

Differences in Morbidity Among Children in Foster Care and Non-foster Care Children

Submitted by

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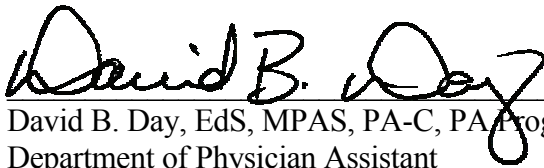
We hereby recommend that the research project prepared under our supervision by Andrew Osbeck entitled Differences in Morbidity Among Children in Foster Care and Non-foster Care Children will be accepted as partial fulfillment for the degree of Master of Physician Assistant.

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## **Abstract**

Foster care children are at risk for a number of health problems. A number of studies highlight the health disparities in this population. The purpose of this study is to determine if the morbidity rates of foster children are actually greater than non-foster care children. This study utilized a systematic review of the literature on foster care morbidity rates. The results of comparing the morbidity rates in these two populations indicates that foster children do have higher rates of problems in physical, mental, and developmental health. Foster children are up to 50% more likely to have chronic physical health conditions, almost 5 times more likely to have a primary psychiatric condition and almost 2.5 times more likely to have developmental delays or mental retardation than other children in similar socio-economic situations, who are not in foster care.

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## Introduction

*“If one is to judge from its literature what a particular field is concerned about, one would have to say that the child welfare people are unconcerned about the health of children in placement...”*

**C. Schoenberg<sup>1</sup>**

The purpose of this study was to analyze current research concerning the morbidity rates of foster care children in comparison to those not involved in foster care. As stated above, there is not only a paucity of literature regarding the health of children among child welfare, but also among the healthcare profession as well. If we are not concerned about keeping the needs of foster care children in the forefront of our minds, then it is easy to de-prioritize this important, but underserved population in our society. As Seidel surmises in his report on the Needs of Foster Children from the Committee on Adoption and Dependant Care, “In many ways there is a seeming substitution of community neglect for parental neglect. For example, in one state 40% of foster children have health problems and more than 25% have not had a recommended treatment program implemented. These figures indicate that priorities given the needs of foster children, in the context of our societal needs, are low.”<sup>1</sup> It was the effort of this paper to reveal the differences between morbidity rates among foster care and non-foster care children, and as a secondary goal to remind health practitioners of the needs of this population, which is currently close to 550,000 in the United States.<sup>2</sup> The scope of this study will incorporate physical, psychological and developmental morbidity rates without being a comprehensive study of individual pathologies in these broad subject areas.

## **Methodology**

A systematic review of the literature using evidence-based techniques was completed pertaining to studies regarding morbidity of foster care children and non-foster care children. These morbidity rates pertain to the physical, mental and developmental health of above mentioned populations. Subjects include children and adolescents from infancy to age 18 who were involved in the child welfare system at some point in their life, as well as children in the general population not involved in foster care. A review of literature was undertaken utilizing Medline and CINAHL databases from 1970 to the present date. The search conducted utilized the keywords “foster care”, “morbidity”, “children” and “healthcare”. The peer-reviewed articles used included background articles for epidemiology data and foreground articles mostly consisting of systematic review of data.

## **Literature Review**

Several studies relating to the needs of foster care children and their comparisons to non-foster care children were reviewed. Most of the studies have revealed significant healthcare needs in foster care children. Many of them have compared the morbidity of those involved in foster care.

The Adoption and Foster Care Analysis and Reporting System (AFCARS)<sup>2</sup> gives a breakdown of several data concerning children in foster care including the overall number of children in foster care in 1999, which is 568,000.

Halfon et al.,<sup>3</sup> performed a cross-sectional analysis of a clinical cohort via chart review to describe the health status of foster children. They found approximately 82% of

children involved had at least one chronic physical or medical condition and nearly 84% were affected by developmental and emotional problems.

Baliver et al.,<sup>4</sup> compared three separate groups to determine the differences in health status. These groups were children in foster care, children in the Aid to Families with Dependant Children (AFDC) program who subsequent to the study period entered foster care, and children in the AFDC program who never entered foster care. Their objective was to evaluate children of similar socioeconomic backgrounds that were either in foster care or not and determine if there were differences in health status. Among their findings are that a child entering foster care is 50% more likely to have be diagnosed with a chronic condition that those who never entered foster care. Also children who eventually entered foster care were nearly five times more likely to be diagnosed with a chronic psychiatric condition and were nearly two and a half times more likely to be diagnosed with developmental disorders and mental retardation.

