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Update on FASD Diagnosis and Interventions 2011

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Government of Alberta

The FASD Learning Series is part of the Alberta government's commitment to programs and services for people affected by FASD and those who support them.

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Objectives: To Understand

What is the scope of the FASD challenge in 2011?

- What research has informed about alcohol related brain damage
- The diagnostic process and role of the multidisciplinary team
- How FASD can present across the lifespan
- The need for interventions and support systems, current practices and research
- How FASD fits in the framework of strengthening lifelong health

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What is FASD

- FASD refers to range of physical and developmental symptoms that may affect children born to mothers who consume alcohol in pregnancy
- Prenatal alcohol exposure (PAE) is risk factor and not a diagnosis
- FASD is umbrella term including full FAS, partial FAS, Alcohol Related Neurodevelopmental Disorder (ARND) and Alcohol Related Birth Defects (ARBD) IOM 1996; Canadian Guidelines for FASD 2005
- Disability is lifelong with increasing difficulties more evident as expectations increase over time

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Prevalence of FASD

In Canada:

- 9.1 per 1000 live births
- 1% of people are affected
- 300,000 are living with FASD

In Alberta:

- Estimated 23,000 Albertans living with FASD
- Underestimated due to lack of diagnostic capacity, surveillance system and database

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Clinical Diagnostic Capacity for FASD diagnosis in Canada

Jurisdiction	Positive Reply	Negative Reply	Slots in 2011	Capacity*
BC	9	0	765	1.69
AB	14	4	387	1.40
SK	5	0	280	2.68
MN	1	0	198	1.61
ON	6	1	512	0.39
NB	2	0	16	0.21
YK	2	0	20	5.58

*Capacity = slots/population x 10,000
(Capacity required for full dx in 10 years would = 10.88 across all of Canada)
Clarren, Lutke, Sherbuck: CanFASD Research Network 2011 report

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Economic Impact of FASD:
Thanh & Jonsson

- Institute of Health Economics, Alberta
- In Canada estimated annual cost for FASD \$6.2 billion
- Lifetime cost per person with FASD \$1.8 million, not including loss of productivity
 - Health 30%
 - Education 24%
 - Social services 19%
 - Corrections 14%
 - Other 13%

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Economic Impact of FASD:
Thanh & Jonsson

- Lifetime incremental cost per person with FASD is \$742,000 in Canadian 2009 dollars = theoretical maximum amount to be spent to prevent 1 FASD
- Questions to think about:
 - How much should Canada invest in prevention?
 - Why is prevention not successful in eliminating FASD?

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Prevalence of FASD in Foster Care Manitoba

- Center of Excellence for Child Welfare (PHAC) and Manitoba Center for Health Policy (Fuchs and Burnside) 2005, 2007, 2008
- 11% of children in care had FASD with 6% on waitlist for diagnosis
- Of children in care with disabilities 34.2% were FASD and 39% of FASD also diagnosed with ADHD
- 89% of FASD were permanent wards compared to 24% without
- Children with FASD came into care at younger age (mean 2.5) and spent 70% of their lives as proportion of age in care

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Prevalence of FASD in Foster Care Manitoba

- FASD in care cost additional \$43 per day per child in addition to base rate of \$65 or \$15,000 more per year than others in care
- Largest cost was medications (5 fold the general population)
- Average no. of prescriptions 4.2 in younger and 15 for 11 to 15 years age group, with 60% CNS drugs
- Cost of special education for FASD was 38.2% of Manitoba education budget but average grade attained was 9
- Only 50% of FASD received services (lack of capacity)

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Prevalence of FASD in Foster Care Manitoba

- Youths in foster care with FASD were moved more frequently, average number of placements 14.1
- Mean age at last placement breakdown 15.3 years with often transition to group homes
- Changes in workers result in loss of relationships and trust at critical age
- Transition to adult services issues
- GRH FASD Clinic observation: high percentage of birth mothers were children in care themselves

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Prevalence of FASD in Justice System

- Looch, Fast and Conroy: 25% of youth in an inpatient forensic assessment unit met criteria for FASD Limited capacity for FASD assessment in the court/jail system so actual numbers not known but
- Based on behavior patterns high level of suspicion (Asante screening tool ?)
- 2011 Canadian Bar Association passed a resolution to recognize and find solutions for FASD in the Judicial System
- Diversion projects but divert to what?

