

7:30 am – 9:00 am
Sunday, May 1

Concurrent Mini-Plenary Session

**Adolescent Health and
Reproductive Health
Overview**

Frank Armao, MD



**ADOLESCENT HEALTH
IS
BEHAVIORAL HEALTH!**



FRANK ARMAO, MD

DON'T ASK, DON'T TELL?

**ADOLESCENTS
WANTED TO DISCUSS:**

DRUGS:	65%
STDs	61%
SMOKING	59%

J Adolesc Health. 2002; 30:190-195

DON'T ASK, DON'T TELL?

PHYSICIANS DISCUSSED:

EATING HABITS	49%
WEIGHT	43%
EXERCISE	41%

J Adolesc Health. 2002; 30:190-195

DON'T ASK, DON'T TELL?

**PHYSICIAN INITIATION OF
PSYCHOSOCIAL TOPICS
DECLINED
IN THE COURSE OF
LONGITUDINAL RELATIONSHIPS**

Arch Pediatr Adolesc Med. 2002;156:685-692.

**DSM – IV DX IN ADOLESCENTS
GREAT SMOKY MOUNTAIN STUDY
(GSMS)**

Arch Gen Psychiatry. 2003;60:837-834

**COMMUNITY SAMPLE, N= 1420
RURAL NORTH CAROLINA
AGES 9 – 16
NATIVE AMERICANS OVERSAMPLED
-- 3% OF POPULATION, 25% OF STUDY**

GSMS
DX PREVALENCE CHANGES WITH AGE
HIGHEST PREVALENCE AT 9-10
-- ADHD, TICS, SEPARATION ANXIETY,
ELIMINATION DISORDERS
-- TEND TO RESOLVE
SUBSTANCE USE – LEADING DX BY AGE 15
INCREASING EMOTIONAL DISTURBANCE
AND IMPAIRMENT IN OLDER COHORTS
Arch Gen Psychiatry. 2003;60:837-834

GSMS
DSM-IV DISORDERS
3 MONTH PREVALENCE = 13%
ACCUMULATED PREVALENCE = 36.7%
MALES OUTNUMBERED FEMALES
BOYS – CONDUCT DO AND ADHD
GIRLS – DEPRESSION AND ANXIETY DOs
Arch Gen Psychiatry. 2003;60:837-834

GSMS
COMORBIDITY
25% WITH DX HAD MORE THAN ONE
DEPRESSION COMORBID WITH
-- CONDUCT DO IN FEMALES
-- SUBSTANCE USE DOs IN MALES
Arch Gen Psychiatry. 2003;60:837-834

NATIVE AMERICANS IN GSMS
(SEPARATE ANALYSIS, AGE 9-13)
Am J Public Health. 1997;87:827-832
NA HOUSEHOLDS GENERALLY HAD
2X INCREASED RATES OF VIOLENCE,
ARRESTS, DRUG/ALCOHOL PROBLEMS, AND
POVERTY, COMPARED TO WHITES IN
SURVEY.
DESPITE THIS DISPARITY, THE ONLY
SIGNIFICANT DIFFERENCES AMONG 9 – 13
YOs WERE IN SUBSTANCE USE (2X) AND
SUBSTANCE USE DOs (12X)

NORTHERN PLAINS NATIVE YOUTH
Am J Public Health. 1997;87:827-832
N = 109, 14 – 16 YEARS OF AGE
HIGHER RATES OF
- DISRUPTIVE BEHAVIOR DO (esp ADHD)
-SUBSTANCE USE DISORDERS
-HIGHER RATES OF COMORBIDITY
BETWEEN ABOVE TWO DISORDERS

WHAT ABOUT PTSD?
NOT REPORTED IN ANY OF THE
STUDIES ON NATIVE ADOLESCENTS
HAVE TO EXTRAPOLATE FROM ADULT
STUDIES FOR NATIVE AMERICANS
SUITABLE CRITERIA ??

