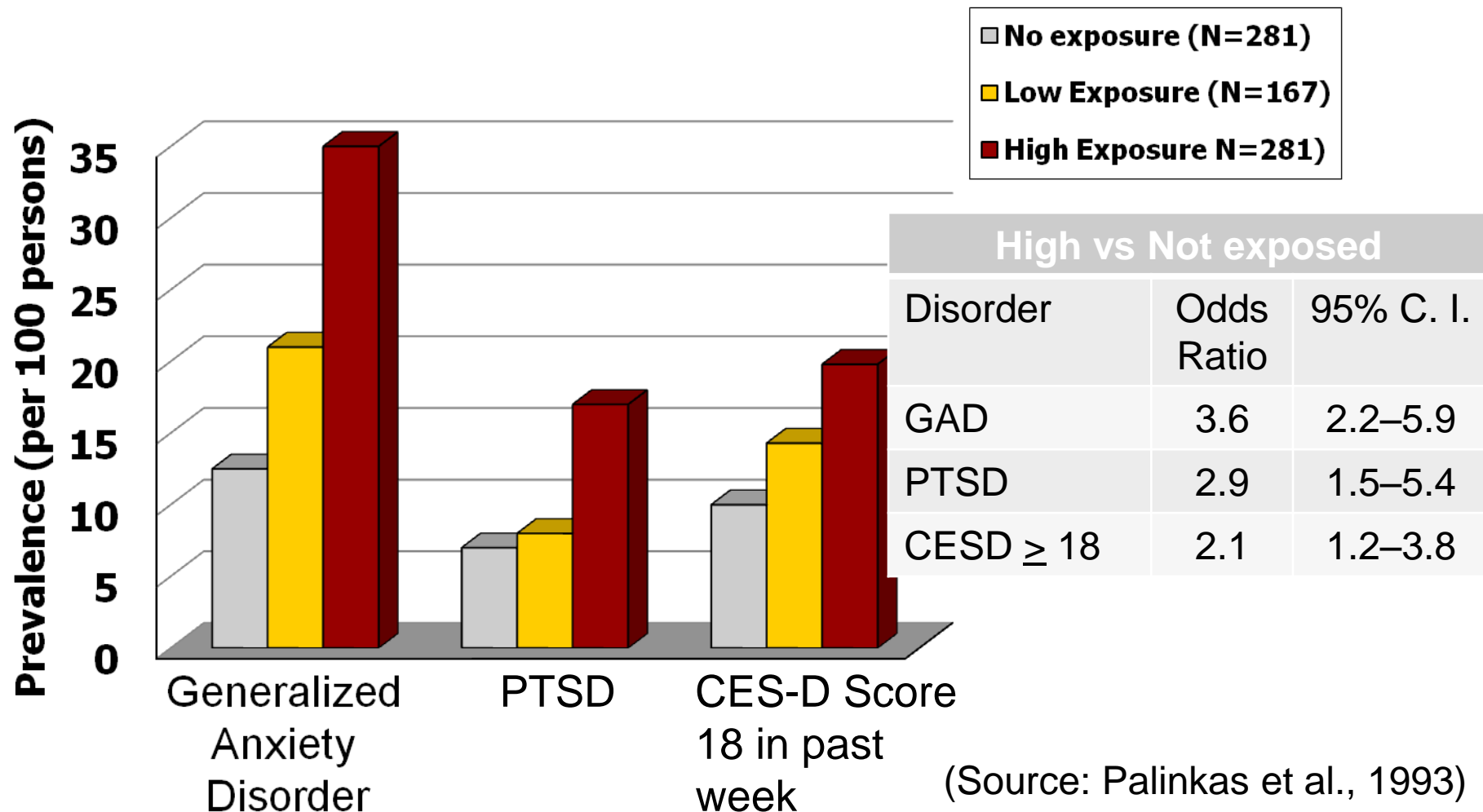
Association between exposure to oil spill and disruption of social relations



(Source: Palinkas, 2009)

TIER III IMPACTS

Prevalence of Generalized Anxiety Disorder, PTSD, and Depressive Symptoms in Exxon Valdez Study Respondents (N=593) by Exposure Status, 1990



Problems with Alcohol and Drug Abuse by Exposure Status, Alaska, 1990

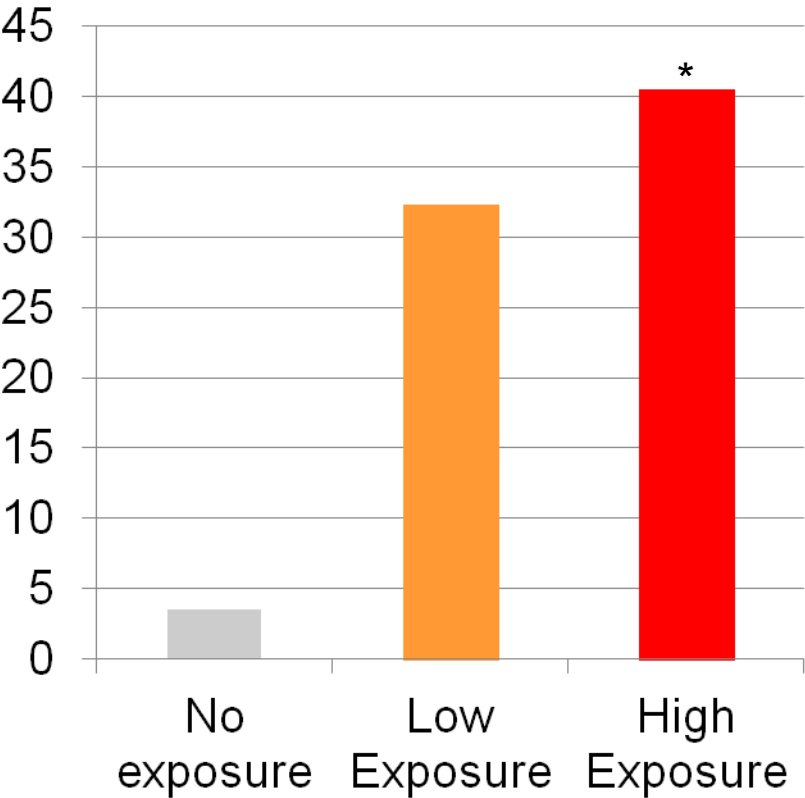
Social Unit & Problem	% High Exposed	% Low Exposed	% Not Exposed
Community			
More Drinking*	56.8	40.4	5.0
More Drug Use*	50.4	43.2	6.8
Family & Friends			
More Drinking*	29.3	15.3	2.8
More Drug Use*	21.2	10.8	1.7