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System of Care for FASD Prevention

- Who is at risk for having an FASD affected child?
 - all women of child bearing age
 - across all social strata
- Who is responsible for prevention of FASD?
 - Biopsychosocial model
 - 2011 Prevention of FASD, ed. Clarren, Salmon, Jonson: Wiley-Blackwell for review of current knowledge and promising practices

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System of Care for FASD Prevention

- Primary prevention messaging: school curriculum, health maintenance with Physicians and other health care providers, public awareness campaigns
- Need to train all professionals on FASD (health, education, justice, mental health and addictions workers, social workers, policy people, SHINE project)
- Awareness raising but does behavior change? (Thurmeier)
- Brief interventions, motivational interview

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System of Care for FASD Prevention

- Unplanned pregnancy:
 - About one half of pregnancies are unplanned
 - 50% of first time mothers reported drinking before they knew of the pregnancy, mainly low levels (2 drinks per occasion) but 25% reported binge drinking (>5 in 24 hours) (Tough et al, Alberta)
 - After recognizing pregnancy 18% of first time mothers continued to drink
 - Failure of primary prevention messaging?

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System of Care for FASD Prevention

- Binge drinking:
 - Age group at highest risk 15 to 19 years (same as highest rate for unplanned pregnancies)
 - Party culture of social group: college students, military, corporate stress
 - Partner barrier for her to change: abusive relationships
 - Health care professional not asking the question or supportive

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Teratogenic Effects of Alcohol

- Alcohol crosses the placenta directly affecting fetal cells
- Cells at critical stages of development are most vulnerable: Alcohol Related Birth Defects in other organ systems
- Brain susceptible throughout pregnancy and in the early months of postnatal life to alcohol

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Stages of Fetal Development

The diagram illustrates the stages of fetal development from fertilization to birth. It features a timeline from 1 to 28 weeks, with illustrations of the fetus at various stages. A corresponding chart shows the development of various organ systems, including the heart, lungs, liver, stomach, intestines, kidneys, and brain. The chart is organized into columns for different weeks and rows for different organ systems, with colored bars indicating the period of development for each system.

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Spectrum of Damage depends on

- Amount and pattern of alcohol use, binge impact (BAL)
- Timing in gestation
- Maternal genetics, cross generational epigenetic changes, nutrition, other teratogens, stress
- Fetal factors
- Impact of postnatal environment

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**Teratogenic Effects of Alcohol:
Animal Model**

- Direct effect on neuron maturation, migration and organization (Sulik)
- Different susceptibilities in different mouse strains: Sonic Hedgehog key regulator of embryonic development = produces face of FAS
- Alcohol leads to reactive oxygen species (ROS) causing tissue damage and glutathione depletion in neuron mitochondria (Brien)

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**Teratogenic Effects of Alcohol:
Animal Model**

- Epigenetic changes: Changes in gene expression by mechanisms other than altering DNA sequence through methylation or microRNAs: trigger can be in pre or postnatal environment can be passed on to next generations, potentially reversible
- PAE inhibits fetal DNA methylation and down regulates microRNA
- Role of choline as DNA methyl donor and part of acetylcholine neurotransmitter (pre or post natal rescue?)

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**Teratogenic Effects of Alcohol:
Animal Model**

- HPA (hypothalamic pituitary adrenal) axis highly susceptible to disruption in fetal and neonatal life by PAE and maternal stress during pregnancy and post natal stressors (Weinberg)
- HPA tone increased in offspring with elevated cortisol levels and not showing appropriate cortisol increase response to stress
- HPA axis and Serotonin (5HT) pathway interact in utero changing neurotransmitters system
- Concentrations of serotonin in alcohol exposed reduced

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**Teratogenic Effects of Alcohol:
Humans**

- Human research supports findings of elevated basal cortisol levels in PAE infants and lack of normal cortisol response to stress
- 5 HT pathway altered in neonates with PAE: blunting of pain and stress response
- Postnatal stressors including neglect act through the HPA 5HT systems leading to altered responses either under or over to different situations (review by Oberlander 2010)

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**Teratogenic Effects of Alcohol:
Humans**

- Genetic susceptibility in humans: ADH1B2 and 3 alleles in alcohol metabolism lead to higher levels of acetaldehyde and women then drink less
- Implications of maternal diet: zinc, choline, poor pregnancy weight gain

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**Neurophysiological and
Imaging Studies**

