The Founding of CASAA
And the Growth of FASER

Philip A. May, Ph.D.
Professor Emeritus, UNM
Research Professor,
The University of North Carolina at Chapel Hill
Gillings School of Global Public Health
Prehistory

- New Mexico was notorious in the USA for alcohol-related problems, especially mortality throughout the 1960’s and 1970’s:
  - Behavioral health problems:
    - Alcohol-related suicide.
    - Alcohol-related homicide.
    - Drug-related crime and deaths.
- We were number one (or close to it) every year for Driving While Intoxicated (DWI) deaths and injuries:
  - per 100,000 population and
  - per 100 million miles travelled.
UNM, Public Health and the First DWI Commission

- Some UNM faculty were involved in individual efforts.
- 1980 Governor Bruce King commissioned the First NM Task Force on DWI.
- Co-chairmen of the commission
  - Robert Hawk (state representative)
  - Max Bennett, (UNM professor)
- 40 members including legislators, cabinet, other state officials, and concerned citizens:
  - About a half dozen UNM faculty members served on the commission: Drs. Max Bennett, FCM; Larry Berger, Peds.; George Goldstein, adjunct in Psychiatry, etc.
New Mexico
DWI Task Force (1980 – 82)

• Thirty-seven (37) recommendations were made to governor King of innovative public health ideas in a breathtaking array of areas.

• Ways to reduce the occurrence and toll of drunk driving:
  – Lowering of the legal intoxication level from .10 to .08 and new ideas of presumption of intoxication (e.g. the legal status/use of breathalyzers).
  – The first laws requiring infant and child restraints (car seats).
  – First laws for mandatory use of seat belts for drivers and passengers in the front seat of vehicles.
New Mexico DWI Task Force (1980 – 82)

• Led to a new focus on alcohol as a public health problem and the promise of research and prevention.
• It earned us a seat at the table.
• **Momentum** was created and the movement, multi-disciplinary approaches, and synergy that emerged was what led to the founding of CASAA.
  – New attention to alcohol problems in general.
  – New awareness of the role of public policy in treatment, prevention, and intervention.
Innovators Who Made CASAA Possible

• Max Bennett, Ph.D.,
  Family and Community Medicine Planning Officer for UNM-SOM

• Walter Winslow, M.D.,
  Chairman of Psychiatry

• Leonard Napolitano, Ph.D.,
  Dean, UNM School of Medicine
CASAA Beginnings

• December, 1988 – A meetings convened at the Medical School to discuss mutual interests in academic and public program approaches to alcohol and substance abuse in New Mexico.

• Planning committees were formed:
  - **Treatment** – Patrick Abbott, M.D., Psychiatry
  - **Research** – William Miller, Ph.D., Psychology
  - **Prevention** – Philip May, Ph.D., Sociology

• **CASAA founded and named in 1989.**
My UNM Identity

• 1978-1990
• “Yo soy de UNM”
• I had the privilege of serving as the Director of CASAA 1990-1999.
• Executive committee ruled by consensus.
• Gill Woodall, Bill Miller, Pat Abbott.
• 1990 – 2011

“Yo soy de UNM-CASAA”
Early CASAA Founders/Stars

And many more....
Allies Throughout the 1990’s

And many more....
CASAA administration and NIAAA funding enabled us to go from:
• a small time operation to
• multiple programs across three continents
Alcohol is a teratogen.

Mother and baby have essentially the same blood alcohol concentration (BAC).

Old days: “Black Box”

There is extreme variation in the outcomes:

- Per woman
- Per pregnancy
- Per baby and child
IOM Classification of Fetal Alcohol Spectrum Disorders (FASD)

- **FAS** – fetal alcohol syndrome
- **PFAS** - partial FAS
- **ARND** – alcohol-related neuro-developmental deficits
- **ARBD** – alcohol-related birth defects

(Source: Stratton, et al., 1996; Hoyme, et al., 2005)
First FAS Epi Study: Southwestern Indians (ages 0-14)


Method: Active case referral to special FAS clinics in a closed system (IHS).
Contributions: Prevention of FASD in New Mexico

• Statewide office of FAS prevention established in 1995.

• Jerome Romero has been Director since 1996.

• **Primary prevention for awareness and prevention:**
  – Pregnant Pause, posters, pamphlets, videos, news audio and video information.

• **Secondary prevention - Peer training.**
FASER Studies Funded by:

• NIH/ National Institute on Alcohol Abuse and Alcoholism (NIAAA).

• Thanks to: Jan Howard, Ph.D., Patricia Mail, Ph.D., and Marcia Scott, Ph.D.

• A very special thanks to:

Kenneth Warren, Ph.D.
Faye Calhoun, Ph.D.
Ting Kai Li, M.D.
Enoch Gordis, M.D.
Epidemiology and diagnostic studies from special FASD referral clinics.