* χ^2 test for trend $p < 0.0001$

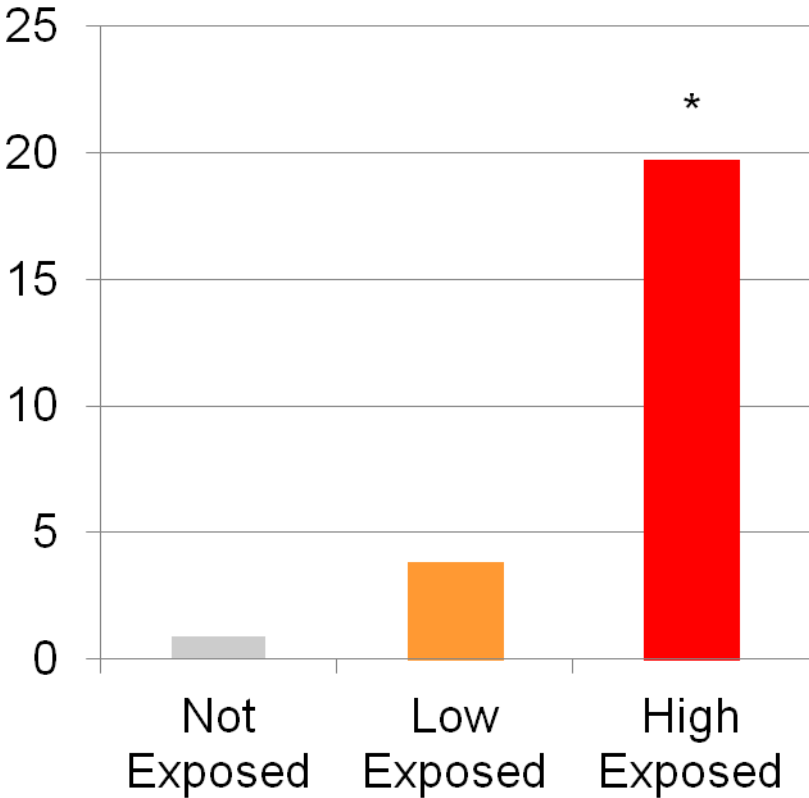
(Source: Palinkas et al., 1993; Russell et al., 1996)

Incidence of Reported Domestic Violence by Exposure Status, Alaska, 1990

Within Community



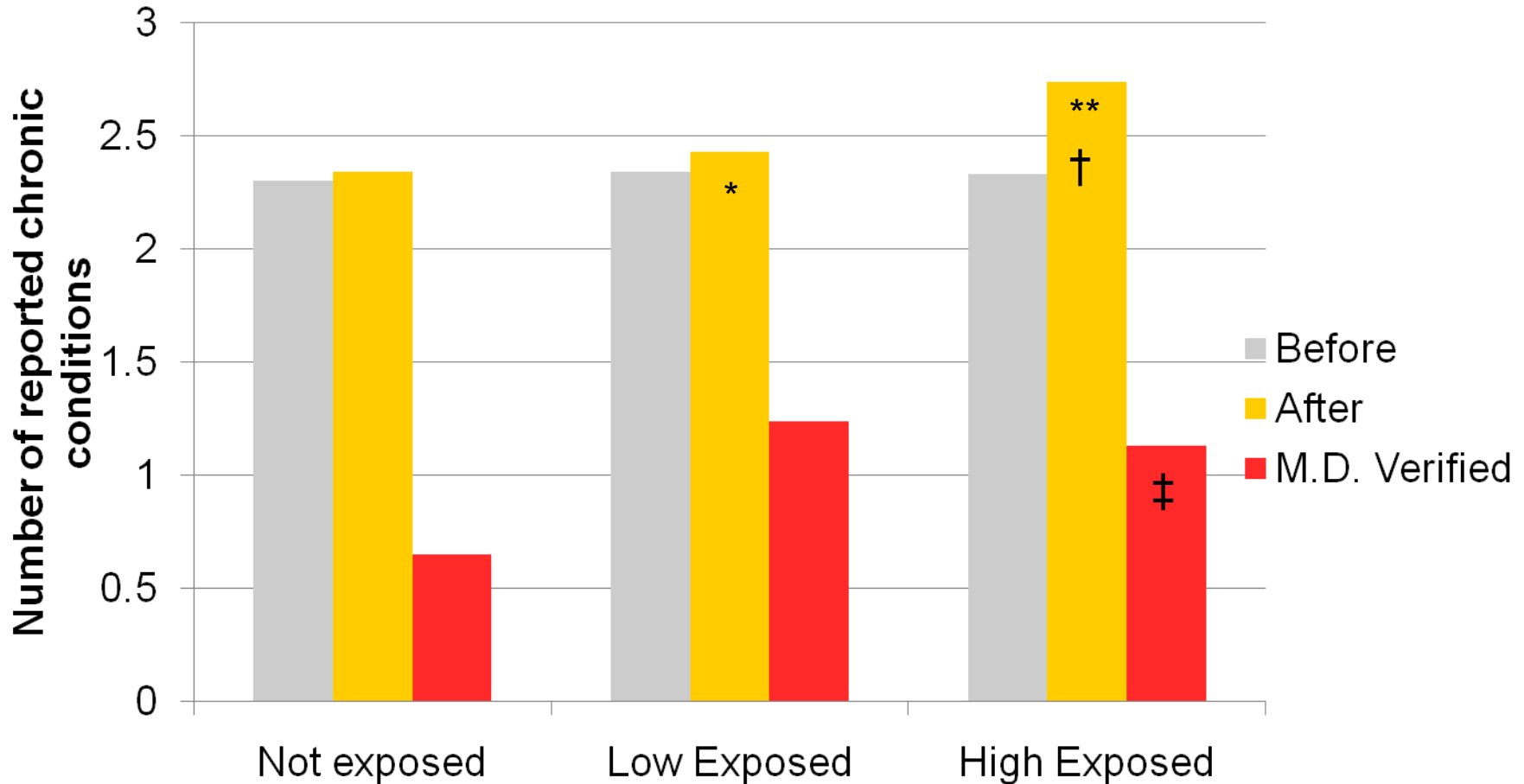
Within Family



* χ^2 test for trend $p < 0.0001$

(Source: Palinkas et al., 1993; Russell et al., 1996)