- Saccadic eye movements: rapid eye movements that bring new visual targets onto the fovea of the retina, either volitional or automatic in response to sensory stimuli that suddenly appear
- Control by frontal cortex, basal ganglia and brainstem centers
- FASD children have elongated reaction times, excessive direction errors and no express saccades
- Reflects frontal lobe disruption of inhibitory mechanisms
- Reynolds et al Queens

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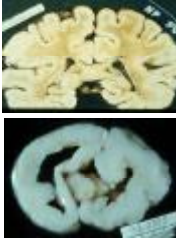
The Brain in FAS: *MOST IMPORTANT*

Alcohol can damage every part

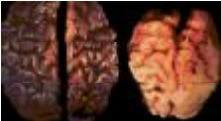
- Cerebral cortex
- Cerebral white matter
- Deep cerebral nuclei
- Corpus callosum

Clarren, Alvord, Sumi, Streissguth, Smith J. Pediatr. Jan. 92 (1) 64-7, 1978

CASE 1



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Normal Brain Child with FASD

Clarren et al. Pediatr. Jan. 92 (1) 64-7, 1978

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Damage generally is microscopic



Normal Severe FAS

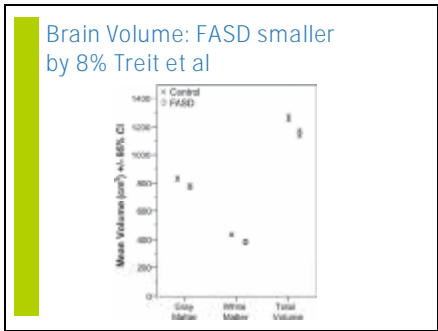
Clarren, Bowden, Astley. Teratology June: 35 (3): 345-54, 1987

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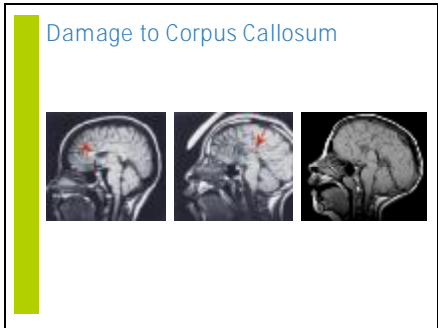
Imaging Studies

- Structural MRI and Volumetric studies: reduced corpus callosum, cerebellum, caudate (Matson), reduced deep grey matter in hippocampus, amygdala, thalamus, caudate, putamen, globus pallidus (Beaulieu)
- Decrease frontal lobe volume with severity of facial dysmorphism (Astley)
- fMRI: less activation in prefrontal area with increasing complexity of task (Chudley)
- DTI MRI: differences in white matter pathways (Sowell, Lebel, Beaulieu)

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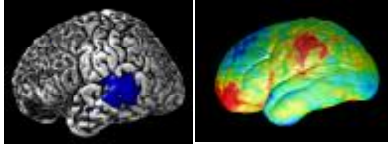


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Abnormality may be detectable by brain area size or brain activity patterns

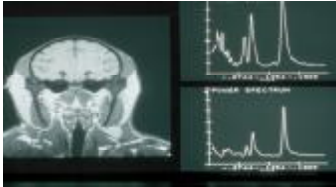


Gray Matter Density Increase Shape Distortion in Frontal and Parietal Lobes

Sowell et al., 2001a

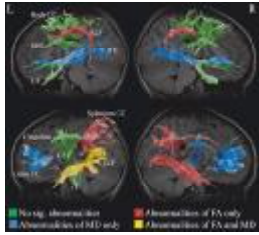
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Alcohol may alter neurochemistry



Alcohol may alter neurochemistry

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Lebel, Rasmussen, Wypar, Walker, Andrew, Yager, Beaulieu. DTI Study
Alcoholism Clinical & experimental Research 32 (10), Oct. 2008

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Implications of Brain Damage from PAE

- DTI is a quantitative MRI of the white matter tracts using water diffusion directionality (FA fractional anisotropy, MD mean diffusivity) and reflects axonal packing and degree of myelination
- 7 of 10 tracts were abnormal
- Superior longitudinal fasciculus changes correlated with reading vocabulary scores, consistent with the role of SLF in language and auditory processing
- Changes in the splenium of corpus callosum, left inferior fronto-occipital fasciculus
- Correlations with math ability and FA in several regions especially intraparietal sulcus

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**Update on FASD Diagnosis 4
Digit Code Multidisciplinary
Team and Interventions 2011**

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Screening for FASD

- Screening Tools for FASD: CAPHC 2010
- Need for further validation and research
 - Neurobehavioral screening tool
 - Meconium free fatty acid ethyl ester analysis
 - Maternal drinking guide
 - Medicine Wheel
 - Screening tool for Youth Probation officers
- Current best screen is confirmed PAE and a child who is struggling
- Capacity for diagnosis after screen positive?