Researcher’s Headquarters,
The University of New Mexico,
Center on Alcoholism, Substance Abuse, and Addictions, Albuquerque
FASER Colleagues:
The very best

And many more....
In-School Studies of FASD
Location of FASER In-School Samples: 1997 - 2014

United States (6)

Italy (2)

South Africa (8)
Studies in South Africa: Why?
Two children of the same age in 1st grade: 50th vs. 1st centile

1. Population is purely alcohol exposed.
2. Binge drinking pattern prevalent and very regular.
3. FASD rates among the Coloured population are extremely high.
Longitudinal Studies of the Trajectory of FASD
FASER Research Teams: 2006 - 2013

New Mexico: 2013

South Africa: 2013

South Dakota: 2012

South Africa: 2009

Italy: 2006
Our Multi-disciplinary Teams Employ:

• Pediatric Dysmorphologists
• Educational Diagnosticians and Psychologists
• Maternal Interviewers
• Field administrators and field workers
• Data and statistical specialists
• Epidemiologists and other public health researchers
## Status of FASER In-School Studies

<table>
<thead>
<tr>
<th>Samples (n= 18)</th>
<th>Total children enrolled</th>
<th>Percent consented</th>
<th>Dysmorph exams (n)</th>
<th>FASD cases (n)</th>
<th>Status of data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>So. Africa:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA Town I-IV</td>
<td>3,420</td>
<td>84.8%</td>
<td>2,224</td>
<td>352</td>
<td>completed**</td>
</tr>
<tr>
<td>SA Town V</td>
<td>1,174</td>
<td>78.0%</td>
<td>738</td>
<td>187</td>
<td>completed</td>
</tr>
<tr>
<td>BRAM I</td>
<td>1,346</td>
<td>72.6%</td>
<td>1,064</td>
<td>341</td>
<td>completed</td>
</tr>
<tr>
<td>BRAM II</td>
<td>1,457</td>
<td>74.9%</td>
<td>875</td>
<td>282</td>
<td>completed</td>
</tr>
<tr>
<td>Italy:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lazio I</td>
<td>1,087</td>
<td>50.0%</td>
<td>230</td>
<td>22</td>
<td>completed**</td>
</tr>
<tr>
<td>Lazio II</td>
<td>902</td>
<td>48.1%</td>
<td>222</td>
<td>24</td>
<td>completed**</td>
</tr>
<tr>
<td>USA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilots I – III</td>
<td>2,238</td>
<td>59.8%</td>
<td>593</td>
<td>26</td>
<td>completed</td>
</tr>
<tr>
<td>Midwest City I</td>
<td>2,033</td>
<td>70.5%</td>
<td>512</td>
<td>48</td>
<td>completed</td>
</tr>
<tr>
<td>Midwest City II*</td>
<td>2,013</td>
<td>55.0%</td>
<td>379*</td>
<td>22</td>
<td>completed</td>
</tr>
<tr>
<td>Western City I</td>
<td>915</td>
<td>62.4%</td>
<td>268</td>
<td>30</td>
<td>completed</td>
</tr>
<tr>
<td>Western City II*</td>
<td>888</td>
<td>68.7%</td>
<td>250*</td>
<td>--</td>
<td>underway</td>
</tr>
<tr>
<td>Southeast City I</td>
<td>487</td>
<td>54.8%</td>
<td>187</td>
<td>--</td>
<td>underway</td>
</tr>
<tr>
<td>SoutheastCnty I</td>
<td>852</td>
<td>44.1%</td>
<td>202</td>
<td>--</td>
<td>underway</td>
</tr>
<tr>
<td>Totals</td>
<td><strong>19,109</strong></td>
<td><strong>63.1%</strong></td>
<td><strong>7,744</strong></td>
<td><strong>1334</strong></td>
<td></td>
</tr>
</tbody>
</table>

* Completely random sample  ** Articles published
Axiomatic Understandings of FASD in Humans

- **Child variables:**
  - Latter born children are more severely affected.
  - Group differences in growth and development in children with FAS and PFAS are demonstrable from case control studies.
  - There is substantial individual variation in children with FAS and PFAS.
    - Physical appearance and motor performance
    - Cognitive skills and behavior
  - Most children with FAS, PFAS, and ARND have more total minor anomalies (dysmorphology) than children who do not have an FASD diagnosis.
Axiomatic Understandings of FASD in Humans

• Prevalence:
  – Rates of FASD are considerably higher in communities where a sub-cultural practice of *binge drinking* is practiced.
  – Rates of FASD are considerably higher in *low SES populations*.
  – Rates of FASD vary greatly from one community to another (especially among American Indian tribal communities).
Axiomatic Understandings of FASD in Humans

• There is substantial individual variation in child outcomes from one woman to the next.