Impact of oil spill on physical health



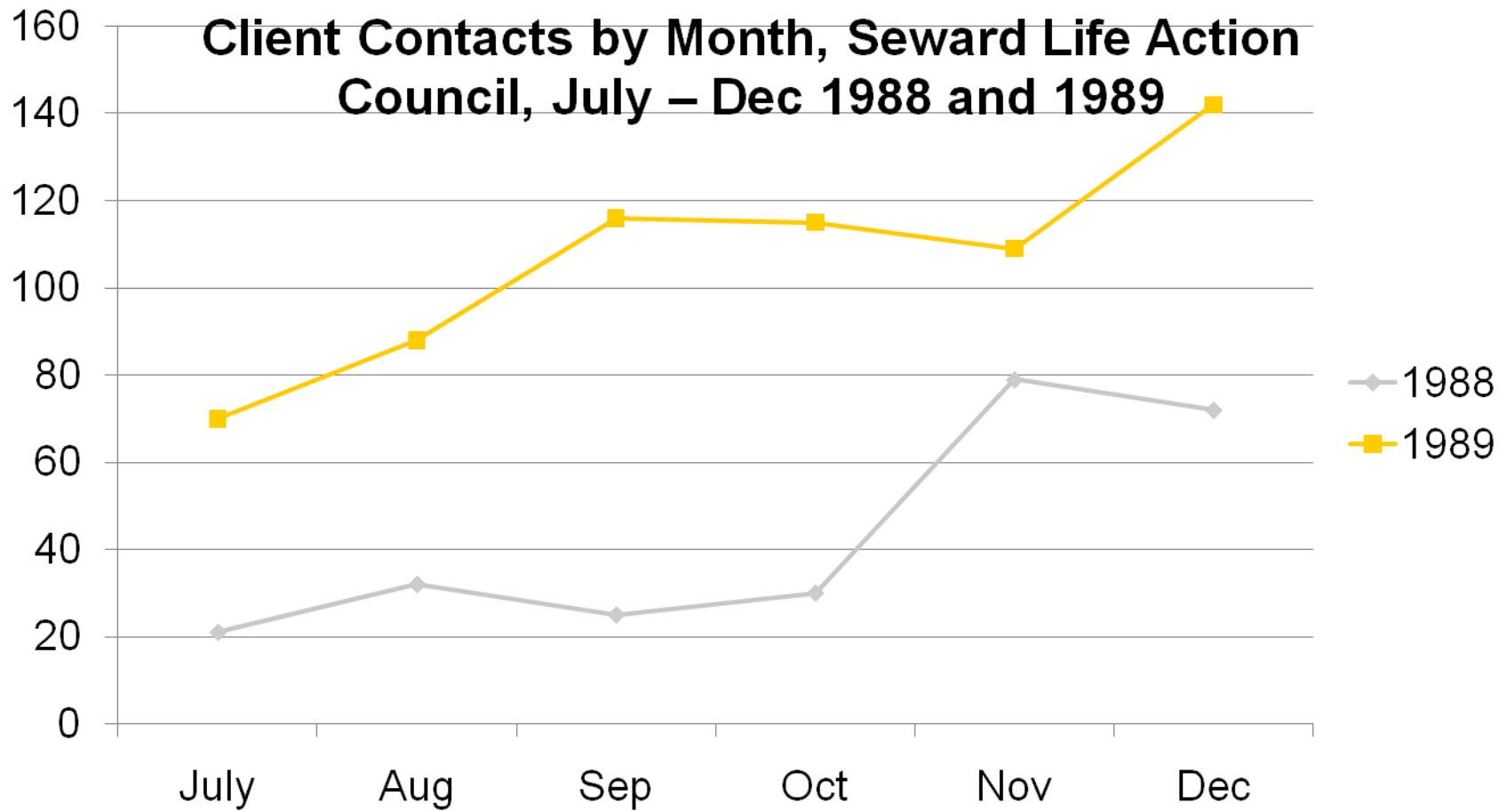
e.g., heart disease, high blood pressure, diabetes, thyroid problem, cancer, asthma, ulcer, bronchitis, chronic cough. skin rashes