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Complexity in FASD Diagnosis

- Need confirmation of alcohol exposure in that pregnancy
- Alcohol exposure identifies risk and not diagnostic
- Need evidence of organic brain damage by Multidisciplinary team assessment
- Consider all other pre and post natal factors: Differential Diagnosis and/or Comorbidities

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Complexity in FASD Diagnosis

- Adverse environments can compound the already alcohol damaged brain (HPA axis research, Trauma in early life data, Norlein Foundation Alberta Family Wellness Initiative with Harvard)
- Impact of multiple home environments within family and foster care system
- Lack of early awareness of the PAE and access to supports can be detrimental
- In early childhood and in a supportive environment difficulties may not be evident, too young to measure the EF deficits

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Complexity in FASD Diagnosis

- Need for LONGITUDINAL follow up of children at risk
- Increasing difficulties appear over time in areas of learning, social skills, adaptive function and executive functioning
- Basic tests of IQ do not define FASD
- Current research in FASD identifies deficits in memory, motor planning, attention, higher level communication, executive functions such as inhibition, shifting, flexible thinking, sequencing, judgment

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Primary Disabilities in FASD

- Results from alcohol related brain damage:
 - Learning difficulties
 - Neurobehavioral dysregulation
 - Mental health
 - Maladaptive function "fails life"
 - Executive functioning deficits
- Can be misdiagnosed as only: ADHD, ODD, CD, Depression, Anxiety, Attachment Disorder, PTSD unless connected back to PAE

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Secondary Disabilities in FASD

- Not related to brain damage but to repeated failures and frustrations in life from not being diagnosed with FASD and appropriately supported (Streissguth)
- Caregivers/providers may set unreasonable expectations if FASD not suspected
- Impact of adverse postnatal trauma
- New evidence that some secondary disabilities are direct result of primary brain damage from PAE and epigenetic factors

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Secondary Disabilities in FASD

- Disruptive school experience
- Socialization difficulties, immature, at risk for victimization
- Employment difficulties
- Dependent living
- Trouble with the law
- Inappropriate sexual behavior
- Alcohol and drug problems

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Diagnostic Process

- 4 Digit Diagnostic Code, Diagnostic and Prevention Network, Seattle Washington (Astley and Clarren)
- Objective assessment of the magnitude of the expression of the 4 key diagnostic features of FASD on a 4 point Likert scale:
 - Growth deficiency
 - FAS facial phenotype
 - Brain damage/ dysfunction
 - Alcohol exposure
- Assessment of other pre and postnatal factors also ranked

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The University of Washington approach

4-Digit Diagnostic Code Grid					
One Example of FAS					
	3	4	4	4	
significant	significant	definite			4 High risk
moderate	moderate	probable	X	X	3 uncertain
mild	mild	possible	X	X	2 unlikely
none	none	unlikely			1 remote

Search Birth Registry FAS Facial Phenotype Program Brain Dysfunction Other Postnatal Factors Alcohol Exposure Unintentional Alcohol

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Diagnostic Process: Prior to Clinic

- Confirmation of the alcohol exposure: birth records, child welfare reports, police records, direct interview with birth mother (nonjudgmental and supportive), other informants
- Rarely have exact pattern and amount by recall history: rank 1 to 4
- Gather historical data of birth, development, environment (placements, neglect, stimulation), education, medical, mental health
- Gather prior educational testing and access to special programs

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Diagnostic Process: Assessment in Clinic

- Multidisciplinary team assessment of brain domains: SLP, OT, Psychologist, Pediatrician, Social Worker
- Menu of test tools in each discipline vary by age and ability of child, move from basic testing to more complex functions
- Includes questionnaires to sample function and behavior across environments of home, school and community with caution on how well the informant knows the child or vested interest
- Assess mental health issues, treated or untreated

