

FASD:  
A Meta-Synthesis

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### **Abstract**

Regardless of our current knowledge base on the consumption of alcohol during pregnancy, the mistake continues to be made with the result being children born with Fetal Alcohol Spectrum Disorder. As these children move through their public education, it is often the case that their challenges are not met and they do not receive adequate help to overcome their difficulties with academics and social skills. When these students begin to transition into their adult lives, secondary conditions often arise from our failure as a support network to intervene on their behalf earlier on. This meta-synthesis of the literature on individuals with FASD investigates the current realities of the difficulties surrounding prenatal alcohol consumption as it relates to children, their families and communities.

## FASD

### 1. Introduction

#### 1.1 Background

Fetal Alcohol Spectrum Disorder (FASD) is currently considered to be the most preventable cause of congenital impairment in the United States. Studies have shown that Fetal Alcohol Syndrome occurs at about 2-7 per 1,000 live births and that FASD is even higher, occurring at up to 9 per 1,000 live births (Ware, Crocker, O'Brien, Deweese, Roesch, Coles, Kable, May, Kalberg, Sowell, Jones, Riley, & Mattson, 2012 (May et al., 2009, Sampson et al., 1997).) Yet the known effects of alcohol exposure on a fetus, the diagnosis, and the established warnings to the public about the consumption for expecting mothers is relatively recent. While our history with alcohol as a socially accepted drug has its own rather romantic tale, the medical field is finally beginning to catch up in its understanding of some of the dangers attached to its use.

A committee of the British House of Commons was formed in 1834 to do research and report on alcohol consumption in London. Their findings included that the infants born to alcoholic women often had a certain look to them that seemed malnourished or weakened, described as having less than perfect features. Finally in the 1970's the issue was explored more scientifically, and a number of deficits were found in infants that resulted from maternal alcohol use throughout pregnancy. It wasn't until 1973 that the term "Fetal Alcohol Syndrome" was used.

Today we are informed. We know that prenatal exposure to alcohol may produce a full spectrum of defects that we now refer to as Fetal Alcohol Spectrum Disorder, or FASD. Those children affected the most are considered to have Fetal Alcohol Syndrome and show deficits in growth, functioning, and physical features, while children with mild FASD may present with

little to no physical abnormalities and only some neurobehavioral difficulties. The results seem to be tied to the amount of alcohol that reaches the fetus, and the stage of development in which this happens.

Unfortunately, determining a history of prenatal alcohol exposure may be difficult because the birth mother may not be available and the records from birth are then often inaccessible. Without the characteristic clinical abnormal features, this is necessary (PrachiShah, Milgrom, Munzer, & Hoyme, 2015.) The stigma associated with this diagnosis may also lead birth mothers to withhold this information. This missing information results in significant trouble diagnosing an individual with FASD.

Children exposed to alcohol prenatally have intelligence scores that vary greatly, however, a lower overall intelligence level is generally found. Facial malformations are usually only seen in children with FAS, and are not as wide spread. These facial features are also found in other syndromes and therefore are not used by themselves in the diagnosis of FAS. Children with prenatal alcohol exposure also show deficits in their executive function, a group of abilities that include self-regulation, memory, inhibition, planning and organizing. It is thought that impairments in this area are responsible for some of the behavioral and social difficulties these children face such as impulsivity, planning ahead, and understanding consequences. Other areas of concern for children with prenatal alcohol exposure include learning and memory, gross and fine motor skills, inattention and hyperactivity, and interpersonal relationships (Ryan, 2006.)

These students are also at risk for many conditions that appear across their development and that are seen as being able to be improved with help and intervention. These secondary conditions include problematic school experiences, trouble with the judicial system, inpatient

treatment or incarceration, inappropriate sexual behavior, alcohol and or drug abuse, and other mental health problems (Bullock, 2012.)

Their life-long neurological impairment found in adults with FASD increases their overall susceptibility to becoming involved with the criminal justice system. While they are often the accused in cases, they may also be the witness or the complainant. Adults with FASD that are at risk for being victimized and becoming involved with the criminal justice system have that risk increase if they have also been a part of a dysfunctional family, have suffered from mental health problems and/or substance abuse disorders, as well as experiencing any kind of abuse. The prevalence of people with FASD having experienced trouble with the law was reported as 60% (Fast, D., & Conry, J., 2009.)

The percent of children with FASD found in more undesirable home or caregiving environments is disproportionate, and it is also often seen that these children living in foster care experience multiple home placements during the early years. These adverse effects that seem to occur together form very adverse barriers to the growth and development of these children (Hyter, 2007.) There is also comorbidity that exists between children with FASD and other disabilities such as ADHD, sleep problems, and eating and hearing disorders. They are much more likely to have multiple needs and issues than other children (Petrenko, Lange, Shield, Mihic, chudley, Mukherjee, Bekmuradov, Rehm, 2016.)

### *1.2 Author's beliefs and experience*

When I was growing up I had a cousin who I was quite close to. There was alcohol abuse in her family and both of her parents were alcoholics. There was often violence and strife at her house of which she could not get away from. That went on until she was 18 and out of the house.

She did not have any facial abnormalities, but she did exhibit problems with her memory and she had problems learning in school. There was no term used for her difficulties and no one seemed overly worried or concerned about it. As she grew older, her memory was a factor for her and she became concerned that she was not able to remember things as she thought she should or learn as it seemed others did. No teacher or health care professional had called attention to it. Back then, I wondered why she had so many of these problems too. Looking back, no doubt she was indeed on the Fetal Alcohol Spectrum, and had been affected in many ways by the apparent prenatal alcohol consumption. Without knowing it, I had begun to recognize FASD markers. I have had the thought and wondered, since I have begun working with students in the special education setting, if she was affected by other disabilities as well and how different her life would have been with proper attention to the issue.

As an adult, I started my career as a teacher in elementary school in California and taught students in the general education classes from second through fifth grade. The big push at that time was finding the right tools, techniques, and timing to teach second language learners. Teachers were expected to acquire the extra knowledge needed to extend the language learning needs to students that often had parents at home who spoke no English. I taught for several more years in Alaska in the general education setting in middle school and was expected to accommodate differences again. In the general education classroom, teachers did not focus on finding disabilities in the students but rather on their differences and determining how best to support them through language barriers and social norms. There were students with disabilities just as there are now, but the area of Special Education was not on the front burner. We were pushing a different kind of inclusion.