* $p < 0.01$, ** $p < 0.001$ compared to health status prior to spill

† $p < 0.01$, ‡ $p < 0.001$ by exposure status

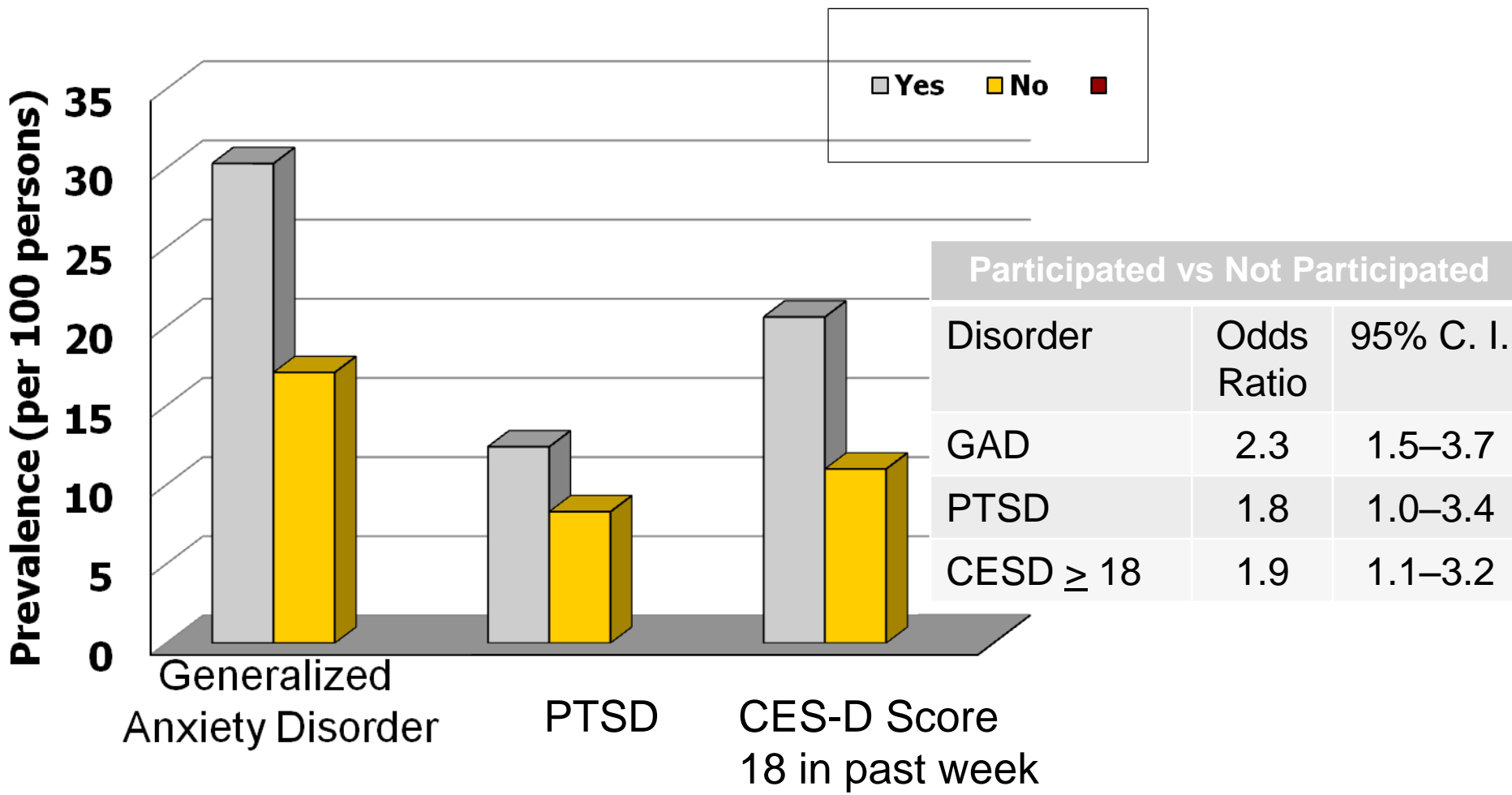
(Source: Impact Assessment, Inc., 1990)

Impact of oil spill on mental health visits



(Source: Impact Assessment, 1990)

Prevalence of Generalized Anxiety Disorder, PTSD, and Depressive Symptoms in Exxon Valdez Study Respondents (N=593) by Cleanup Participation Status, 1990



Prevalence of Posttraumatic Stress Disorder by Exposure and Ethnicity, Exxon-Valdez Oil Spill

Type of exposure	Alaska Natives (N=188)		Euro-Americans (N=371)	
	Yes	No	Yes	No
	%	%	%	%
Affected area used by household	15.7	8.1	10.7	6.6
Participation in cleanup	20.8**	6.9	9.0	7.0
Other contact with oil	18.5	8.9	9.7	8.0
Property damaged or lost	37.5**	9.9	9.4	8.6
Damage to commercial fishing areas	18.9**	6.1	11.5	7.1
Effects on hunting, fishing and gathering	19.8**	5.2	14.3*	6.4
Not exposed	5.8		8.3	
Low exposed	5.3		6.8	
High exposed	25.0**		10.0	

* $p < .05$; ** $p < .01$; *** $p < .001$

(Source: Palinkas et al., 2003)

Effects of oil spill on families and children

- Exposure to the oil spill was associated with parents reports
 - Decline in relations with other children in community
 - Children have more difficulty sleeping
 - Children's grades in school have declined
 - Children get upset when someone talks about the spill
 - Bedwetting is a new problem for one of my children
 - Children do not like being left alone
 - Children fight more with other children
 - Children have more difficulty getting along with parents
 - Children have more difficulty getting along with siblings

Post-Spill Prevalence of Psychiatric Disorders Exposure Status and Parental Status, *Exxon Valdez* Study, 1990

Diagnostic Category	Exposure Status		
	% High Exposed	% Low Exposed	% Not Exposed
Post-Spill GAD			
Parent	48.2**	23.4	14.4
Non-Parent	16.4	16.7	11.1
Post-Spill PTSD			
Parent	25.3**	5.3	7.5
Non-Parent	6.6	9.7	5.9
Post-Spill CES-D ≥ 16			
Parent	26.5*	13.8	15.4
Non-Parent	15.5	22.1	11.5

χ^2 test for trend * $p < 0.05$; ** $p < 0.001$

(Source: McLees-Palinkas, 2004)

Lessons Learned

- Differences between oil spills and natural disasters
 - Exposure to oil spills have a longer duration than exposure to natural disasters
 - Creates “toxic communities”
 - More likely to result in chronic stress rather than acute stress
 - Symptoms persist for longer periods of time
 - Oil spills more likely to involve litigation
 - Litigation a form of re-experiencing the event
 - Litigation compromises ability to conduct research

Lessons Learned

- Differences between oil spills and natural disasters
 - Participants in spill cleanup activities
 - Separation from families for prolonged periods
 - Conflicts between those who did and did not accept cleanup jobs
 - Witnesses to destruction of ecosystem
 - Conflict between residents dependent on oil industry and residents whose livelihoods have been adversely affected by the same industry

MITIGATION, PREVENTION AND PREPAREDNESS

Tier I Interventions

- Health care system infrastructure
- Economic redevelopment and employee training programs
- Cultural exchange-based interventions to identify alternatives to subsistence/recreational activities
- Policies to insure equitable distribution of cleanup jobs
- Policies to speed litigation or reduce need for litigation.