The American Academy of Pediatrics Committee on Early Childhood, Adoption, and Dependant Care<sup>5</sup> evaluated the health care of those in foster care and gave recommendations for standards of health care services and components of health care services for foster children. These include an initial health screening, comprehensive health assessment and developmental and mental health evaluations. Also advocated was more accurate transfer of medical information, specifically a medical passport, which is a way to track the health records of each child through the foster care system.

Chernoff et al.,<sup>6</sup> desired to study the health status of children entering foster care, not based on how long they were in the system. The objective was to evaluate all children in foster care, not just those with long term placements as previous studies had



failed to factor in. They found that 92% of children had at least one abnormality in at least one body system ranging from 61% with abnormal skin examinations down to 2% with abnormal neurological examinations. Other significant findings included a 25% failure rate on vision screenings and a 16% fail rate on hearing tests. Among the implications made based on these findings was that more energy should be invested in developing systems for documenting and communicating the health problems and health histories of foster children at placement and that a system must be organized to track the children's health needs.

A report in *Alcoholism and Drug Abuse Weekly*<sup>7</sup> suggested that foster care children, when compared to other children utilizing Medicaid, were expected to have more mental or substance abuse issues. Foster children are also less likely to have continuous year-round health coverage.

A report by the United States General Accounting Office (GAO) reviewed the foster care programs in California, New York, and Pennsylvania to provide information on the health-related services needed and received by young children in foster care, the relationship between the receipt of health-related services and foster care placements with relatives versus placements with non-relatives, and what responsible agencies are doing to ensure that these children are receiving needed health-related services. The report indicated that many health needs remained unmet in approximately one-third of young foster children that were studied. Among these unmet needs were routine medical examinations and several specialized services. They also found that most young foster children in studied populations were at high risk for HIV because of parental drug abuse. A major finding was that an estimated 12 percent of the young foster children studied

received no routine health care and 34 percent received no immunizations. Thirty-two percent of these foster children had unmet, identifiable health needs.<sup>8</sup>

Simms et al.,<sup>9</sup> sought to examine the health care needs of children in foster care. They performed a systematic review of the literature regarding the health status and health care needs of children in foster care. They also offered several guidelines for primary health care practitioners who care for children in foster care. They found consistently high rates of physical, mental and developmental problems in this population, and based on these results, suggested developing an individualized health care plan for each child in foster care and integration of that health care plan into the child welfare plan.

Hochstadt et al.,<sup>1</sup> performed a study using a medical and psychosocial screening of 149 abused and neglected children entering the foster care system. They sought to generate a profile of the medical and psychosocial needs of children entering the foster care system. The results of their studies indicated that the foster children had much greater incidence of chronic medical conditions. They are also more likely to weigh significantly less and be significantly shorter than children in the general population. As a result of these chronic medical conditions they require greater use of medical subspecialty care. The foster children also have high incidences of developmental delays, shortfalls in adaptive behavior, and behavioral problems related to psychiatric disorders.

Barth<sup>10</sup> discusses the success of the child welfare system by studying measurable outcomes of children once they have been discharged from the child welfare system. He studied several criteria including safety, child deaths, injuries and incarceration after child welfare services. What is of interest to this study are his findings on death and

mortality rates. An element of this study was to determine if child welfare services reduced death after being released from services. When child abuse reports were matched against mortality rates they found that abused and neglected children were about three times more likely than the general public to die while still in their minority years. A study by the author matched the histories of 233,000 children in foster care in California with vital statistic records. The results revealed a higher mortality rate in the first year of life for foster children compared to the general public. This was largely due to health related deaths during infancy. African American infants in foster care have significantly lower (13/1000) mortality rate than African American children in the general public (17/1000) contrasted with Caucasian and Hispanic children. Hispanic infants and Caucasian children die almost twice as much (1.3%, 1.0 % respectively) as their respective counter parts in the general population (about 0.07%).