I did not have a specific term in mind for students in my classes that may have had FASD when I first started teaching. I had not been taught that FASD may have co-occurring disabilities, for example. I did not have the training to know what to look for as of yet. As more attention was given to the disability and it was discussed and considered more in professional development and around the staff lounge tables, I began to realize that there were characteristics of this disability that I had been recognizing for many years. I had noticed the facial formations that can exist in students that were very affected by prenatal alcohol exposure, but was not aware of the cause. I had taught students who showed difficulty attending to group instruction, remembering routines and information, making friends, were easily influenced, and had poor judgement, but I did not realize there was a definition and term for the behavior and that it was a disability. I was also seeing that some other difficulties we now see as disabilities seemed to be trending with FASD as well.

I remembered particular situations, not faces. I remembered problematic behaviors, often social difficulties, and began to get a sense of the family dynamics in these cases. These students seemed to have difficulties with their focus or memory, and were struggling in various other academic and social areas.

One of the advantages to being a teacher that wants to figure out “problems” with students in general is that you get a new random set of students each year. This goes on until you stop teaching. It gives you the setting and time to discover patterns and do informal research that you may not even know you are doing. I have considered this more than once over the years, and I think all teachers become people watchers. It is part of the role we play as advocates of children.

We are really watching for parents who are being abusive of course, but we end up finding trends and features in our students, parents, families and home environments as well.

I am now an educator in a classroom where students have been diagnosed with FASD, or are nearing a diagnosis. I have been working with these students in their academic needs as well as their behavior needs for 2 years and am often still in new territory and ill prepared for the depth and breadth of the behaviors. I am also finding that back in the classroom, teachers still don't know what to look for in a student with FASD. Students affected less have no physical facial features that would point out their disability, and these children present like students that have learning difficulties and/or behavior problems. They can blend in with the general education population because of this and may receive no extra help or consideration unless a teacher determines the need is great enough for RTI or some intervention specific to the school. Most classroom teachers expect students with disabilities to be diagnosed and labeled by the time they reach the classroom. It is a strange gray area to be in when the thought enters that there may be a student in the room that has an undiagnosed disability.

Being able to recognize FASD and knowing what the comorbidities are and how often they occur would make an early diagnosis easier, and instructional strategies appropriate. Having this information, and then applying the appropriate strategies would enable all teachers and providers to stop the secondary conditions from appearing later on.

With this meta-synthesis I hope to research the following questions:

1. How does the diagnosis of FASD change the possible treatment plan, and why is that important?

2. Can negative home environments exacerbate the symptoms of FASD and does early intervention at home help?

3. What does the current research show are the best interventions for students with FASD?

### *1.3 The purpose of this meta-synthesis*

This meta-synthesis, which focused on FASD, co-occurring disabilities, and secondary factors had multiple purposes. One purpose was to review journal articles related to FASD, secondary factors, and its comorbidity to determine what other disabilities a teacher might be looking and need to be educated about in these students. A second purpose was to review journal articles related to early intervention benefits for students with FASD. A third purpose was to classify each article by publication type, to identify the research design, participants, and data sources of each research study, and to summarize the findings of each study. My final purpose in conducting this meta-synthesis was to identify significant themes in these articles, and to connect those themes to my own classroom experience in teaching students here in Alaska.

## **2. Methods**

### *2.1. Selection*

*The 40 journal articles included in this meta-synthesis met the following selection criteria.*

1. The articles explored issues related to FASD and co-occurring disabilities.
2. The articles explored issues related to public education concerning FASD and its related health concerns for those affected.
3. The articles were published in peer reviewed journals.
4. The articles were published between 2003 and 2016.

## *2.2 Search procedures*

Database searches and ancestral searches were conducted to locate articles for this meta-synthesis.

### *2.2.1. Database searches*

I conducted Boolean searches within the Educational Resources Information Center (ERIC, Ebscohost) using these specific search terms:

1. (“FASD”) AND (“Comorbidity”).
2. (“FASD”) AND (“Secondary Conditions”).
3. (“FASD”) AND (“Early Intervention”).

These database searches yielded a total of 14 articles (Fast, & Conry, 2009; Coggins, Timler, & Olswang, 2007; Hyter, 2007; Bigelow, 2016; Ryan, 2006; Olson, Oti, Gelo, & Beck, 2012; Hyter, 2007; Watson, Westby, 2003; O’Connor, & Paley, 2006; Pei, Flannigan, Walls, & Rasmussen, 2015; Fagerlund, Akademi, Aute-Ramo, K alland, Linja, Santtila, Hoyme, Mattson, & Korkman, 2012; Rangmar, Hjern, Vinnerljung, Strömmland, Aronson, & Fahlke, 2014; Stevens, Major, Rovet, Koren, Fantus, Nulman, & Desrocher, 2012; Crocker, Vaurio, Riley, & Mattson, 2009).

### *2.2.2. Ancestral searches*

An ancestral search involves reviewing the reference lists of previously published works to locate literature relevant to one’s topic of interest (Welch, Brownell, & Sheridan, 1999). I conducted ancestral searches using the reference lists of the previously retrieved articles. These ancestral searches yielded 26 additional articles that met the selection criteria (Stansell, & McLaughlin, 2013; Chen, Olson, Picciano, Starr, & Owens, 2012; Petrenko, Tahir, Mahoney, &

Chin, 2013; Petrenko, Tahir, Mahoney, & Chin, 2014; Hanlon-Dearman, Green, Andrew, & Cook, 2015; Mariasine, Pei, Poth, Henneveld, & Rasmussen, 2014; Petrenko, 2015; Bullock, 2012; Olson, 2015; Millians, 2015; Gindis, 2014; Lyons, Jones, & Streissguth, 2011; Popova, Sange, Shield, Mihic, Chudley, Mukherjee, Bekmuradov, & Rihm, 2016; Burd, 2016; McLennan, 2015; Amos-Kroohs, Fink, Smith, Chin, Van Calcar, Wozniak, & Smith, 2016; Coles, 2011;; Ipsiroglu, McKellin, Carey, & Loock, 2012; Coles, 2011; Davis, Desrocher, & Moore, 2010; Fagerlund, Autti-Ramo, Hoyme, Mattson, & Korkman, 2011; Michaud & Temple, 2013; O’Conner, Paley, & Drew, 2006; O’Conner, Paley, & Drew, 2006; Oswald, Heil, & Goldbeck, 2010; PrachiShah, Milgrom, Munzer, & Hoyme, 2015).

### 2.3. Coding procedures

I used a coding form to categorize the information presented in each of the 40 articles. This coding form was based on: (a) publication type; (b) research design; (c) participants; (d) data sources; and (e) findings of the studies.