Health Care System Infrastructure

- Structural components that should be in place before an event to minimize consequences (Meredith et al., 2011).
 - internal organizational structure and chain of command
 - resources and infrastructure
 - knowledge and skills
- Integration of physical, mental, and behavioral health services
 - mandated by Affordable Care Act of 2011

Economic Development and Employee Retraining

- Short term-responses
 - Offer assistance in recovery of oil-spill related losses.
 - Implement debt refinancing, loan forgiveness, and tax relief for businesses that experienced spill-related losses.
- Long-term responses
 - Investment in economic sectors less likely to be impacted by oil spill contamination.
 - Offer financial incentives for continuing education of local residents who lost jobs due to oil spill.

Cultural Exchange Interventions

- Designed to support cultural transformations through global-local collaborations.
- Working with local residents to identify culturally appropriate substitutes for subsistence-based cultural activities.
 - Facilitating interactions with residents of other communities adversely impacted by previous oil spills or technological disasters.
 - Implementing evidence-based techniques designed to promote communication, collaboration and compromise between impacted residents and outsider responders.

Equitable Distribution of Cleanup Employment

- Unequal distribution of employment opportunities a major source of social conflict and individual stress.
- Give preference to local residents in employment.
 - Minimizes burden on local infrastructure with sudden increase in population and demand for services.
- Enforce policies and procedures designed to insure equal access to cleanup employment.
 - Between households
 - Between communities
 - Between regions

Litigation Policies

- Litigation a major source of long-term stress among Exxon-Valdez victims (Gill, 2007; Picou et al., 2004).
- Improved support systems for litigants.
 - Access to social and psychological services.
 - Access to information on litigation status.
- Evidence-informed policy on compensatory and punitive damages.
 - Calculation of quality-adjusted life years (QALYs) associated with exposure to oil spills and Tier I-III impacts.

Tier II Interventions

- Community leadership to foster social cohesion
- Use of evidence-based practices to build and sustain social support networks
- Risk communication interventions.

Community Leadership Training

- Training in disaster response
 - Development of an Incident Command System for disaster response.
 - Adaptation of existing ICSs for response to oil spills.
- Integration of local leadership in regional, state and national disaster response programs
 - Maintenance of local control of disaster response.
- Training in conflict management and coalition building
 - Adoption of principles of “mutual self-interest”

Social Support Networks

- Social Skills Training
 - Identification of positive sources of support
 - Techniques for effective communication of needs and acquisition of resources.
 - Techniques for management of support demands or social conflict
 - Identification and training of opinion leaders
- Peer-to-Peer Programs

Risk communication interventions

- Effectiveness of risk communication interventions in reducing adverse health outcomes
 - Risk communications interventions have been shown to have beneficial effects, particularly if they include individual risk assessments or focus on treatment options (Edwards et al., 2000)
- Natural disaster preparedness interventions
 - Introduction to Risk Communication
http://www.jhsph.edu/preparedness/training/online/crisis_communication.html
 - CDC's Crisis and Emergency Risk Communication training program <http://emergency.cdc.gov/cerc/pdf/CERC-SEPT02.pdf>

Tier III Interventions

- Identification of at-risk populations
- Evidence-based practice to build individual and community resilience
- Targeted use of evidence-based practices to treat ongoing symptoms and disorders.

Identification of At-Risk Populations

- Previously traumatized
 - Other disasters (e.g., hurricanes, earthquakes)
 - Other traumatic events (e.g., Vietnamese refugees)
- Children and families
- Cleanup workers
- Underserved populations
 - ethnic minorities,
 - socioeconomically disadvantaged
- Workers in natural resource-dependent industries (e.g. fisheries)

Evidence-Based Resilience Programs

- **The Strengthening Families Program (SFP)**
 - a family skills training program designed to increase resilience and reduce risk factors for behavioral, emotional, academic, and social problems in children 3-16 years old
- **Coping with Work and Family Stress**
 - a workplace preventive intervention designed to teach employees 18 years and older how to deal with stressors at work and at home.

Evidence-Based Treatment Programs

- **Cognitive Behavioral Intervention for Trauma in Schools (CBITS)**
 - A school-based, group and individual intervention designed to reduce symptoms of post-traumatic stress disorder (PTSD), depression, and behavioral problems, and to improve functioning, grades and attendance, peer and parent support, and coping skills.
- **Psychological First Aid (PFA)**
 - an evidence-informed modular approach for assisting people in the immediate aftermath of disaster and terrorism: to reduce initial distress, and to foster short and long-term adaptive functioning.

Thank you

Questions?

Disaster Duo: Environmental Health and Community Psychosocial Health



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Different Types of Disasters

- Different types of disaster create different effects
 - Affected by type, scope, agent, timing
 - Natural (act of God)
 - Technological (Man-Made)



Technological Disasters

- Four factors that make them different
 - Duration of Impact
 - Unexpectedness
 - Absence of identifiable low point
 - Perception of control (Baum et al., 1983)
- Longer lasting effects
- Greater community dissension



Report of the Expert Panel Workshop on the Psychological Responses to Hazardous Substances

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Atlanta, Georgia



What is a Community?