Harden<sup>11</sup> focused on family stability as a major factor in determining developmental functioning in foster care children and examined the research on the importance of safety and stability in the lives of foster children. Research indicates that positive health behaviors and less physical illness are found more frequently in children who have healthy, reliable relationships with their parents. Family stability provides better opportunity to receive regular preventative medicine and immunizations and have fewer behavioral problems and mental illnesses. She evaluated the effects that family stability has on child development, attachment, brain development, and resilience. Child development is affected by several factors including neglect, physical abuse, sexual abuse and emotional abuse.

Neglect is one of the top reasons a child enters foster care. As a result of neglect, children can have cognitive, language and academic delays as well as difficulty interacting with peers. It can also result in internalizing behavioral problems such as anxiety and depression as well as externalizing behavioral problems such as aggression and impulsivity.

Another reason for entering foster care is physical abuse. Physical abuse not only results in physical health conditions, but can also cause cognitive delays, aggressive behavior, posttraumatic stress disorder and poor peer relationships.

A third major reason for entering foster care is sexual abuse. Research demonstrates an increase in depression, dissociation, inappropriate sexual behavior and greater difficulty in school. Major growth problems and psychological pathology have been shown in children whose parents are emotionally unattached. Research also demonstrates that children in orphanages or large-group foster care locations have greater difficulty with attachment and displaying friendliness. Research also indicates that children in foster care have increased risk of impaired brain development because exposure to trauma can cause changes at the physiological level of the neurotransmitter and hormonal levels. These changes hinder their ability to adjust their emotions as they normally would and gives them a heightened sense of arousal. This creates an emotional state that makes them more sensitive to future traumatic experiences and leaves them less capable of focusing, remembering, learning and displaying self-control.

A report from the U.S. Department of Health and Human Services<sup>12</sup> focuses on mental health in children. It also sets forth an action plan for how we can improve meeting those needs. This report comments specifically on mental health and child

welfare services and recognizes the research that establishes foster children as a high-risk population in respect to emotional, behavioral and psychiatric maladies that require mental health services. Foster children therefore utilize these mental health services up to fifteen times more than children using Medicaid who are not in foster care. Even with the increase in the utilization of mental health services, there is still a lack of evidence-based treatments. The treatments that exist typically focus on the results of physical and sexual abuse.

Bergman<sup>13</sup> chronicles a study performed in southeastern Pennsylvania that analyzed the Medicaid claims and eligibility records of 39,500 children between the ages of 5 and 17 for the 1994-1995 fiscal years. This study found that expenditures for mental health services were 11 times greater for children in foster care than for children eligible for Aid to Families With Dependent Children.

Barton<sup>14</sup> suggests that not only is the foster child population underserved in relation to health but how it is also a disproportionate population of poverty and racial disparities. In the states of New Jersey, Maryland, Louisiana and Delaware, African-American children make up greater than 50% of the children in foster care. She also highlights the need to help foster children with sexual education because over half of the girls involved in foster care become pregnant within a few years after dismissal. She further references that 34% of foster children are not up-to-date on immunizations and that 78% of infants are at risk for HIV because of parental drug abuse and HIV exposure. Only 9% of these children have been tested for HIV.

Schor et al.,<sup>15</sup> developed a training package for healthcare workers, child care workers and foster parents. In the process of developing this training, they identified

consistent disparities in this population. Vision abnormalities were found to be double that of children in the general population and most of the children who do have glasses do not have up-to-date prescriptions. In addition, approximately 10 percent do not pass hearing evaluations. They also found that most children initially placed in foster care do not have adequate immunizations or do not have appropriate documentation. In response to what they saw in this population, they recommended detailed medical evaluations (including review of medical records, assessment of health status, and assessment of further diagnostic studies or treatment) with initiation into the welfare system.

Leslie et al.,<sup>16</sup> performed a longitudinal study of over 6000 children who came in contact with child welfare systems. The purpose of the study was to evaluate the policies for comprehensive health assessments of children entering out-of-home care and to develop a profile for primary sampling units regarding the comprehensiveness of its assessment policies with respect to physical, mental, and developmental health. As a part of the study, they noted that children in foster care have physical, mental and developmental health issues that are more serious and difficult when compared to other children. Comparison of emotional and behavioral health problems revealed an estimated rate of 35-50% in foster children and 11-38.5% in community samples with impoverished children. Developmental problems were also evaluated with foster children having estimated rates between 20 and 60% and the general public having estimations of about 10%. These developmental problems include prematurity, cerebral palsy, mental retardation, learning disabilities and hearing, speech and vision deficiencies. Physical health comparisons reveal a three-fold increase in asthma and double the rates of growth problems in foster children versus the general pediatric population.