**“PREVALENCE OF DSM-IV
DISORDERS...IN 2 AMERICAN INDIAN
RESERVATION POPULATIONS”**

AI-SUPERPFP (2005) Arch Gen Psychiatry. 2005;62:99-108

**COMMUNITY SAMPLE OF 3084,
AGES 15 - 54**

TWO TRIBES

-- 1 SOUTHWEST, 1 NORTHERN PLAINS

COMPARED TO NON-NATIVES

↑ **PTSD AND ALCOHOL DISORDERS**

-- **MAJOR DEPRESSION NOT ELEVATED**

AI-SUPERPFP (cont'd)

OVERALL ANY DSM-IV DX:

LIFETIME – 42%

12 MONTH – 21%

PTSD: LIFETIME -- 19% WOMEN

-- **10% MEN**

-- **USUAL RANGE 3 – 8 %**

Arch Gen Psychiatry. 2005;62:99-108

PTSD STUDY

SOUTHWEST TRIBE, 1997

Am J Psychiatry. 1997;154:1582-1588

N=247 ADULTS

EXPOSURE TO 10 TRAUMATIC EVENTS:

ACCIDENT OR CRASH

FIRE / EXPLOSION

PHYSICAL ASSAULT

SITUATION

WITNESSING EXTREME VIOLENCE

INJURY/ UNEXPECTED DEATH OF LOVED ONE

COMBAT

OTHER

NATURAL DISASTER

INDUSTRIAL TRAUMA

DANGEROUS

**LIFETIME PREVALENCE PTSD = 22%
(USUAL RANGE 3-8%)**

81% REPORTED ONE OR MORE EVENTS

**MEAN NUMBER OF EVENTS FOR
THOSE WITH CURRENT PTSD = 100 !
(EVENTS = 3 FOR THOSE WITHOUT DX**

PTSD MEAN AGE AT ONSET

-- **16 FOR WOMEN**

-- **20 FOR MEN** Am J Psychiatry. 1997;154:1582-1588

**POSTTRAUMATIC STRESS
DISORDER (PTSD)**

CRITERIA:

A: EXPOSURE

B: SYMPTOMS

RE-EXPERIENCING

AVOIDANCE / NUMBING

AROUSAL / ANXIETY

C: DURATION

D: SEVERITY



RE-EXPERIENCING

- **INTRUSIVE THOUGHTS**
 - **PLAY IN CHILDREN**
- **NIGHTMARES**
- **FLASHBACKS**
- **DISTRESS ON EXPOSURE TO CUES**
 - **PSYCHOLOGICAL OR
PHYSIOLOGIC**

AVOIDANCE AND NUMBING

- **AVOIDANCE BEHAVIORS**
- **AMNESIA**
- **DIMINISHED INTERESTS**
- **ESTRANGEMENT**
- **RESTRICTED AFFECT**
- **FORESHORTENED FUTURE**

INCREASED AROUSAL

- **INSOMNIA**
- **IRRITABILITY OR ANGER**
- **DIFFICULTY CONCENTRATING**
- **HYPERVIGILANCE**
- **INCREASED STARTLE RESPONSE**



GIVEN THAT ONLY 20% –25% OF THOSE EXPOSED TO A “QUALIFYING” TRAUMA GO ON TO DEVELOP PTSD...

HOW DO WE MEASURE THE IMPACT OF TRAUMA AND ADVERSE CHILDHOOD EXPERIENCES ON SUBSEQUENT HEALTH RISK BEHAVIORS, HEALTH STATUS, and BEHAVIORAL DISORDERS?

ACE STUDY

ADVERSE CHILDHOOD EXPERIENCES

Am J Prev Med. 1998;14:245-258

**HMO POPULATION, SAN DIEGO (N=17337)
EXPOSURE TO 7 “ACES”**

- **ABUSE**
PHYSICAL / SEXUAL / PSYCHOLOGICAL
- **SUBSTANCE ABUSE IN HOUSEHOLD**
- **MENTAL ILLNESS IN HOUSEHOLD**
- **MOTHER TREATED VIOLENTLY**
- **INCARCERATED HOUSEHOLD MEMBER**
- ***8TH ADDED TO “WAVE II”**
- **PARENTAL SEPARATION / DIVORCE**