- Space and Boundaries-- Place
- Social Institutions-- Assets
- Social Interactions-- Coherence
- Social Control-- Values, Customs



Types of Trauma

- Individual trauma
- Community trauma – “a blow to the basic tissue of social life” (Erikson, 1976)
 - Less visible, but more damaging
 - Protective factors, such as social support and resources-at-hand, can affect both perception and the capability to response



Variables affecting Risk Perception

- | | |
|----------------|------------------|
| • Controllable | • Uncontrollable |
| • Known | • Unknown |
| • Equitable | • Inequitable |
| • Voluntary | • Involuntary |
| • Old risk | • New risk |

(Slovic 1987)

Most significant influence on development of stress is
loss of control over event (Tucker, 1995)



CASE STUDIES:

**WHAT IS OLD
IS NEW AGAIN....**



Sacramento Train Derailment

At night on July 14th, 1991: 97-car Southern Pacific train derailed in Northern California

19,000 gallons of pesticide metam sodium was leaked

“Pea green foam” and “noxious” smell started to develop in Sacramento River



Health Effects and Intervention



- Most were unaware of the spill until the morning, when almost 1,000 sought medical care for acute symptoms of toxicity
 - Headache
 - Eye irritation
 - Nausea
 - Diarrhea
 - Chest tightness
- Prisoners who helped in cleanup developed severe skin rashes



Mental Health Effects

- 4 months after the disaster, spill residents scored significantly higher on a battery of psycho-social tests (Hypochondria, Depression, Hysteria, Psychasthenia)
- Higher diastolic blood pressure – Higher cortisol levels than control group (Bowler, et al., 1994)
- Residents exposed were at a significantly greater risk for PTSD several years later
- **Perception of exposure caused stress, independent of whether there was real exposure** (Bowler, et al., 1998)



Agriculture Street Landfill



* Self photo by Thom Scott/The Times-Picayune

- Old city dump in New Orleans operated from 1909 to 1960s
- By 1951, over 250 tons of unregulated highly toxic waste was being deposited daily
- Low-income community developed on site in 1969
- 1990 Census identified 390 residential units (~1,000 people) on the site, which is predominantly (over 97%) African-American and middle-to-low income



Community health survey

- In 1986, average blood lead level of children living on site was 12.5 ug/dL
- High levels of health complaints
 - 40% Chest pains
 - 40% Dizziness
- This is "a community that suffers from an inordinate number of health complaints"
- "There are obvious signs of severe mental stress related to the community crisis. Many residents appear to have reached a breaking point."



Staff photo by Thom Scott/The Times-Picayune

The Agriculture Street Landfill Health Survey, Beverly H. Wright, Ph.D., Oct. 21, 1994.



Public Health assessment

- Former landfill with contaminants in soil, dust, air, garden produce; residents maybe exposed through ingestion, dermal contact and inhalation
- Fenced-in, undeveloped area a public health hazard; trespassing occurs frequently
- Residential area -no apparent public health hazard
- Moton elementary school- no public health hazard
- Blood lead levels of most children below levels of concern
- Community concerns: health problems, site clean-up, runoff of contaminants during flooding, maintenance of undeveloped area
- Recommendations: limit exposure; undeveloped area should not be zoned residential until contamination is reduced

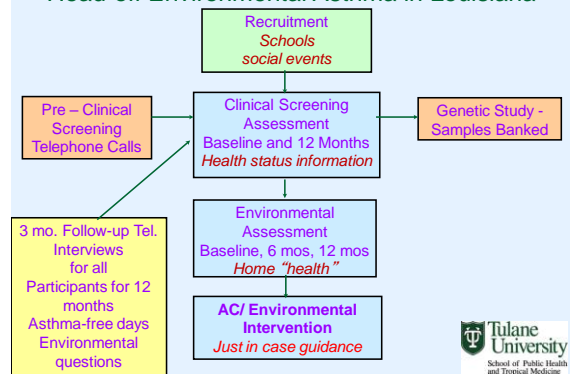
<http://www.atsdr.cdc.gov/HAC/pha/pha.asp?docid=627&pg=1>



Head Off Environmental Asthma in Louisiana



Head-off Environmental Asthma in Louisiana



HEAL community defined

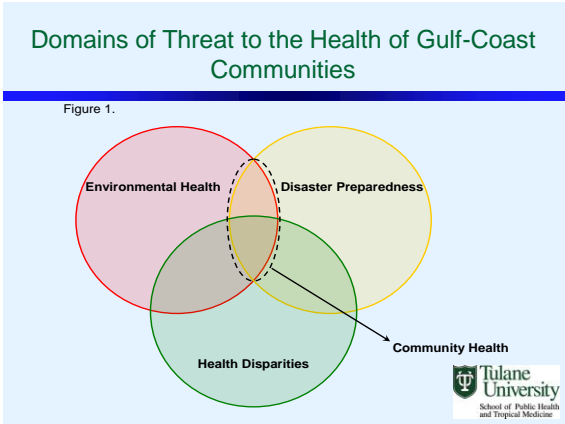
- Place:** Flooding status is a delineation of "place" in the study superseding the traditional "neighborhood".
- Assets:** HEAL study participants are predominantly defined by the lack of core system assets: *Health* care, *Housing*, *Homes* of learning (schools)-- the 3H's benchmarking disaster recovery.
- Coherence:** Faith-based, civic and other community organizations continue to play a pivotal role in post-Katrina New Orleans; a fertile foundation to build community resilience.
- Values and Customs:** New Orleans is culturally endowed with a rich set of values and customs and a unique social control paradigm for sustainable community development.



HEAL Study Objectives

- Characterize post Hurricane Katrina
 - Environmental exposures to mold
 - Healthcare and social disruption
 - ... and the impact on children with asthma
- Evaluate effectiveness of an environmental and asthma counselor intervention
- Eligibility Criteria
 - 4-12 years
 - Physician diagnosed moderate to severe asthma





Indicators of Health

The range of personal, social, economic, and environmental factors that influence health status are known as indicators or determinants of health.