Kools and Kennedy<sup>17</sup> evaluated the physical, mental and developmental status of children in foster care and the implications for primary care providers. They point out that the health disparity in abused and neglected children does not necessarily end because they have entered foster care. These children enter foster care under traumatic or unstable experiences which initiate their complex health needs, but once they have access to health services and better care, these needs continue throughout their placement. They examined many descriptive studies of the health status of children in foster care that took into account retrospective case record review and cross-sectional measures of health services utilization patterns. They found that most children in foster care continued to have abnormal physical examinations, which include short stature in 15 to 25 percent, developmental delays in up to 60 percent, and one or more chronic conditions in 40 to 76 percent. These studies revealed that even the children that were given an acceptable, initial evaluation upon entering foster care rarely had a suitable treatment plan that was followed. Estimations of mental health status have grown from between thirty and forty percent to 48 to 80 percent. This compares to community rates of approximately ten percent.

Szilagyi<sup>18</sup> suggests that pediatricians need to have heightened awareness of the specific needs of foster children. Developmentally, foster children tend to gravitate towards one of two extremes, either they are of short stature (20%) and failure to thrive (6% to 10%), or meet the criteria for obesity (15%). The lack of preventative health care services prevents foster children from being screened for iron-deficiency anemia, lead and tuberculosis exposure. This population is at increased risk for iron-deficiency anemia due to poor nutrition. Anemia is present in approximately 20% of foster children.

He warns pediatricians to be cognizant of the fact that foster care children are under immunized compared with other poor children. Children in foster care are also at a much greater risk of sexually transmitted diseases with 80% being at a high risk for HIV and less than 10 % being screened for it. Another area to be particularly aware of is vision and hearing impairment. Foster children have a 50 to 60 percent likelihood of having a language disorder, which has a negative impact on speech and hearing. Szilagy recommends hearing and speech evaluations of all toddler and preschool children in the foster care system. He recommends that physicians need to be aware of mental health concerns as well because data demonstrates that foster children are utilizing inpatient and outpatient services between fifteen to twenty times more than children of like socio-economic status. In response to the facts, he recommends that pediatricians look for emotional and behavioral problems with each encounter. He suggests that all children over four years old to visit a mental health therapist on a regular basis because of the adjustments they must make with separation and loss.

The Family Economics and Nutrition Review<sup>19</sup> recapped a study performed by the General Accounting Office of foster care programs in California, New York, and Pennsylvania. Random samples of case files from a combined population of 22,755 of these populations were analyzed. Even with State and county regulations that require routine comprehensive care, a large portion of Philadelphia County, Los Angeles County and New York City foster care population did not receive needed health services. Twelve percent had no routine health care, thirty-four percent had no immunizations and thirty-two percent had one or more health needs that were addressed.



Carlson<sup>20</sup> evaluated the role of advanced practice nurses in caring for the health needs of children in foster care. She suggests that children in foster care for long periods of time still had as many problems remaining as children coming into the system for the first time. Her study evaluated two groups of foster children; one consisted of children placed in foster care during the data collection interval. The other group included children who had been in foster care at least 18 months prior to data collection. A panel of pediatricians agreed that half the children in the second group between ten and fourteen years old were in low health status even though they had been in foster care for over eighteen months. Seventy-three and a half percent of these children in low health had not changed their health status over the eighteen months of the study. Other studies have identified three to six times more emotional, behavioral, and developmental problems (e.g., depression, conduct disorders, difficulties in school, and impaired social relationships) than non-foster care children. The author also refers to a study of pediatricians in Connecticut which may add to the reasons for increased health needs in foster children. The difficulties healthcare providers have with providing adequate care for foster children include low reimbursement by Medicaid (37%), inadequacy of past medical history (32%), more paperwork than normal (20%), increased complexity of medical and social problems that need to be addressed (19%), difficulties in communicating with multiple foster care providers and Department of Children and Youth Services (13%), and the possibility of being required to appear in court (10%).