#### 2.3.1. Publication types

Each journal article was evaluated and classified according to publication type (e.g., research study, theoretical work, descriptive work, opinion piece/position paper, guide, annotated bibliography, review of the literature). *Research studies* use a formal research design to gather and/or analyze quantitative and/or qualitative data. *Theoretical works* use existing literature to analyze, expand, or further define a specific philosophical and/or theoretical assumption. *Descriptive works* describe phenomena and experiences, but do not disclose particular methods for attaining data. *Opinion pieces/position papers* explain, justify, or recommend a particular

course of action based on the author's opinions and/or beliefs. *Guides* give instructions or advice explaining how practitioners might implement a particular agenda. An *annotated bibliography* is a list of cited works on a particular topic, followed by a descriptive paragraph describing, evaluating, or critiquing the source. *Reviews of the literature* critically analyze the published literature on a topic through summary, classification, and comparison.

### 2.3.2. *Research design*

Each empirical study was further classified by research design (i.e., quantitative, qualitative, mixed methods research). *Quantitative* research utilizes numbers to convey information. Instead of numbers, *qualitative* research uses language to explore issues and phenomenon. *Mixed methods* research involves the use of both quantitative and qualitative methods to present information within a single study.

### 2.3.3. *Participants, data sources, and findings*

I identified the participants in each study (e.g., children with confirmed histories of heavy prenatal exposure and non-exposed children, children and their biological mothers, children with confirmed FASD, adults caring for children with FASD or suspected FASD, service providers.) I also identified the data sources used in each study (e.g., observations, surveys). Lastly, I summarized the findings of each study (Table 2).

### 2.4. *Data analysis*

I used a modified version of the Stevick-Colaizzi-Keen method previously employed by Duke (2011) and Duke and Ward (2009) to analyze the 40 articles included in this meta-synthesis. Significant statements were first identified within each article. For the purpose of this meta-synthesis, significant statements were identified as statements that addressed issues related

to: (a) co-occurring factors (b) secondary conditions; (c) improved outcomes with a diagnosis; (d) and best intervention practices.

I then generated a list of non-repetitive, verbatim significant statements with paraphrased formulated meanings. These paraphrased formulated meanings represented my interpretation of each significant statement. Lastly, the formulated meanings from all 40 articles were grouped into theme clusters, represented as emergent themes. These emergent themes represented the fundamental elements of the entire body of literature.

### **3. Results**

#### *3.1. Publication type*

I located 40 articles that met the section criteria. The publication type for each of the articles is located in Table 1. Sixteen of the articles (40%) included in this meta synthesis were research studies ( Amos-Kroohs, Fink, Smith, Chin, Van Calcar, Wozniak, & Smith, 2016; Coggins, Timler, & Olswang, 2007; Chen, Olson, Picciano, Starr, & Owens, 2012; Crocker, Vaurio, Riley, & Mattson, 2009; Fagerlund, Akademi, Aute-Ramo, K alland, Linja, Santtila, Hoyme, Mattson, & Korkman, 2012; Fagerlund, Autti-Ramo, Hoyme, Mattson, & Korkman, 2011; Gindis, 2014; Mariasine, Pei, Poth, Henneveld, & Rasmussen, 2014; Ipsiroglu, McKellin, Carey, & Looock, 2012; Michaud & Temple, 2013; O'Connor, & Paley, 2006; O'Conner, Paley, & Drew, 2006; Petrenko, Tahir, Mahoney, & Chin, 2013; Petrenko, Tahir, Mahoney, & Chin, 2014; Rangmar, Hjern, Vinnerljung, Strömland, Aronson, & Fahlke, 2014; Stevens, Major, Rovet, Koren, Fantus, Nulman, & Desrocher, 2012). Nine of the articles (22.5%) were reviews of literature (Bullock, 2012; Coles, 2011; Davis, Desrocher, & Moore, 2010; Hyter, 2007; Millians, 2015; Oswald, Heil, & Goldbeck, 2010; Pei, Flannigan, Walls, & Rasmussen, 2015; Popova,

Sange, Shield, Mihic, Chudley, Mukherjee, Bekmuradov, & Rihm, 2016; Stansell, & McLaughlin, 2013). Six of the articles (15%) were theoretical works (Bigelow, 2016; Hyter, 2007; Olson, Oti, Gelo, & Beck, 2012; Petrenko, 2015; Stansell, & McLaughlin, 2013; Watson, Westby, 2003). Four of the articles (10%) were opinion pieces (Burd, 2016; McLennan, 2015; Olson, 2015; Ryan, 2006). Three of the articles (7.5%) were guides (Fast, & Conry, 2009; Hanlon-Dearman, Green, Andrew, & Cook, 2015; PrachiShah, Milgrom, Munzer, & Hoyme, 2015). Two of the articles (5%) were descriptive works (Coles, 2011; Lyons, Jones, & Streissguth, 2011).

Table 1

Author(s) & Year of Publication	Publication Type
Amos-Kroohs, Fink, Smith, Chin, Van Calcar, Wozniak, & Smith, 2016	Research Study
Bigelow, 2016	Theoretical
Bullock, 2012	Review of the Literature
Burd, 2016	Opinion
Coggins, Timler, & Olswang, 2007	Research Study
Chen, Olson, Picciano, Starr, & Owens, 2012	Research Study
Coles, 2011	Descriptive
Coles, 2011	Review of the Literature
Crocker, Vaurio, Riley, & Mattson, 2009	Research Study
Davis, Desrocher, & Moore, 2010	Review of the Literature
Fagerlund, Akademi, Aute-Ramo, Kalland, Linja, Santtila, Hoyme, Mattson, & Korkman, 2012	Research Study
Fagerlund, Autti-Ramo, Hoyme, Mattson, & Korkman, 2011	Research Study