Determinants of health fall under several broad categories:

- Policymaking
- Social factors
- Health services
- Individual behavior
- Biology and genetics

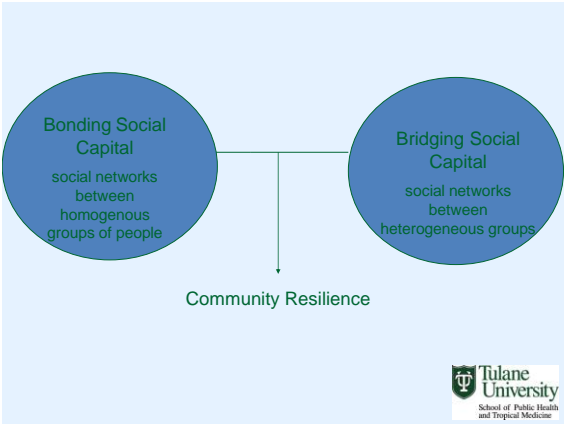
Healthy People 2020

Tulane University School of Public Health and Tropical Medicine

Striking Disparities in Mental Health Care

- Minorities have less access to, and availability of, mental health services
- Minorities are less likely to receive needed mental health services
- Minorities in treatment often receive a poorer quality of mental health care
- Minorities are underrepresented in mental health research

Tulane University School of Public Health and Tropical Medicine



BUILDING BACK BETTER

A 12-Month Update on UNICEF's Work to Rebuild Children's Lives and Restore Hope since the Tsunami

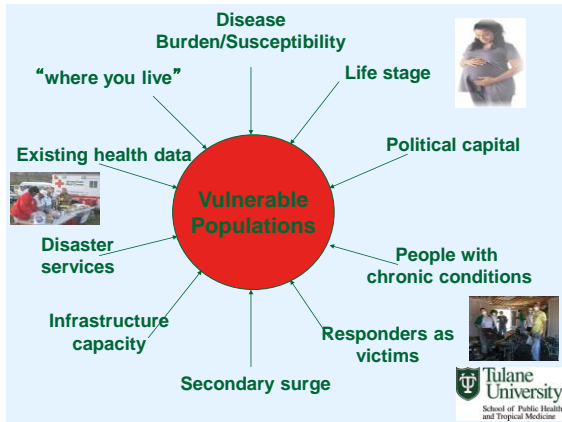
The drawing is a colorful, somewhat abstract sketch of a school building with a blue roof and several windows. In front of the building, there are several small figures of children playing. The background is a mix of green and blue. The Tulane University logo is in the bottom right corner.

FUTURE RESEARCH

"It is not acceptable for scientists to only inform and educate communities. We need to listen and learn from the community if we are to engage in more informed and more relevant research"

Maureen Lichtveld, IOM. October 20, 2005

Tulane University School of Public Health and Tropical Medicine



Possible Areas of Research

- Resilience
 - Promoting protective factors
 - Improving recovery
- What makes seemingly similar individuals/communities reach different mental health outcomes?



- What Characteristics must a Resilient community have in order to bounce back from Natural Disasters?
- What must a Community do day-to-day to create these characteristics before the challenge?
- What efforts at forecasting must resilient communities make?



Community Susceptibility-Resilience Conceptual Framework

- Resilience and Susceptibility are two forces that determine the vulnerability of a community
- Susceptibility is a function of exposure
- Resilience is a function of response to that exposure (de Boer 2000)



Susceptibility

- Underlying health conditions affect the degree of preparedness
 - In Gulf South:
 - Health disparities
 - Decades of Environmental Health Contamination
 - Persistent disaster-related adverse psychosocial consequence
- A community's ability to address areas of susceptibility reflects its vulnerability



Resilience

- Influenced by the 3-H's
 - Housing
 - Homes of learning (schools)
 - Health Care
- Access to and quality of these factors directly affects disaster recovery, and should be considered a predictor of community resilience



GROWH

Gulf Resilience on Women's Health

- Community-based participatory research
- Target population of pregnant women and women of reproductive age living in SE Louisiana
 - Determine the effect of the DWH disaster on mental health
 - Determine pre- and post- DWH disaster attitudes related to environment and seafood
 - Build community resilience through embedding disaster interventionists

www.growhgulfssouth.com



Group exercise

- You have just been hired by Mayor Mundorf of Roosevelt City as a disaster health specialist
- After a recent flood from heavy rains, communities living near an old hazardous waste landfill have complained about headaches and skin rash.
- The community is VERY upset--despite multiple requests Mayor Mundorf has not taken any action
- The mayor asks you to develop three messages he can share at an upcoming community meeting; he is up for re-election...
- Use the 3x9 rule to develop your messages



United Nations Centre for Regional Development



"Community Based Disaster Management: Empowering Communities to Cope with Disaster Risks"



DISASTER
PSYCHOSOCIAL ASSESSMENT
AND SURVEILLANCE
TOOLKIT

Disaster-PAST

Louisiana State University Health Sciences Center Department of Psychiatry

1542 Tulane Avenue, New Orleans, Louisiana 70112

(504) 568-6004

<http://www.medschool.lsuhsu.edu/psychiatry>

Louisiana State Department of Health and Hospitals

Office of Behavioral Health

628 North Fourth Street, Baton Rouge, Louisiana, 70802

(225) 342-9500

<http://new.dhh.louisiana.gov/index.cfm/page/202>

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Disaster-PAST

- ▣ designed for surveillance of community mental health and psychosocial functioning following disasters
- ▣ purpose of understanding the ongoing need in recovering communities.
- ▣ empirically informed knowledge of mental health needs can aid in attaining an appropriate level of services to people and places that are most in need.

Disaster-PAST

- ▣ All recommended scales for surveillance are free and publicly available
- ▣ The toolkit is designed for use by any agency or entity that has a need to know the psychosocial needs of a community following a disaster.

Why screen with the Disaster-PAST?

WHO WHAT WHERE WHEN AND HOW

WHO

- ▣ Mental health screening will help to explain which communities and populations are most in need of mental health services following a disaster, as well as to what extent they have been affected.
- ▣ It can also allow for identification of certain demographic and risk factors that may serve as risks for developing certain types of mental health problems such as depression or posttraumatic stress symptoms following a disaster.

WHAT

- ▣ Data-informed knowledge can help to determine what levels of services are needed.
- ▣ This can allow a funding source to direct an appropriate level of services to those in need.

WHERE

- ▣ Using assessment and surveillance techniques will help to determine where services are most needed and where they are most utilized by the population.
- ▣ By tracking demographic information such as zip codes and area of residence (or another location identifier) prior to the disaster, it can also aid in anticipating where services will be needed once individuals begin returning home in the cases of mass migration due to a disaster.