Leslie et al.,<sup>21</sup> examined how Medicaid managed care has affected the foster care population. This is an important factor to consider for Medicaid because of the increased difficulty of the health problems that foster children face in comparison to those in

similar socioeconomic backgrounds. The authors report that foster children have greater illness than poor children in inner cities and even homeless children. Foster children are at greater risk for developmental and learning problems partially due to the estimations by the GAO that up to 62% were exposed to drugs and/or alcohol in utero or have been neglected. According to Medicaid studies, foster children are diagnosed with mental health conditions and use mental health services at a greater rate than non-foster care children with Medicaid. Leslie et al., evaluated how Medicaid managed care impacts the care that foster children receive. One of the difficulties is finding a provider who will take Medicaid. Even though federal legislation requires that states provide needed health services for foster children, there are many factors that can prevent them from obtaining them. Children with special needs find it especially difficult in the managed care system because of the restrictions placed upon utilization of health services.

Fisher et al.,<sup>22</sup> performed a pilot study that evaluated the effectiveness of the Early Intervention Foster Care (EIFC) program in the period immediately following a child's placement in a new foster home. One aspect of the study was to evaluate the initial group differences in regards to developmental delays and trauma history. The results indicate, like other larger studies, that foster children trail behind their peers developmentally.

Chung et al.,<sup>23</sup> conducted a retrospective cohort study using administrative databases from the Philadelphia Department of Human Services, the Birth Certificate Registry and the Childhood Lead Poisoning Prevention Program at the Philadelphia Department of Public Health to assess the prevalence of elevated blood lead levels (EBLLs) among children before and after foster care placement. This study also

compares the prevalence of EBLLs among children in foster care with that of their siblings and the general population. The results were that children were twice as likely to have EBLLs before entering foster care as their siblings, current foster care children, and the general population. The siblings of foster care children had higher EBLLs than those in the general public. Once children entered foster care they decreased their likelihood of having EBLLs compared to the other groups suggesting that EBLLs are decreased by entering the foster care system.

Rosenfeld et al.,<sup>24</sup> performed a systematic review of literature to inform other child and adolescent psychiatrists about the health disparities of foster children. In evaluating foster children's physical health needs they found foster children to be three to seven times more likely to have acute and chronic health conditions, developmental delays and emotional problems than other poor children. Their discussion asked if foster care might actually harm children. They concluded that research does indicate positive benefits of being in foster care. They also noted that children in foster care for over five years demonstrated remarkable academic improvement and the ability to transition out of special classes. One study compared three groups of 5- to 10-year-old children. The first was abused children that had been in foster care for one year, the second was abused children who remained in their birth homes while undergoing intensive social interventions with their families, and the last being a group that were not abused. Non-abused children continued to make good progress, while those who remained in their birth homes were abused again 57 percent of the time over a five year period. However, foster children were found to have better medical care, improved school attendance and performance and were better in social settings and development, although continuing to

have extensive mental health needs. Foster children in California account for 40 to 50 percent of the mental health dollars from Medicaid while they only make up 4% of the Medicaid population.

While these studies highlight some of the statistics of morbidity rates among foster care children and non-foster care children, they tend to focus on other aspects of the child welfare system. The intention of this study is to bring these statistics and facts together into one cohesive study by means of a systematic review of literature.

## **Results**

### *Levels of Evidence*

Twenty-four articles from 1985 to present were found to meet the criteria for inclusion in this project. Eight of these articles were level one articles that consisted of retrospective chart reviews for children in foster care, Medicaid eligible children, AFDC children, or the general population. These articles were considered level one evidence because they were studies that directly compared foster children with non-foster care children. Fifteen articles were level two articles consisting of literature reviews of other studies done relating to foster care children performed by experts in child welfare. One article was a level three evidence composed of background information.