Fast, & Conry, 2009	Guide
Gindis, 2014	Research Study
Hanlon-Dearman, Green, Andrew, & Cook, 2015	Guide
Henry, Sloane, Black-Pond, 2007	Research Study
Hyter, 2007	Review of the Literature
Hyter, 2007	Theoretical
Ipsiroglu, McKellin, Carey, & Looock, 2012	Research Study
Lyons, Jones, & Streissguth, 2011	Descriptive
Mariasine, Pei, Poth, Henneveld, & Rasmussen, 2014	Research Study
McLennan, 2015	Opinion
Michaud & Temple, 2013	Research Study
Millians, 2015	Review of the Literature
O'Connor, & Paley, 2006	Research Study
Olson, 2015	Opinion
Olson, Oti, Gelo, & Beck, 2012	Theoretical
Oswald, Heil, & Goldbeck, 2010	Review of the Literature
Pei, Flannigan, Walls, & Rasmussen, 2015	Review of the Literature
Petrenko, 2015	Theoretical
Petrenko, Tahir, Mahoney, & Chin, 2013	Research Study
Petrenko, Tahir, Mahoney, & Chin, 2014	Research Study
Popova, Sange, Shield, Mihic, Chudley, Mukherjee, Bekmuradov, & Rihm, 2016	Review of the Literature
PrachiShah, Milgrom, Munzer, & Hoyme, 2015	Guide
Rangmar, Hjern, Vinnerljung, Strömmland, Aronson, & Fahlke, 2014	Research Study
Ryan, 2006	Opinion

Stevens, Major, Rovet, Koren, Fantus, Nulman, & Desrocher, 2012	Research Study
Stansell, & McLaughlin, 2013	Review of the Literature
Watson, Westby, 2003	Theoretical

### 3.2 Research design, participants, data sources, and findings of the studies

As stated previously, I located 16 research studies that met my selection criteria ( Amos-Kroohs, Fink, Smith, Chin, Van Calcar, Wozniak, & Smith, 2016; Coggins, Timler, & Olswang, 2007; Chen, Olson, Picciano, Starr, & Owens, 2012; Crocker, Vaurio, Riley, & Mattson, 2009; Fagerlund, Akademi, Aute-Ramo, Kalland, Linja, Santtila, Hoyme, Mattson, & Korkman, 2012; Fagerlund, Autti-Ramo, Hoyme, Mattson, & Korkman, 2011; Gindis, 2014; Mariasine, Pei, Poth, Henneveld, & Rasmussen, 2014; Henry, Sloane, Black-Pond, 2007; Ipsiroglu, McKellin, Carey, & Loock, 2012; Michaud & Temple, 2013; O'Connor, & Paley, 2006; Petrenko, Tahir, Mahoney, & Chin, 2013; Petrenko, Tahir, Mahoney, & Chin, 2014; Rangmar, Hjern, Vinnerljung, Strömland, Aronson, & Fahlke, 2014; Stevens, Major, Rovet, Koren, Fantus, Nulman, & Desrocher, 2012). The research design, participants, data sources, and findings of each of these studies are identified in Table 2.

Table 2

Authors	Research Design	Participants	Data Sources	Findings
Amos-Kroohs, Fink, Smith, Chin, Van Calcar, Wozniak, & Smith, 2016	Quantitative	74 children with FASD with delayed acquisition of self-feeding behavior	Survey	A comparison of eating behaviors and nutrition concerns was conducted with children with FASD and children developing normally.

				Several abnormal eating patterns and concerns were found to be common in children with FASD and may also contribute to poor growth and nutrition. They may benefit from diet counseling.
Chen, Olson, Picciano, Starr, & Owens, 2012	Quantitative	33 children with FASD 4-12 years old.	Survey	Study focused on gaining more information concerning sleep problems in children and individuals with FASD using survey questions and polysomnography. Significant sleep problems were found to affect the children with FASD. More investigation is needed to better describe these disturbances and their effect on children's overall health.
Coggins, Timler, & Olswang, 2007	Quantitative	573 school-age children. Each child had received a diagnosis of FASD.	Quantitative scales	There is substantial Co-occurrence between the effects of prenatal alcohol exposure and negative caregiving environments. The study found that school-age children with FASD often exhibit deficits in language and social skills. These children may be very apt to have language and social communication problems as a result of negative social interactions as well. Further comprehensive

				assessment is needed in this area.
Crocker, Vaurio, Riley, & Mattson, 2009	Quantitative	65 children (ALC = 22, ADHD = 23, CONROL = 20)	Interview	Study found differences in adaptive behavior between two groups. The adaptive ability in children with prenatal alcohol exposure is shown by a delay in development, as shown by a lack of improvement with age in the socialization and communication scores. Yet in children with ADHD there is a developmental delay in adaptive ability as their scores continued to improve with age. Further research will lead to improved diagnosis and more effective interventions.
Fagerlund, Akademi, Aute-Ramo, Kalland, Linja, Santtila, Hoyme, Mattson, & Korkman, 2012	Qualitative	73 children with histories of prenatal exposure to alcohol, the FASD; 30 consisting of children with mostly specific learning disorder; 40 in a typically developing control group.	VABS Interview Edition-Survey Form, Wechsler Intelligence Scale for Children-III (WISC-III) Leiter International Performance Scale-Revised (LIPS-R)	The study examined the adaptive abilities of children and adolescents with FASD and specific learning disabilities. Compared to the other learning disorder groups, children with FASD social skills declined with age. More efforts and resources should be spent to diagnose and support these individuals.
Fagerlund, Autti-Ramo, Hoyme, & Mattson, &	Quantitative	73 children and adolescents with fetal	Child behavior checklist	Study assessed the risk and protective factors associated with behavior problems that

Korkman, 2011		alcohol spectrum disorders (FASD)		often occur in children with prenatal alcohol exposure. Children prenatally exposed to alcohol had greater risk of behavioral problems if they were less visibly alcohol affected, and the longer time they had spent in residential care. The results point out the importance of insuring the appropriate service for all of these children facing these risk factors.
Gindis, 2014	Mixed Methods	63 children, ages 5-16, internationally adopted with FASD	Surveys	FASD in international adopted children show heightened characteristics typical for this conditions of FASD. Based on these findings, FASD must be recognized in the school setting as an educational handicap in order to change the outcome. Academic remediation and cognitive-behavioral interventions are the most effective remedial methods, and early intervention is recommended.
Henry, Sloane, Black-Pond, 2007	Quantitative	274 children, 6 to 16 years of age, were referred by the child welfare system, 40% with FASD	Assessment	Study compared the impact of postnatal child trauma with and without prenatal alcohol exposure, to add to current research on both topics. Analysis revealed that