WHEN

▣ The toolkit

- provides recommendations of when it may be helpful to conduct psychosocial assessment and surveillance following disaster.
- can inform services provided within the timeline of Federal Emergency Management Agency (FEMA) Crisis Counseling Assistance and Training Program (CCP) services.
- provides a recommended timeline of when to conduct psychosocial assessment and surveillance in the event a national disaster is not declared or in international disasters.
- can be used for ongoing evaluation of mental health services and for long-term surveillance of mental health needs

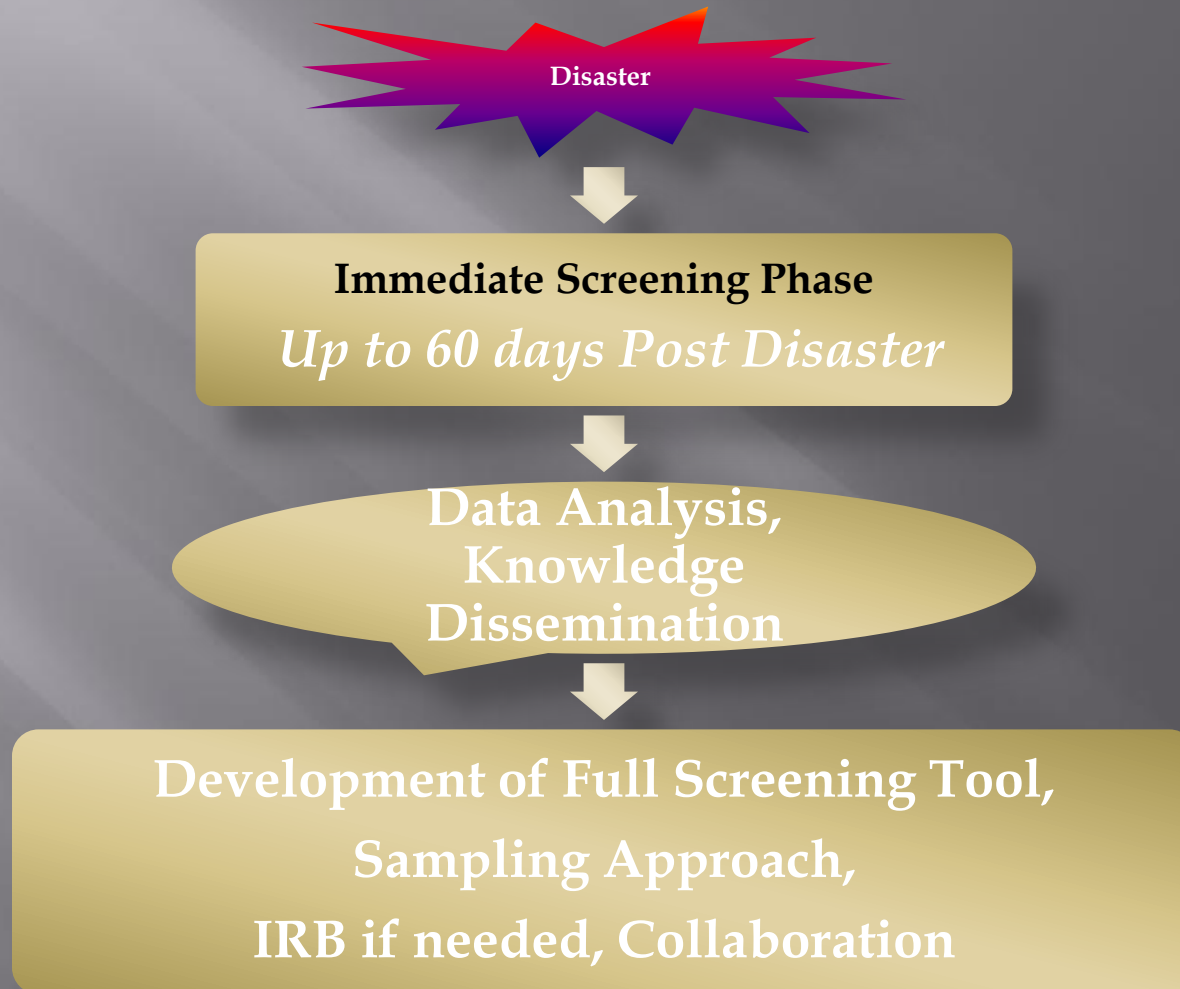
WHEN (CON'T)

- ▣ Demonstrating needs overtime
- ▣ Screen early and often to show ongoing, newly emerging and changing needs.
- ▣ Coincide with FEMA CCP timeline
 - Immediate Services Program (ISP) – 14 to 60 days
 - ▣ Declaration of disaster up to 60 days – brief screening
 - Regular Services Program (RSP) – 9 months
 - ▣ 60 to 180 days – full screening linking to service provision, may included some overlap ISP time due to ISP extension
 - ▣ 6 months to 1 year post disaster – continued service linkage and reassessments for ongoing needs
 - Ongoing screenings to assess longer term needs on an annual basis or coinciding with extended programs

HOW

- ▣ The primary purpose of the toolkit is to provide information and recommendations on how to conduct psychosocial surveillance following a disaster, including how to:
 - choose constructs and appropriate screening tools
 - how to sample individuals to participate in the assessments, including the benefits of collaboration
 - guidelines for how to use the information to inform provision of services.

Overview Disaster Past



Recovery Screening Phase

Recovery Screening Phase

60 days to 1 Year Post Disaster



Data Analysis
Knowledge
Dissemination



Update Screening Tool for
Time Relevance

Extended Screening Phase

Extended Screening Phase

Ongoing More than 1 Year Post disaster



Data Analysis

Lessons Learned

Continued Collaboration

Knowledge Dissemination

Future Disaster Preparation

Website:

[http://www.medschool.lsuhschool.edu/psychiatry/
disasterpast.aspx](http://www.medschool.lsuhschool.edu/psychiatry/disasterpast.aspx)