### **General Morbidity Differences**

Several studies highlight the overall health disparity of foster children in comparison to non-foster care children<sup>1,3-5, 8, 16-21</sup>. Leslie et al.<sup>21</sup> report the increased difficulty of the health problems that foster children face in comparison to those in similar socioeconomic backgrounds. In addition, the GAO reported that foster children

have greater illness than poor children in inner cities and even homeless children. Kools and Kennedy<sup>17</sup> state that children in foster care, when compared with children in the general populations, have significantly higher rates of all health problems. These problems include acute and chronic illnesses, growth and developmental problems, serious mental health problems, and difficulties accessing health services. Leslie et al.<sup>16</sup> state that the physical, mental, and developmental health of children in foster care is more difficult and multifaceted than children not in foster care. Carlson<sup>20</sup> reports that foster children in America are one of the most medically-underserved groups when compared with other sub-populations. As a result of being underserved they tend to have higher rates of acute and chronic health problems with many specialized healthcare issues, including developmental, emotional, and dental problems. She recognizes that these problems originated before entry into the foster care system but many times remain throughout the length of their tenure in the system.

### **Physical Health Differences**

Bilaver et al.,<sup>4</sup> performed a literature review of medical records, health examination results at entry to care or at some point during substitute care, and their service use. They compared three groups, those in foster care during the time of study, those who were receiving Aid to Families with Dependent Children (AFDC) and subsequently entered foster children during the study period, and those who were in the AFDC program and never entered foster children. They found that when comparing foster children to data from national standards, foster children have higher rates of hearing and vision delay, asthma, lead exposure and tuberculosis. They have a three-fold

increase in asthma and double the growth abnormalities compared to other pediatric patients.<sup>16</sup> Foster care children were approximately 50% more likely to have chronic physical conditions than children with AFDC who never entered foster care.<sup>4</sup>

A major contributor to this disparity is the lack of adequate routine preventative care before they come into the system when compared to their peers.<sup>9</sup> One study revealed that of 5,181 children received in the foster care system during a 22 month period in Chicago, forty-four percent had a readily identifiable health problem ranging from acute infection such as otitis media or sexually transmitted disease to anemia and lead poisoning.<sup>9</sup> Vision abnormalities were found to be double that of children in the general population and most of the children who do have glasses do not have up-to-date prescriptions. In addition, approximately 10 percent do not pass hearing evaluations.<sup>15</sup> Research indicates that positive health behaviors and less physical illness are found more frequently in children who have healthy, reliable relationships with their parents. Stable families also tend to get better well-child care and be up-to-date on their immunizations.<sup>11</sup> Obviously, children in foster care have a disruption of family stability. The GAO report further supports these findings by identifying that twelve percent of foster children receive no routine health care, thirty-four percent have not been immunized at all and thirty-two percent have unmet health needs that were previously identified.<sup>8</sup>

Many foster children have greater physical health needs from the onset of their life because of increased exposure to alcohol, tobacco and other illegal drugs while still in the womb. This exposure results in birth defects, central nervous system impairment, abnormal brain development and HIV infection.<sup>17</sup> Children in foster care are also at a much greater risk of sexually transmitted diseases with up to 80% being at high risk for

HIV and less than 10% of these children are screened for HIV.<sup>18</sup> They continue to be at high risk for inappropriate sexual behavior<sup>11</sup> during and after foster care with close to 60% of foster care girls becoming pregnant within a relatively short time after leaving foster care.<sup>14</sup>

Once a child comes into foster care, they utilize the health services available to them more than children in similar socioeconomic background. Yet research demonstrates that they continue to have health problems even with better access to healthcare. One study evaluated two groups of foster children; one consisted of children placed in foster care during the data collection interval. The other group included children who had been in foster care at least 18 months prior to data collection. A panel of pediatricians agreed that half the children in the second group between ten and fourteen years old were in low health status even though they had been in foster care for over eighteen months. Nearly 75% percent of these children in low health had not changed their health status over the eighteen months of the study.<sup>20</sup> Additional research on foster children found that rates of acute and chronic health conditions were up to seven times higher rates when compared to other poor children.<sup>24</sup>

Lastly a study by Chung et al.,<sup>23</sup> revealed an area that foster children had lower morbidity rates. They found that children were twice as likely to have elevated blood lead levels (EBLLs) before entering foster care as their siblings, current foster care children, and the general population. The siblings of foster care children had higher EBLLs than those in the general public. Once children entered foster care they decreased their likelihood of having EBLLs as the other groups. It appears that EBLLs are decreased by entering the foster care system.