• Maternal risk for FASD varies mostly by:
  – Quantity, frequency, variability, and timing of alcohol consumption. (binge drinking is the most pernicious)
  – But maternal risk also varies by:
    • Gravidity, parity, and/or advancing age (> 25).
    • Latter-born children are more severely affected.
    • Mother’s educational attainment.
    • Mother’s body mass (BMI) and maternal weight.
    • Mother’s dietary intake and nutrition
    • Mother religious adherence and spiritual practices
Mean Number of Drinks Consumed per Drinking Day During Pregnancy by Diagnostic Group

Source: May et al., DAD, 2013
Mean Peak BAC (at least one time during pregnancy) by Diagnostic Group

Source: May et al., DAD, 2013
Mean Drinks per Drinking Day (DDD) by Trimester and Diagnostic Group

Source: May et al., DAD, 2013
Case Management Evaluation:
Total drinks consumed over a weekend at Baseline, 6, 12, and 18 month follow-up

aData in Figure 3 include only those women who have data for all four time periods. (N=29); pregnant n=5; non-pregnant n=4, at baseline, 6 months, 12 months, and 18 months)

Repeated measures analysis, between-Ss effect, pregnancy: $F = 4.55, p = .043$

Pregnant vs, Non-Pregnant weekend drinking: At 6 months, $t = 3.62, P = .026$
Estimated by the BACCuS technique (Markham et al., 1993).

Data in Figure 4 include only those women who have data for all four time periods.
(N = 29; pregnant n = 25, non-pregnant n = 4, at baseline, 6 months, 12 months, and 18 months)

Repeated measures analysis, between-Ss effect, pregnancy, $F = 5.49, P = .022$

Comparison between Pregnant and Non-pregnant women:
- at 6 months, $t = -4.77, P = .000$
- at 12 months, $t = -.61, P = .541$
- at 18 months, $t = 3.67, P = .000$
Case Management: AUDIT score at baseline, 6, 12, and 18-months follow-up

Repeted measures analysis, within-Ss main effect: $F = 14.26, p = .000$
Pairwise comparisons (Bonferroni):
- Baseline vs 6 mo follow-up: $p = .000$
- Baseline vs 12 mo follow-up: $p = .000$
- Baseline vs 18 mo follow-up: $p = .000$

Data in Figure 4 include only those women who have data for all four time periods.
(N = 29 at baseline, 6 months, 12 months, and 18 months)
Multiple Maternal Characteristics Predicting Child Dysmorphology And Diagnosis

South Africa waves I, II, and III (combined)

$R^2 = 62.0\%$

(Total Variance explained - $R^2 = 17.3\%$)

Source: May et al., *JDBP*, 2013
Multiple Maternal Predictors of a Child’s Neuro-Psychological Characteristics:

South Africa, waves I, II, and III combined.

Total variance explained:

$R^2 = 55.3\%$

Source, May et al., *JDBP*, 2013
Early diagnosis and early intervention lead to better outcomes
Interventions for Children living with FASD

• **Wendy Kalberg** has lead the way.
• She has overseen and/or carried out all of the cognitive and behavioral testing on our various grants.
• **Led to a focus in research and intervention that emphasizes the promise of intervention for children with FASD.**
• Empirical evidence that language and literacy programs for children from 8 to 10 years is efficacious.
Mean change in all PAELT scores for Language and Literacy Therapy Participants, FASD-Controls and NONEXP-Control groups of 8 to 10 year olds after 9 and 18 months LLT intervention: South Africa


**T1 - T2** = Baseline to 9 months
* P < .000  LLT vs FASD-Change
* P < .000  LLT vs NONEXP-Change

**T2 - T3** = 9 months to 18 months
PAELT = Phonological awareness and early literacy test.
Prevalence of FASD

Italy and the United States
Old Estimates of the Prevalence of Total FASD

1 per 1,000

1%
Oversample of Small Children (< 25th centile on height, weight, and head circumference) and Case from the Randomly-Selected Children

Simple Random Sample for Entry into Study

Rate per 1,000

Italy

Total FASD 2.3 to 5.9 percent
Midwestern City I

Oversample of Small Children (≤ 25th centile on height, weight, and head circumference) and Cases from the Randomly-Selected Children (n=1433)

Simple Random Sample for Entry into Study (n=196)

Estimated rate combining results from consented children and random sample proportions applied to unconsented children (n=2033)

Total FASD 2.4 to 4.8 percent
Oversample of Small Children (≤ 25th centile on height, weight, and head circumference) and Cases from the Randomly-Selected Children (n=571)

Simple Random Sample for Entry into Study (n=118)

Estimated rate combining results from consented children and random sample proportions applied to unconsented children (n=915)

Total FASD 3.3 to 7.4 percent
### New General Population Prevalence Estimates of FASD: In-School Studies

**Estimates per 1,000:**

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>In-school*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAS</strong></td>
<td>0.5 – 3.0</td>
<td>2.0 – 7.0</td>
</tr>
<tr>
<td><strong>FASD</strong></td>
<td>9.1 (1%)</td>
<td>20 – 50 (2-5%)</td>
</tr>
</tbody>
</table>

* with our improving ability to diagnose ARND, the upper limit of these estimates may be low.

Source: May et al., DDRR, 2009.
New General Populations Estimates of FAS and FASD Prevalence
(Rates per 1,000)

Source: May et al., DDRR, 2009.
CASAA Has Enabled My Career Immensely

• It led to an expansion of opportunities through administrative efficiency and day-to-day multidisciplinary interaction.

• Critical mass of expertise for sharing.

• Reputation of excellence has been established by many that has helped improve public health in: New Mexico, all CASAA investigators and others at UNM working in substance abuse and related areas.
The Quest Continues....
Special thanks to my wife and family.