				<p>prenatal alcohol exposure and postnatal trauma had significant potential to drastically alter normal childhood development. This suggests a need for new perspectives and training for teachers and providers.</p>
<p>Ipsiroglu, McKellin, Carey, &amp; Loock, 2012</p>	<p>Qualitative</p>	<p>6 parents of children with FASD, 7 health care professionals, and 27 patients with their caregivers.</p>	<p>Interviews</p>	<p>Interviews and clinical sleep assessments were conducted to discover how and why sleep disorders are often missed. The daytime behaviors were found to be the focus of intervention and the underlying case was missed. Sleep problems for individuals with FASD are under diagnosed because of HCP's poor explanatory model and are constrained by categorical diagnosis. Changes need to be made to the health care system to enable providers to appropriately treat these sleep disorders.</p>
<p>Mariasine, Pei, Poth, Henneveld, &amp; Rasmussen, 2014</p>	<p>Qualitative</p>	<p>32 adolescents with 31% confirmed prenatal exposure to alcohol (PAE) and the remaining 69% had a diagnosis of FASD.</p>	<p>ABAS-2 (adaptive skills), SSIS (social skills), BASC-2 (mental health functioning), and BERS-2</p>	<p>Areas seen as having the biggest impact on later independence for students with prenatal alcohol exposure, mental health, social skills, and adaptive functioning were assessed based on ratings of both caregivers, and the</p>

			(personal strengths).	adolescents themselves. Caregivers rated the adolescents as having significantly more difficulties in all items assessed when compared to the PAE adolescents ratings. Those who will be working and living with individuals with fetal alcohol exposure should understand their point of view.
Michaud, & Temple, 2013	Quantitative	5 mothers (either adoptive, foster or biological) of individuals with FASD.	Survey	In this survey, mothers of individuals with FASD answered the question of what their experiences of caring for their children was like. They described using unconventional parenting techniques and relayed their guilt at being unable to meet the needs of their children. Once caregivers make changes to the environment instead of expecting the child to change there are more successes.
O'Connor, & Paley, 2006	Quantitative	42 children Children with FASD, 4–5 years, and their biological mothers.	Survey and Pictorial Depression Scale (PDS)	Mother-child interactions were assessed using a family interaction task to discover potential child onset depression. Prenatal alcohol Exposure was associated with more negative childhood

				affect. Mothers of more negative children were less connected to their children, and those children had higher levels of depressive symptoms. Prenatal alcohol exposure needs to be considered concerning childhood onset depression.
Petrenko, Tahir, Mahoney, & Chin, 2013	Qualitative	Parents of children with FASD and providers who had professional contact with children with FASD and their families	Semi-structured interviews	The study's aim was to find out, from the point of view of providers and parents, what interventions were needed to prevent secondary conditions for children with FASD. They found that there is a lack of knowledge of FASD in trainees and professionals across settings. This builds barriers: delayed diagnosis, services, and a difficulty qualifying for services.
Petrenko, Tahir, Mahoney, & Chin, 2014	Qualitative	25 parents of children (ages 3 to 33) with FASD and 18 service providers.	Individual Interviews	Study focused on the barriers that contribute to the prevention of FASD secondary conditions, and treatment. A lack of knowledge across all systems was found to be the biggest problem. To improve the outcomes for individuals with FASD, programs need to be available to individuals of all ages,

				prevention-focused, individualized, and coordinated.
Rangmar, Hjern, Vinnerljung, Strömmland, Aronson, & Fahlke, 2014	Quantitative	79 adults with an FAS diagnosis, average age of 32.	Register-based study	Secondary factors for individuals with FAS were assessed. The FAS group was much more likely to have received special education, be unemployed and receive a disability pension, have higher hospital stays for alcohol abuse and psychiatric disorders. It is important to get an early diagnosis and have support across the systems to avoid secondary factors from occurring.
Stevens, Major, Rovet, Koren, Fantus, Nulman, & Desrocher, 2012	Quantitative	25 children with FASD and 17 children with autism.	Social Skills Improvement System (SSIS; Gresham & Elliot, 2008)	Study examined social information processing as a factor of social skills and behavior deficit seen in children with FASD and autism. It was found that FASD and autism share similarities with social and communicative functioning. Targeted therapies need to be created to improve social functioning for these individuals.

### 3.2.1 Research design

Five of the 16 studies (31.25%) used a qualitative design (Fagerlund, Akademi, Aute-Ramo, Kalland, Linja, Santtila, Hoyme, Mattson, & Korkman, 2012; Ipsiroglu, McKellin, Carey, & Looch, 2012; Mariasine, Pei, Poth, Henneveld, & Rasmussen, 2014; Petrenko, Tahir, Mahoney, & Chin, 2013; Petrenko, Tahir, Mahoney, & Chin, 2014). Ten of the studies (62.5%) used a quantitative design (Amos-Kroohs, Fink, Smith, Chin, Van Calcar, Wozniak, & Smith, 2016; Chen, Olson, Picciano, Starr, & Owens, 2012; Coggins, Timler, & Olswang, 2007; Crocker, Vaurio, Riley, & Mattson, 2009; Fagerlund, Autti-Ramo, Hoyme, Mattson, & Korkman, 2011; Henry, Sloane, Black-Pond, 2007; Michaud, & Temple, 2013; O'Connor, & Paley, 2006; Rangmar, Hjern, Vinnerljung, Strömmland, Aronson, & Fahlke, 2014; Stevens, Major, Rovet, Koren, Fantus, Nulman, & Desrocher, 2012). One of the studies (6.25%) used a mixed method design (Gindis, 2014).

### *3.2.2 Participants and data sources*

The majority of the 16 research studies included in this meta-synthesis analyzed data from children and adolescents with FASD and their parents. Ten of the studies (62.5%) analyzed data collected from children and adolescents with FASD (Amos-Kroohs, Fink, Smith, Chin, Van Calcar, Wozniak, & Smith, 2016; Chen, Olson, Picciano, Starr, & Owens, 2012; Coggins, Timler, & Olswang, 2007; Crocker, Vaurio, Riley, & Mattson, 2009; Fagerlund, Autti-Ramo, Hoyme, Mattson, & Korkman, 2011; Fagerlund, Akademi, Aute-Ramo, Kalland, Linja, Santtila, Hoyme, Mattson, & Korkman, 2012; Gindis, 2014; Henry, Sloane, Black-Pond, 2007; Mariasine, Pei, Poth, Henneveld, & Rasmussen, 2014). Three of the studies (18.75%) analyzed data collected from the parents and providers of children with FASD (Ipsiroglu, McKellin, Carey, & Looch, 2012; ; Petrenko, Tahir, Mahoney, & Chin, 2013; Petrenko, Tahir, Mahoney, & Chin, 2014). One

of the studies (6.25%) analyzed data collected from children with FASD and their biological mothers (O'Connor, & Paley, 2006). One of the studies (6.25%) analyzed data collected from the parents of children with FASD (Michaud, & Temple, 2013). One of the studies (6.25%) analyzed data collected from adults with an FASD diagnosis (Rangmar, Hjern, Vinnerljung, Strömmland, Aronson, & Fahlke, 2014). Other participants included children and adolescents without FASD or a history of prenatal alcohol exposure, children with delayed self-feeding disorder, children with ADHD, children with autism, and children in the welfare system.