### **Mental Health Differences**

The category with the greatest health disparities between foster and non-foster care children is the area of mental health. When comparing children in foster care with children receiving AFDC who never entered foster care, Bilaver et al.<sup>4</sup> found that a psychiatric condition was diagnosed almost five times more in the foster children. These children not only have higher rates of emotional and behavioral problems, but these problems tend to be more serious and complicated than others of the same socioeconomic standing.<sup>5</sup> Estimations on mental health status demonstrate an increase from anywhere between thirty and forty percent psychopathology rates in foster children to 48%-80%. This compares to community rates of approximately ten percent.<sup>17</sup> Comparison of emotional and behavioral health problems revealed an estimated rate of 35-50% in foster children and 11-38.5% in community samples with impoverished children.<sup>16</sup>

In a study by Cherhoff et al.,<sup>6</sup> most of the children were found to have at least some signs of mental health problems or risk factors for those problems. They also performed mental status screening on participants and on most of the children over three years old in the study. Fifteen percent of these children were suspected of, or admitted to suicidal thoughts and another seven percent were suspected of, or admitted to homicidal ideation.

A study comparing foster care children with other Medicaid-eligible children revealed foster children use behavioral health services more than other children receiving Medicaid.<sup>7</sup> Foster children are more likely to have insecure and malfunctioning attachments than non-foster care children resulting in problematic long-term consequences. Foster children have higher rates of depression, difficulty with social



skills, inability to adapt, and greater externalizing behaviors (aggression and impulsivity).<sup>11</sup>

Other studies have continued to show the differences in these two groups. Studies using the Child Behavior Checklist (CBCL) with a random sample of 158 foster children discovered some type of psychological problems in almost half the children and revealed higher scores in the foster children than in non-foster care children.<sup>24</sup>

Landsverk<sup>12</sup> recognized the research that establishes foster children as a high-risk population in respect to emotional, behavioral and psychiatric maladies that require mental health services. Foster children therefore utilize these mental health services up to fifteen times more than children using Medicaid who are not in foster care. Even with the increase in the utilization of mental health services, there is still a lack of evidence-based treatments. The treatments that exist typically focus on the results of physical and sexual abuse. The mental health concerns that are common in foster children are conduct disorder, oppositional defiant disorder, attention deficit/hyperactivity disorder, and anxiety disorder

Harden<sup>11</sup> sheds some light on some factors that increase the mental health issues of foster children relating to family stability. A stable family provides an environment where children are more apt to have good relationships with peers and better social skills. Children raised in stable environments are not as likely to be diagnosed with mental illness or exhibit behavioral problems. As a result of the abuse that is sustained by these children, they have mental and behavioral consequences as well as the expected physical health problems. Neglect, physical abuse and sexual abuse can all result in delay or abnormality of brain development, cognitive and language skills, social and emotional

functioning as well damage to physical health. Physical abuse is not only responsible for adverse physical health, but also results in cognitive delay, difficult peer interactions, posttraumatic stress disorder, aggressive behavior, and various internalizing and externalizing behaviors.<sup>11</sup>

### **Developmental Health Differences**

Developmental problems are also compared with foster children having estimated rates between 20 and 60% and the general public having estimations of about 10%. These developmental problems include prematurity, cerebral palsy, mental retardation, learning disabilities and hearing, speech and vision deficiencies.<sup>16</sup> As research illustrates, developmental delays are greater in children exposed to violent, dangerous, and unstable environments.<sup>11</sup> Bilaver et al.,<sup>4</sup> found when comparing children in foster care and children receiving AFDC who never entered foster care that those in foster care were almost 2.5 times more likely to have developmental disorders and mental retardation. A major contributor to these delays is neglect. Neglect can result in several adverse affects to a child's development such as cognitive, language and academic delays, difficulty in peer relationships, internalizing behaviors, such as anxiety and depression, and externalizing behaviors, such as aggression and impulsivity.<sup>11</sup>

A study was performed to evaluate the period of time immediately after children enter foster care. One aspect of this study was to determine developmental delay and exposure to trauma. The results indicate, like other larger studies, that foster children trail behind their peers developmentally.<sup>22</sup>

Estimations of foster children who suffer from developmental delay reach 60%. Language delays are seen in 57%, while cognitive problems occur in 33%. Gross motor

difficulties are seen in 31% and growth problems are found in 10% of this population.<sup>17</sup> As the foster children get older they experience greater likelihood of educational disorders such as learning disabilities, behavioral disorders and diminished cognitive ability. Almost 40% meet the criteria for special education.<sup>18</sup> Fifty to sixty percent of preschoolers in foster care have language disorders.<sup>18</sup> The GAO report suggests that foster children are at increased risk for developmental delay and learning problems because up to 62% were exposed drugs or alcohol or are neglected because of their parent's substance abuse.<sup>21</sup>