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Diagnostic Points: Growth

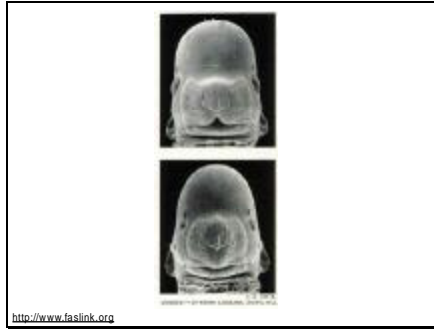
- Height and weight below 10% for growth 4 rank
- New WHO growth charts
- Need to consider all other causes of small stature and failure to thrive: family stature
- Weight changes by medications

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Diagnostic Points: Facial Features

- Face impacted by alcohol exposure day 19 to 21 gestation for lip and philtrum, eye development impacted over longer time
- Animal research by Dr. Sulik
- Thin upper lip, flat elongated philtrum, short palprebral fissures
- New Canadian norms for palprebral fissure length (Clarren and Chudley, Canadian Journal of Clinical Pharmacology 2010, 17 (1) e 67- 78)
- FASD most often Invisible Disability

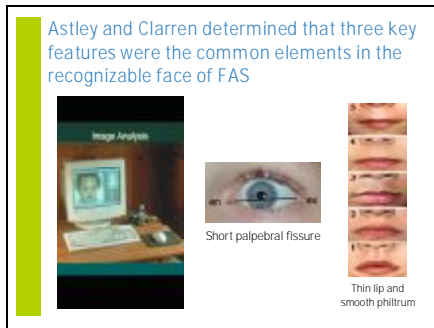
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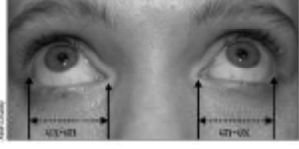
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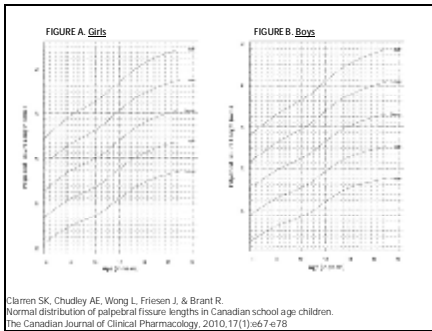
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Method of Measurement

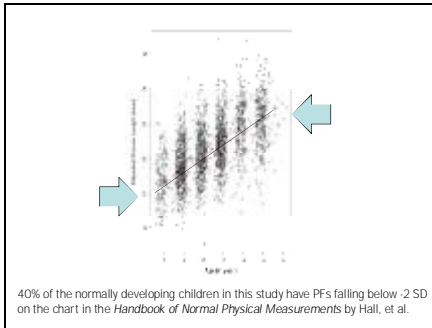
1. Short palpebral fissures at or below the 3rd percentile



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Method of Measurement

- 2. Smooth or flattened philtrum
- 3. Thin vermilion border of the upper lip

Philtrum and upper lip are measured independently on the 5 point Likert scale of the lip-philtrum guide. Rank of 4-5.





Fig. 1 Lip-Philtrum Guide: A Lip-Philtrum Guide with the measuring philtrum smoothness and upper lip thickness. Features are measured independently. For example, an individual can have a rank of 5 for the philtrum and a rank of 4 for the lip.

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FAS vs. Normal Lip-Philtrum Phenotype



The image shows two side-by-side photographs of a person's mouth. The left photo is labeled 'Normal philtrum' and 'Thin upper lip' and is captioned 'Fetal alcohol syndrome'. The right photo is labeled 'philtrum groove' and 'Thick lip' and is captioned 'Normal lip-philtrum phenotype'. The FAS image shows a smooth philtrum and a thin upper lip, while the normal image shows a distinct philtrum groove and a thicker upper lip.

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Diagnostic Process: 9 Brain Domains Supported by ongoing research evidence

- Intellectual: often scattered, not representing level of dysfunction
- Academic achievement: math difficulties, comprehension
- Attention: sustained, shifting, impulsivity, common comorbidity
- Sensory-motor: motor planning, visual spatial, soft and hard neurological signs, sensory reactivity (impact of trauma?)
- Communication: language formulation difficulties, disordered pattern, impaired narratives, poor perspective taking

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Diagnostic Process: 9 Brain Domains Supported by ongoing research evidence