Surveys and interviews provided the main data sources for the research studies. Eight of the studies (50%) used surveys to collect data (Amos-Kroohs, Fink, Smith, Chin, Van Calcar, Wozniak, & Smith, 2016; Chen, Olson, Picciano, Starr, & Owens, 2012; Fagerlund, Autti-Ramo, Hoyme, Mattson, & Korkman, 2011; Gindis, 2014; Mariasine, Pei, Poth, Henneveld, & Rasmussen, 2014; Michaud, & Temple, 2013; O'Connor, & Paley, 2006; Rangmar, Hjern, Vinnerljung, Strömmland, Aronson, & Fahlke, 2014). Five of the studies (31.25%) used interviews to collect data (Crocker, Vaurio, Riley, & Mattson, 2009; Fagerlund, Akademi, Aute-Ramo, Kalland, Linja, Santtila, Hoyme, Mattson, & Korkman, 2012; Ipsiroglu, McKellin, Carey, & Loock, 2012; ; Petrenko, Tahir, Mahoney, & Chin, 2013; Petrenko, Tahir, Mahoney, & Chin, 2014). Three of the studies (12.5%) used assessments (18.75%) to collect data (Coggins, Timler, & Olswang, 2007; Henry, Sloane, Black-Pond, 2007; Stevens, Major, Rovet, Koren, Fantus, Nulman, & Desrocher, 2012).

### *3.2.3 Findings of the studies*

The findings of the 16 research studies included in this meta-synthesis can be summarized as follows.

1. It is common to find other co-occurring factors, such as sleep disturbances and eating disorders, in children with FASD. Sleep problems are often underdiagnosed because the daytime results are often seen as the cause of the problem and the real issue is not discovered. Eating disturbances can have a serious negative effect on healthy growth and development, while such difficulties as the inability to feel satisfied and full after eating can lead to other difficulties and problems. There is also ample evidence that points to childhood depressive symptoms as a common problem that also plagues these children.

2. A second burden that is often found with children with prenatal alcohol exposure is having adverse living conditions. Negative home environments lead to greater risk for behavior problems for these children, and is a leading reason for the onset of secondary conditions later in life. Children that were prenatally exposed to alcohol and spent time in residential care facilities were more adversely affected. It was found that it is not the living conditions themselves but the care-givers efforts and commitment that made the biggest difference for these children.

3. The need for early detection and intervention for individuals with FASD is clear, although the lack of knowledge in the health care profession and general public produce serious barriers. Individuals with FASD have social difficulties that do not improve with age, and there is a definite need for programs to be coordinated across all ages. Without proper and early intervention, secondary conditions such as problems with the justice system, mental health problems, and drug and alcohol addictions may arise. From the home perspective, adequate parenting for these children can take place with the proper supports in place. Caregivers often report guilt and the feeling of being unprepared to give the proper care to these children.

### *3.3 Emergent themes*

Four themes emerged from my analysis of the 40 articles included in this meta-synthesis. These emergent themes are as follows: (a) co-occurring factors; (b) secondary conditions; (c) positive outcomes of a diagnosis; and (d) best intervention practices. These four theme cluster and their formulated meanings are represented in Table 3.

**Table 3**

<b>Theme Clusters</b>	<b>Formulated Meanings</b>
<b>Co-Occurring Factors</b>	<ul style="list-style-type: none"> <li>● Abnormal eating patterns are common in children with FASD and may contribute to their delayed growth and nutritional inadequacies.</li> <li>● Environmental and possibly genetic factors may produce developmental and behavioral outcomes that can co-occur with the effects of prenatal exposure.</li> <li>● Clinically significant sleep problems are present in children with FASD.</li> <li>● A number of birth defects have been described to recognize developing organ systems that can be damaged or disrupted by prenatal exposure to alcohol.</li> <li>● Sleep deprivation in children generally manifests itself in daytime inattention, hyperactivity, and mood.</li> <li>● In clinically referred samples, 48% of children with FASD also had ADHD.</li> <li>● Children with FASD may have hearing disorders or hearing loss which can inhibit language learning.</li> <li>● Prenatal alcohol exposure is a significant risk factor for child depressive symptoms.</li> <li>● More than any other clinical population, children with FASD live in danger of the co-occurring effects of negative caregiving.</li> </ul>

	<ul style="list-style-type: none"> <li>● Longer time in residential care is a strong predictor of behavioral problems in children with FASD.</li> <li>● Children of FASD are up to 2 to 3 times as likely to be abused as children without FASD.</li> </ul>
<b>Secondary Conditions</b>	<ul style="list-style-type: none"> <li>● Systems level barriers are major obstacles in preventing secondary conditions in individuals with FASD.</li> <li>● The aim is to provide FASD informed care with appropriate treatment in order to reduce the secondary conditions and to help caregivers.</li> <li>● Adults and adolescents with FASD are at-risk for maladaptive behaviors that can lead to problems with the justice system (up to 60%), and victimization.</li> <li>● The social skills of individuals with FASD may deteriorate as they age.</li> <li>● Adults with FASD may end up living alone and have problems with employment.</li> <li>● Secondary conditions include: delayed diagnosis, difficulty qualifying for services, unavailable services, poorly implemented services, and problems maintaining the services.</li> <li>● Secondary conditions of FASD can be mainly attributed to the lack of knowledge and understand in professionals across many fields.</li> <li>● Two of the biggest protective factors for secondary conditions are early diagnosis and receiving developmental disability services.</li> <li>● Secondary conditions include: mental health issues, school problems, trouble with the justice system, inappropriate sexual behaviors and substance abuse.</li> <li>● FASD manifests itself differently throughout development and life, from restlessness to serious conduct disorders.</li> <li>● Adaptive ability in students with FASD does not improve with age: socialization and communication</li> <li>● Existing evidence-based interventions are limited and focus predominantly on the school-aged population, thereby neglecting adolescents and adults.</li> <li>● Long term data show decreased individual and family functioning, and interventions in FASD may need to be across the life span.</li> <li>● The odds of a negative outcome were reduced if the person affected with FASD had an early diagnosis, lived in a positive home environment, and was not a victim of abuse.</li> </ul>