ACE STUDY: DOSE RESPONSE

**4 OR MORE EXPOSURES ASSOC WITH
4 – 12 X INCREASED RISK OF:
ETOHism, DRUG ABUSE, DEPRESSION,
AND SUICIDE ATTEMPTS.**

**2 – 4 X INCREASED RATES OF:
SMOKING, “POOR HEALTH”, STDs, and
GREATER THAN 50 SEX PARTNERS**

Am J Prev Med. 1998;14:245-258

ACE – SUICIDE ATTEMPTS

JAMA. 2001;286:3089-3096

LIFETIME ATTEMPTS

OVERALL – 3.8%

ACE = 0: 1.1%

ACE = 2: 2.2%

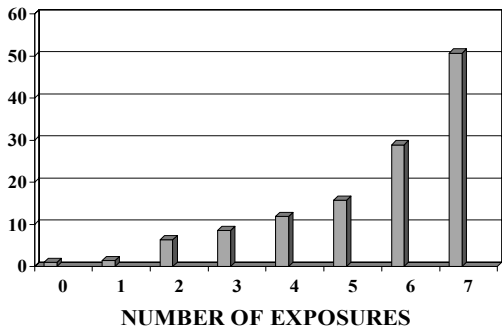
ACE = 5: 13.8%

ACE = 7: 35.2%

EFFECT WAS LARGEST ON

ADOLESCENT SUICIDE ATTEMPTS

ODDS RATIOS: ADOLESCENT SUICIDE ATTEMPTS BY NUMBER OF EXPOSURES



JAMA. 2001;286:3089-3096

ACE – TEEN PREGANNCY

Pediatrics. 2001;107(2):e19

MALES EXPOSED TO PHYSICAL ABUSE, SEXUAL ABUSE, OR BATTERED MOTHERS:

↑ **IMPREGNATION OF TEENAGED GIRLS (OR 1.7 – 2.4)**

“ADVERSE CHILDHOOD EXPOSURES AND ALCOHOL DEPENDENCE AMONG SEVEN NATIVE AMERICAN TRIBES”

Am J Prev Med. 2003;25:238-244

ETOH DEPENDENCE (LIFETIME):

36% MEN (21% - 56%)

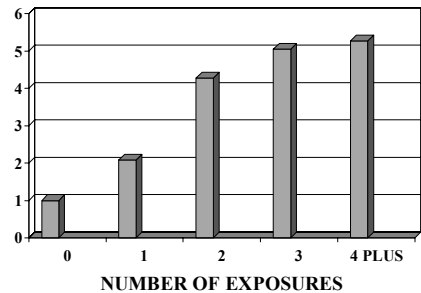
23% WOMEN (17% - 30%)

(EXCLUDES ONE TRIBE WITH RATES = 1% AND 2%)

ACE EXPOSURE: 74% - 100% MEN

83% - 93% WOMEN

ODDS RATIOS FOR ALCOHOL DEPENDENCE BY NUMBER OF EXPOSURES



Am J Prev Med. 2003;25:238-244

COMPARING ACES

ACE STUDY

NON-NATIVE % NATIVE %

PHYSICAL ABUSE – M	30	40
PHYSICAL ABUSE – F	27	42
SEXUAL ABUSE – M	16	24
SEXUAL ABUSE – F	25	31
EMOTIONAL ABUSE	11	30
HOUSEHOLD ETOH	27	65

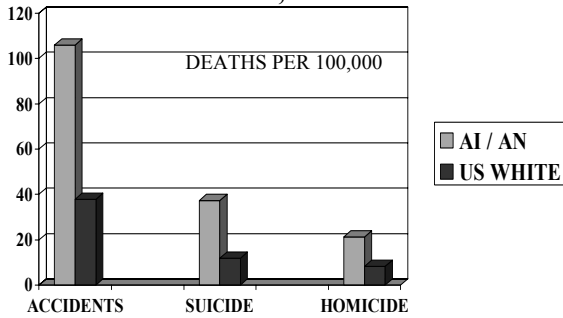
NATIVE AMERICAN ADOLESCENT HEALTH STATUS AND HEALTH RISK BEHAVIORS CLEARLY REFLECT THE FACT THAT NATIVE AMERICANS ARE EXPOSED TO FAR MORE EARLY LIFE STRESS THAN THE U.S. POPULATION IN GENERAL.

(NOTE TO SELF:

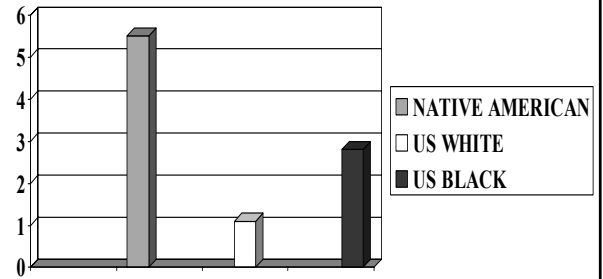
DOES NOT = “SICK FOR LIFE”.