- Memory: encoding, retrieval, visual and verbal memory, working memory
- Executive function: inhibition, shifting, judgment, sequencing, organizing, problem solving, mental flexibility, abstract reasoning
- Adaptive function: day to day living ability that impacts independent living, self care, safety, victimization risk, employability
- Mental status: behavioral and emotional regulation, attachment, sleep pattern

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Diagnostic Process

- Diagnostic formulation FASD or if not FASD what other disability
 - Genetic syndromes, Autism, primary mental health, impact of trauma
- Comorbidities in GRH clinic sample:
 - ADHD with or without hyperactivity 64%
 - Developmental disability/cognitive impairment 35%
 - Mental health diagnosis: anxiety 15% depression 8%
 - Attachment disorder 15% and PTSD 12%
 - Sleep disorder 35%

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Diagnostic Process

- Diagnosis needs to lead to a strengths and deficit based approach in recommendations for the individual with FASD and their caregivers
- Supports need to address education, medical and mental health, community participation, legal, training for caregivers and transition planning into adulthood with this life long disability
- Need collaboration with the community that is trained on FASD including teachers, physicians, corrections officers, addictions and mental health workers
- Case manager, coaching and mentor approach essential

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Recommendations Template: ICF Based on Participation and Function

- Medical: physical and mental health, substance abuse, contraception
- Educational: early intervention to shift from academics to life skills and employability options
- Social/Community: home, recreation, justice system, safety
- Caregiver needs: education on FASD, commitment, respite
- Transition planning: adult support services, housing, employability, funding
- Behavior strategies: incorporated at all levels and environments

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FASD Across the Lifespan

- Different presentations at different ages
- Consider impact of environment
- May not be have sufficient evidence for brain damage at a young age to diagnose FASD
- Need for appropriate supports for areas of difficulty across all environments and prevention of victimization and adverse life events
- Need longitudinal follow up and reassessment at key transition points

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Newborn and Infancy

- Monitor for and treat NAS and ARBD
- Assess care giving situation
- Optimal time to reach out to birth Mom
- Birth mom supports (PCAP)
- Caregiver training and counseling
- Environment supports (feeding, sensory)
- Confirmed prenatal exposure to alcohol identifies child at risk for difficulties and needing developmental monitoring

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Toddlerhood and Preschool

- Possible delays in development, look at quality of movement and play, disorganization
- Behavior dysregulation, activity level, "busy"
- Sleep disorders
- Over or under responsive to over stimulation
- Overly tactile and friendly, poor boundaries
- Attachment issues, PTSD
- Assessment of basic language and fine motor skills by community therapists: often delays
- Not specific for FASD diagnosis unless hard neurological signs

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Toddlerhood and Preschool

- In good environment may look "okay" but is not predictive of no problems later on and cannot be used for adoption counseling
- Recommend early intervention services, often do not qualify
- Counsel caregivers on optimizing the environment (sensory), structured play opportunities, stimulating language, supervision for safety, sleep and diet issues
- Prevent attachment disorder (foster care)
- Respite and training for caregivers

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Kindergarten Ages 5 to 6 years

- Social difficulties more evident, overly friendly, not getting cues or limits
- Not listening or not understanding
- Language delays "pink flag": chatty, expressive language better than understanding
- Behavioral regulation difficulties with ADHD pattern, tantruming, easily over stimulated, impulsive, may appear oppositional
- Caregiver interview gives insight into the level of support needed in day to day living

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Kindergarten Ages 5 to 6 years

- Transition to group learning setting with less one to one help shows early gaps in learning
- Assessment of basic language, fine motor and learning pattern by SLP,OT, Psychologist
- Too young to assess higher level skills, not sufficient for FASD, diagnosis deferred until older
- Need support in all settings
- Question of medications for targeted behaviors

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Ages 8 to 10, Grades 3 to 4

- Societal expectations to be more independent, self-organized, shift from concrete to more abstract concepts
- FASD "cannot" related to difficulties in:
 - executive functions
 - social communication skills
 - self-regulation and adaptive function

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Ages 8 to 10, Grades 3 to 4

- Presentation:
 - Not keeping up academically, especially in the language demands of learning and math
 - ADHD pattern, often labeled ODD
 - Immature, cannot make or keep friends, not getting social cues, poor perspective taking
 - Cannot organize without help in school and daily living
 - More problems in unstructured times
 - Talkative but tangential, lacking content and connections