	<ul style="list-style-type: none"> <li>● Acquiring normal social behavior depends upon a stable caregiver and not the physical quality of the environment</li> </ul>
<p><b>Improved Outcomes with a Diagnosis</b></p>	<ul style="list-style-type: none"> <li>● There is a pressing need for the involvement of PHCP in the active care of children and adolescents with FASD and their families over their lifespan.</li> <li>● Effective practices will minimize later challenges and financial burdens for the families and communities.</li> <li>● Changing our understanding of the behavior of these adolescents due- at least in part to prenatal alcohol exposure- from that of defiance or antisocial desires, will build understanding and compassion.</li> <li>● Knowing a disorder is biological will help a teacher implement interventions appropriately and avoid misinterpretations of the causes of academic and social behavior.</li> <li>● Interventions programs related to math, language, literacy, social skills, memory and attention may have a positive effect on functioning.</li> <li>● While students with FASD are not included in the Individuals with Disabilities Education Improvement Act (IDEIA) categories of disabilities eligible for services, teachers who have students who have FASD in their classrooms may need useful and practical strategies for supporting the educational needs of their students.</li> <li>● Many students with FASD go undiagnosed and unidentified for special education and remain in the general education setting without proper support.</li> <li>● General public has little knowledge of how prenatal alcohol consumption affects children and adults across the life span, or how they need to be supported.</li> <li>● Parents of children with FASD need to use unconventional parenting techniques, feeling guilt over their child's unmet needs, and are fearful for their child's future.</li> </ul>
<p><b>Best Intervention Practices</b></p>	<ul style="list-style-type: none"> <li>● 80% of children diagnosed with FASD or FAE do not live with their biological parents making it difficult to obtain crucial information.</li> </ul>

	<ul style="list-style-type: none"><li>● Critical aspects of FASD are invisible to the eye and allows professionals to miss the diagnosis of FASD.</li><li>● The situation with respect to under recognition of FAS is compounded with respect to the full spectrum of FASD.</li><li>● Information is needed to determine FASD, such as mother's report of alcohol use in pregnancy, medical records, and clinical observations.</li><li>● Mother may not report alcohol use during pregnancy because of the stigma associated with it.</li><li>● Successful service delivery depends on a relationship between family and professionals of collaboration and trust.</li><li>● Creating practices to prevent and intervene in FASD will require efforts of policy makers, researchers and communities.</li><li>● Policy that requires curriculum that would adequately support FASD comprehension, needs to be implemented for providers servicing the community.</li><li>● The proposed diagnostic category included in the 2013 Diagnostic and Statistical Manual for Mental Health Disorders (DSM-5) is the Neurobehavioral Disorder Associated with Prenatal Alcohol Exposure (ND-PAE).</li><li>● Interventions for FASD include psycho-educational, psychosocial, psychopharmacological, and neuro-psychological profiling.</li><li>● Intervention should include community education, caregiver intervention, and parenting support and counseling.</li><li>● Intervention programs need to be accessible across the life span, be focused on prevention, be individualized, comprehensive, and co-ordinate across systems and ages.</li><li>● Educational planning needs to be developed in accordance with the children's individual cognitive and learning profiles.</li><li>● Contextual factors are important considerations for students with FASD and learning theories must put the child in their contextual framework.</li></ul>
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## **4. Discussion**

In this section I have summarized the emergent themes from my analysis of the 40 articles included in this meta-synthesis. The emergent themes were then connected to my own practices as a special education teacher.

### *4.1 Co-Occurring Factors*

There are several commonly co-occurring factors for individuals with FASD, defects that have been described to recognize developing organ systems that can be damaged or changed by prenatal exposure to alcohol. Considering nutrition, abnormal eating patterns are common and may contribute to children's delayed growth and nutritional inadequacies. This can present itself as a child who cannot get enough to eat and lead adults to believe there is child abuse present when in fact the child has no satiation and continues to crave food after having enough to eat. That can continue throughout the day, and can become such a focus that they may be driven to steal or lie to obtain more food.

Another factor that presents itself in individuals with FASD is sleep problems. The inability to achieve a quality rest greatly affects the daytime behaviors, and inattention, hyperactivity and mood swings are found to be the common results. Children going through this are considered to have these problems as main difficulties instead of them being the resulting factors of some other initial difficulty. As it is, children with FASD are diagnosed with ADHD 48% of the time. So this could lead to misdiagnosis and unnecessary medication, and easily cause misunderstandings and frustrations with the adults involved. Sleep problems may go unnoticed for years until the child is old enough to recognize the problem themselves.

Left undiagnosed it is also possible that children with FASD are also experiencing hearing disorders or hearing loss which can inhibit language learning. Having this factor undiagnosed can lead to a student that may later being referred for special education or special services. That may benefit them if testing procedures include hearing test that will detect this problem.

Environmental factors may produce developmental and behavioral outcomes that can co-occur with the effects of prenatal exposure. More than any other clinical population, children with FASD are in danger of the co-occurring effects of negative caregiving. It has been found that the longer the time children are kept in residential care the higher the predictor of behavioral problems in children. Children with FASD are also up to 2 to 3 times as likely to be abused as children without FASD. It is therefore not surprising that there is also a high and significant risk factor for child depressive symptoms as well.

For me, this information is shocking because throughout the year and sometimes throughout a day I have seem signs of these co-occurring factors in my own students. Not having any clear reason to suspect a problem that should be addressed, or having the knowledge that I have a student that may be on the fetal alcohol spectrum, these students may have needs that I should be addressing and am missing just like all that may have come before me. Being faced with these new facts will enable more interactions with service providers and parents to make sure that we do not let these very serious issue go unnoticed and untreated.

#### *4.2 Secondary Conditions*

The secondary conditions of FASD can be mainly attributed to the lack of knowledge in the professionals across many fields. These system's level barriers are major obstacles in preventing

secondary conditions in individuals with FASD. It is important to provide FASD informed care with appropriate treatment to reduce the secondary conditions and to help caregivers.

Secondary conditions can include: difficulty qualifying for services, unavailable services, poorly implemented services, and problems maintaining the services. This leads to such continued complications as mental health issues, school problems, trouble with the justice system, inappropriate sexual behaviors and substance abuse. FASD manifests itself differently throughout development and life, from restlessness to serious conduct disorders. It is known that adults and adolescents with FASD are at-risk for maladaptive behaviors that can lead to problems with the justice system (up to 60%), and victimization. Adults with FASD may end up living alone and have problems with employment.