MAY NOT EVEN = “SICK”.)

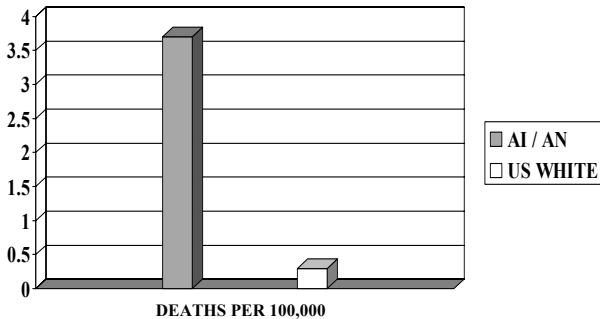
ADOLESCENT MORTALITY: ACCIDENTS, HOMICIDE, SUICIDE AGES 15 – 24, 1996 - 98



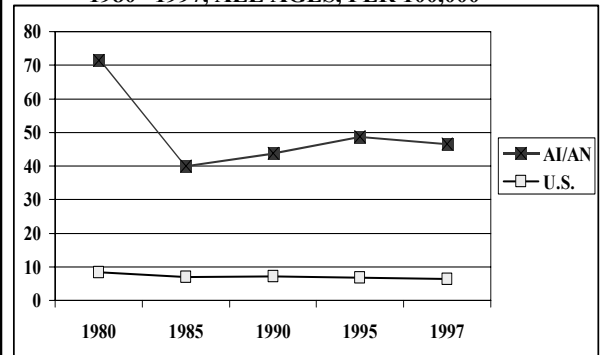
PERCENT OF TOTAL DEATHS AGE 15 - 24, 1996 - 1998



ADOLESCENT ALCOHOL-INDUCED DEATHS: AGE 15 – 24, 1996 - 1998



THE NEWS ISN'T ALL BAD ALCOHOL-INDUCED DEATH RATES 1980 –1997, ALL AGES, PER 100,000



SUICIDE: NATIVE AMERICANS

**ADOLESCENT RATES
HIGHEST IN NATION
37.4 PER 100,000
(AGE 15 – 24)**

U.S. RATE: 11.4 PER 100,000

NATIVE AMERICAN ADOLESCENT ATTEMPTERS

Arch Pediatr Adolesc Med. 1999; 153: 573-580.

RISK FACTORS:

FRIEND OR FAMILY MEMBER SUICIDE

SOMATIC SYMPTOMS (HA, ABD PAIN)

SEXUAL OR PHYSICAL ABUSE

FREQUENT ALCOHOL OR MJ USE

NATIVE AMERICAN ADOLESCENT ATTEMPTERS

PROTECTIVE FACTORS:

CONNECTEDNESS TO FAMILY

TALKING WITH FRIENDS OR FAMILY

PERCEIVED EMOTIONAL HEALTH

FEMALES ONLY: SCHOOL NURSE / CLINIC

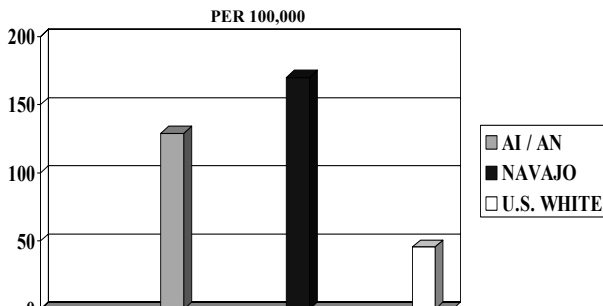
Arch Pediatr Adolesc Med. 1999; 153: 573-580.

TRAUMATIC LOSS AND PTSD

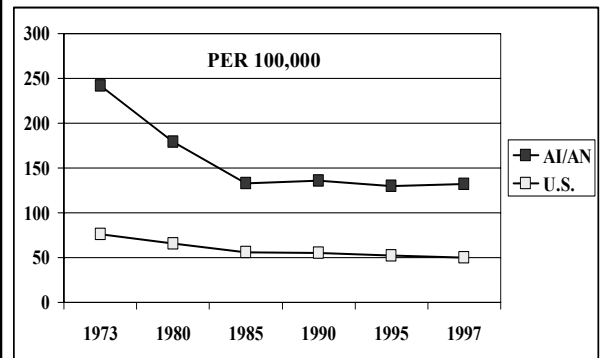
THE SUDDEN, UNEXPECTED
DEATH OF A LOVED ONE
MAY BE THE SINGLE MOST
COMMON PRECIPITATING
EVENT.