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Ages 8 to 10, Grades 3 to 4

- Presentation:
 - Not learning from consequences
 - Impulsive, poor judgment, cannot generalize from one situation to another
 - Needs daily routines with constant reminders
 - Lying and stealing in spite of repeated teaching
 - Mood swings and poor regulation, cannot self calm, sensory triggers
 - Problems in motor planning; cannot put together all steps for a task

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Ages 8 to 10, Grades 3 to 4

- Assessment:
 - All domains can be assessed by the team members using standardized tools
 - Move from basic to more complex tests
 - Direct testing of memory and executive functions with the child as well as indirect
 - Functional assessments are much lower than predicted by cognitive ability from the IQ score
 - Assess mood and mental status, secondary disabilities (low self esteem, anxiety, attachment, bullying impact)

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Ages 8 to 10, Grades 3 to 4

- Recommendations:
 - Need individual educational strategies (MILE program)
 - Do not expect independence but provide support across all settings
 - Address ADHD with strategies and medications
 - Address secondary disabilities but not by cognitive behavioral methods
 - Supports for the caregivers (model of Coaching Families)

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Adolescents

- Increasing difficulties with behavioral and emotional regulation
- Not keeping up or fitting in academically, socially, in daily living
- Related to struggles in learning and EF dysfunction "can't vs won't"
- Impact of multiple moves, disrupted schooling, attachment
- May lack advocate or personal support system (family dysfunction or burnout, foster care worker changes so no relationship or trust, group home, no home couch surfing)

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Adolescents

- Present with mental health "secondary" disabilities: depression, anxiety, externalizing acting out, substance use, impulsivity leading to interactions with the law and sexuality
- Risk for other health problems: STD, pregnancy
- Need assessment for vocational training, independent living, risk of victimization and substance use
- Need for a significant support person in their life and transition planning, wrap around team
- Youth may not accept this level of support

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Adults

- Presenting symptoms are mental health issues, in trouble with the law, cannot hold employment or live independently, substance abuse, partner violence
- Need to shift back to primary brain damage but difficulty in obtaining PAE history
- Invisible disability without facial markers
- Need mentor to support through assessment process, connecting to supports and for life
- Birth mothers with FASD: need to break the cycle
- Diversion in the justice system

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Interventions in FASD

- Environmental strategies (support, supervision) in place before medications
- Specific strategies: MILE, memory training, computer games ongoing research (Coles, Pei, Rasmussen, Kearns)
- Role of medications:
 - Stimulants for ADHD
 - SSRI for depression and anxiety
 - Sleep disorder management
 - Is there a place for atypical antipsychotic medications?

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ADHD Management in FASD

- Methylphenidate or Dexedrine starting drugs
- Use of long acting forms preferable for after school activities
- Limited published studies but efficacy less robust in FASD than primary ADHD
- Clinical experience: need for higher doses per body weight but limited by side effects on appetite and sleep
- ADHD in FASD is part of frontal lobe damage and EF deficits
- Environment, supervision and sensory strategies needed

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Mood Management in FASD

- Anxiety and depression may be secondary disabilities or part of primary brain damage from PAE
- Prevention of secondary disabilities
- Address contributing factors: disruptive visits, school frustrations, bullying, attachment
- Cognitive behavioral therapy vs play therapy
- SSRI medications: Serotonin affect by PAE
 - Zoloft and Prozac for depression
 - Celexa and Paxil for anxiety

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Sleep Disorder Management

- Basic sleep hygiene: routines, sensory, environment
- Address contributing factors: disruptive visits (PTSD), attachment, school and social stress, medication side effects
- Higher incidence of central dysregulation of sleep and OSA in FASD
- OSA management
- Medications:
 - Melatonin
 - Clonidine
 - Is there a place for Trazadone?

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Management of Aggression, ODD, CD

- Consider cognition, language disorder, sensory reactivity, EF deficits
- Ability to intentionally act vs not able to learn from experiences
- Lying and stealing in FASD
- Environment: "3-S" supervision, structure, stability
- Attachment and trauma therapy as indicated

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Management of Aggression, ODD, CD

- Is there a role for atypical antipsychotic Risperadone?
 - Benefit and side effect ratio
 - Aggression and impulsivity as safety issues
 - Immediate impact on increase appetite and weight gain
 - Long term metabolic syndrome
 - Less with Abilify?
 - Review in Pediatrics and Child Health November 2011

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For information on upcoming sessions in the FASD Learning Series:
www.fasd-cmc.alberta.ca

Please take the time to fill out the on-line evaluation

Thank You!