With this in mind, we also know that two of the biggest protective factors for secondary conditions are early diagnosis and receiving developmental disability services. The possibility of a negative outcome were reduced with an early diagnosis, a positive home environment, and no abuse was occurring. Also, acquiring normal social behavior depends more upon a stable caregiver and not the physical quality of the environment.

At this point, existing evidence-based interventions are limited and focus predominantly on the school-aged population, thereby neglecting adolescents and adults. This is another barrier in that long term data for individuals with FASD show decreased individual and family functioning, and interventions in FASD may need to be across the life span. The social skills of individuals with FASD may in fact deteriorate as they age.

As a teacher I feel a great responsibility to do my part to make sure these secondary conditions are avoided. Being part of an educational team that collaborates well means that the

diagnosis of FASD will be more likely to occur. Teamwork at school also means having support to build a trusting relationship with parents. More than any other difficult discussion, finding out more information from parents about the likelihood of FASD in their children would be invaluable. The stigma involved from a mother's perspective needs to be taken into acute consideration for any productive discussion can take place. I think that it is possible though and parents that feel support and accepted are more likely to share aspects of their child's life with someone in a position to help and that is non-judgmental.

#### *4.3 Improved Outcomes with a Diagnosis*

Obviously there is a need for more involvement of private health care providers in the care of children and adolescents with FASD and their families, continuing throughout their lifespan. The general public has little knowledge of how prenatal alcohol consumption affects children and adults across the life span, or how they need to be supported. Changing our understanding of the behavior of these adolescents, from that of defiance or antisocial motivations, will begin to build understanding and compassion. These changes can only take place with appropriate and timely diagnosis. At this point in time it is common for parents of children with FASD to report the need to use unconventional parenting techniques, feelings of guilt over their child's unmet needs, and fear for their child's future. Effective practices through diagnosis will give them the support they need, while minimizing later challenges and financial burdens for the families and their communities.

Today, many students with FASD go undiagnosed and unidentified for special education and therefore remain in general education without support. Knowing a disorder is biological will give the teacher a way to look for and implement interventions, and avoid misinterpretations of the

causes of academic and social behavior. The interventions needed related to math, language, literacy, social skills, memory and attention may have a positive effect on functioning. Teachers who have these students in their classrooms *do* need useful and practical strategies for supporting the educational needs of their students.

I can see how diagnosis would benefit classroom teachers, and how it would affect me as well. We waste a lot of precious time wondering and guessing at what “might” be that we could be using to set up the intricate support systems that a student with FASD needs. Testing criteria and educational materials would be more readily available, and put into use much earlier. I believe that the FAS students would be directly served in the special education setting, but student less affected could remain in the classrooms with intervention with their needs targeted more precisely. This is of course the best way to avoid the many possible secondary factors.

#### *4.4 Best Intervention Practices*

Intervention is difficult as recognition is also compounded with respect to the full spectrum. Some critical signs of FASD are invisible to the eye and therefore may allow professionals to miss the diagnosis of FASD. Another road block to recognition is that 80% of children diagnosed with FASD or FAE do not live with their biological parents making it difficult to obtain crucial information. Also, mothers may not report alcohol use during pregnancy because of the stigma associated with it. Diagnosis is difficult if not impossible without this crucial information: mother’s report of alcohol use in pregnancy, medical records, and clinical observations.

Interventions for diagnosed FASD can include psycho-educational, psychosocial, psychopharmacological, and neuro-psychological. To be optimally successful, intervention should include community education, caregiver intervention, and parenting support and

counseling. It is important that these intervention programs to be accessible across the life span of the individuals. They should be focused on prevention, be individualized, comprehensive, and co-ordinate across health care systems.

For teachers to intervene proficiently, planning needs to be developed in accordance with the children's individual cognitive and learning profiles. Teachers need to be empowered with the materials needed for this venture. Contextual factors are important considerations as well for students with FASD, and learning theories decided upon must put the child in their contextual framework.

Creating practices to prevent and intervene in FASD on a larger scale will require efforts of policy makers, researchers and the communities. There is the need to implement policy that requires curriculum for providers servicing the community that would adequately support FASD comprehension. The final successful service delivery will depend on a strong working relationship between family and professionals, built on collaboration and trust.

In the resource classroom, individual educational programs could be set up for students that have been diagnosed. It would be the difference of almost making your flight, and sitting in the seat with the roar of the engines beside you. Students affected by prenatal alcohol exposure are not necessarily so different that they receive any different treatment at all, let alone the appropriate support for their particular needs. I believe I have had students with these needs in my classes throughout my career, but have not had the knowledge to understand how I may help. It is apparent that the community in general also did not know, and I was not the only provider of services that did not do my job justice with those students. It bothers me to think that there might

be adults out there suffering from secondary factors who I may have been able to help with more information or with their diagnosis in mind. Prenatal alcohol consumption should be discouraged obviously, but if I am only able to intervene at the school age level, I need to have the tools to do so.

## **5. Conclusion**

The findings of this meta-synthesis show much of the general hidden problems associated with FASD as it stands in our population today. All of the evidence clearly shows how unique and complicated an individual's life that is affected by prenatal alcohol exposure can be. It becomes clear then, especially considering the long term effects, how important that diagnosis for realizing the best possible intervention is.

FASD is often undiagnosed and recognized because of the stigma to a mother in particular who is then recognized as causing the child to be born with this disability. Regardless of the reasons or nature of the case, the best course of forward action will usually require the admittance of alcohol consumption on the mother's part. Without the physical features that children with FAS are often seen with, confirmation either by records or acknowledgement is necessary. It is a challenge, but perhaps the biggest step is acquiring this information. Moving forward then becomes one of working together in a larger service provider community to recommend, provide, and support the unique interventions needed for each individual.

If there are adequate training and programs available in all reaches of the healthcare and providers community, the network of care and collaboration will begin to recognize and immediately support this disability once known. At this point there are too many holes in the required training that would support an adequate knowledge base, in too many tiers of the

system. This allows untreated individuals to continue on and fall into one or more of the secondary conditions that may plague them for the rest of their lives.

Our society has realized the problems associated with the consumption of alcohol during pregnancy, but the problem continues never the less. Until such a time when we have been able to ensure the education in this area that is evidently needed, children born with FASD will need our committed support. Our job to support them early on should be of utmost importance and done in a timely manner. The repercussions are life-long dilemmas. When faced with the question of the quality of life it is obvious that early intervention done in a networked system is the only possible choice.

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