TRAUMATIC LOSS

DEATH RATES: INJURIES, HOMICIDE, SUICIDE
1996 -1998



AGAIN – THE NEWS ISN'T ALL BAD
DEATH RATES: TRAUMA, 1973 -1995



EARLY LIFE STRESS AND THE HPA AXIS

ACE → INCREASED CRF RESPONSE
TO STRESS
DECREASED RESTING
CORTISOL

CRF → HIPPOCAMPAL VOLUME
LOSS
(NOT OBSERVED IN CHILDREN)

POST TRAUMATIC SPECTRUM DISORDERS

ACE → ↔ ← TRAUMA

POST TRAUMATIC STRESS
DISORDER (DSM-IV)

POST TRAUMATIC *SPECTRUM*

**SUBSTANCE ABUSE PROMISCUITY
AGGRESSION SELF-MUTILATION
SCHOOL DROPOUT DEPRESSION
ANTISOCIAL BEHAVIOR ANGER
OBESITY / EATING DOs ANXIETY
SOMATIC SYMPTOMS
ETC, ETC, ETC**

**(NOTE TO SELF:
DOES NOT = BIPOLAR DISORDER !)**

GENDER DIFFERENCES IN RESPONSE TO TRAUMA

**MALES EXTERNALIZE
RE-VICTIMIZE OTHERS
*BEHAVIORS***

**FEMALES INTERNALIZE
RE-ENACT THEIR VICTIMIZATION
*SYMPTOMS***

**WHATEVER THE CONSTELLATION OF POST
TRAUMATIC SYMPTOMS AND BEHAVIORS...
IT'S ABOUT KIDS LEFT WITH NEARLY
INCAPACITATING DEFECITS IN:**

**SELF-SOOTHING
and
SELF EFFICACY**

**FORTUNATELY, ADOLESCENTS ARE STILL:
PLASTIC
and
FIELD DEPENDENT (THEY DO MUCH
BETTER ON A LEVEL PLAYING FIELD.)**

TREATMENT

ECOLOGICAL APPROACH

**PSYCHOTHERAPY
SUPPORTIVE / CBT / EMDR
8 RCTs (Arch Pediatr Adolesc Med. 2004;158:786-692)**

**MEDICATION (NO RCTs)
SSRIs
ALPHA-2 AGONISTS
BETA BLOCKERS ? – ACUTE PROPHYLAXIS**

PREVENTION

JAMA.1998;280:1271-1273

**NURSE VISITATION PROGRAM
15 YEAR FOLLOW –UP
2 TO 3 FOLD REDUCTIONS IN
ARRESTS
NUMBER OF SEX PARTNERS
ALCOHOL USE
CIGARETTES
RUNNING AWAY**

PREVENTION

JAMA.2002;288:1874-1881

**DIVORCE INTERVENTION
SIX YEAR FOLLOW-UP
11% DSM DX vs 23.5%
SIGNIFICANT DECREASES IN
SEX PARTNERS
SUBSTANCE USE
EXTERNALIZING PROBLEMS**

IS SUICIDE PREVENTABLE?

BMJ. 2003; 327:1376-1380.

US AIR FORCE, 1997 – 2002

COMPREHENSIVE PROGRAM: COMMUNITY EDUCATION, TRAINING, PREVENTIVE AND TREATMENT ENHANCEMENTS.

REDUCED:

- **SUICIDES - 33%**
- **HOMICIDES - 51%**
- **ACCIDENTAL DEATHS – 51%**
- **SEVERE FAMILY VIOLENCE – 54%**

WHAT YOU CAN DO IF IT AIN'T BROKE, FIX IT

- 1. PROMOTE EARLY INTERVENTION AND PARENTING PROGRAMS**
- 2. SCREEN / COUNSEL FOR RISK BEHAVIORS**
- 3. INJURY PREVENTION / ETOH / EMS**
- 4. PROMOTE TEEN CLINICS**
- 5. IDENTIFY AND REFER THE OUTLYERS**