Research on brain development demonstrates that children exposed to trauma are more likely to have physiologic changes to neurotransmitters and hormones than children who have not experienced trauma. Research also demonstrates that children in orphanages or large-group foster care locations have greater difficulty with attachment and displaying friendliness.<sup>11</sup> One study used examination of cortisol levels (a hormone produced in response to stress) to assess brain functioning in foster care. Results revealed children exposed to great amounts of stress have markedly different patterns of cortisol production. Foster children either had greatly elevated or decreased levels of cortisol when compared to children unexposed to traumatic stress.<sup>11</sup>

A study done by Bilaver et al.<sup>4</sup> records how foster children compared with AFDC children who never entered foster care in all three areas as well as in many services used. (See Table 1)

## Discussion

Seventy-five percent of the level one evidence demonstrated a difference between foster children and non-foster children.<sup>1,4,8,16,22,23</sup> Of that seventy five-percent, sixty-three percent found the morbidity rates to be greater in foster children than non-foster children.<sup>1,4,8,16,22</sup> One study, or 12 percent of the total level one evidence revealed greater morbidity rates in children before entering foster care and an improvement when receiving services as a foster child.<sup>23</sup> Twenty five percent of level one evidence was background information of foster care children without comparing the two populations.<sup>3,6</sup>

Level two evidence demonstrated seventy-three percent as having differences between foster care/non-foster care populations.<sup>5,7,9-13,15,17,21,24</sup> The remaining twenty-three percent was background information revealing healthcare needs of foster children.<sup>14,18-20</sup> None of the level two evidence indicated greater or equal mortality rates in the general population when compared to foster care children.

The one article classified as background, level three information had no information regarding the health of foster care or non-foster care.<sup>2</sup>

A majority of the level one and level two studies did reveal significantly greater morbidity rates among foster care children than non-foster care children. The evidence strongly suggests that foster care is a greatly underserved population with higher physical, mental, and developmental health problems than the general public and children of low socioeconomic standing. A limitation of this study is that there are few studies available that provide direct comparisons of foster children and non-foster children. Most of the research done on foster children focuses on the adequacy of service that they obtain and morbidity of foster children alone. One of the goals of this study was to

compile the studies that do compare them together and make it available in one accessible work. The studies that do compare the two groups directly give evidence that foster children have higher morbidity rates, even when compared with others in the same socioeconomic status.

Another limitation is the lack of comparison of specific morbidities in these two groups. There are general comparisons of overall health differences, but specific morbidities are addressed less often. This study seeks to compile the available data whether general or specific. Overall, there is adequate data to determine which group has higher morbidity rates and to determine what areas need specific attention.

In comparing the data that is available between these groups, significant differences in the morbidity rates are noted, making foster children one of the most underserved populations in healthcare today. They have greater needs in physical, mental and developmental health.

## **Conclusion**

In conclusion, healthcare workers need to be aware of the great health needs of foster children. They come into child welfare services under great duress, and have many healthcare needs. It is easy to neglect this segment of society because they utilize Medicaid, or because of the added regulations and paperwork, or any number of factors that make it more difficult to give them proper care and attention. But according to the available research, this is a population that needs greater attention and diligence to meet their health concerns.

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## Appendix A

Table 1 [from The Health of Children in Foster Care by Bilaver et al.<sup>4</sup>]

**Foster Care Children Compared with Aid to Families with Dependent Children (AFDC) who Never Entered Foster Care (Ratio of Foster Children per one AFDC)**

Reported Conditions:

All Chronic Conditions	2.72
Chronic Physical Conditions	1.53
Psychiatric Conditions	5.24
Developmental Disorders and Mental Retardation	2.42
Toxic Effects of Lead (a)	2.25
Anemia	2.33
Iron Deficiencies	1.97
Sexually Transmitted Diseases	2.37

Services:

Physician Services	2.07
Medicheck Screening Services	3.46
Outpatient Services	1.19
General Clinic Services	1.02
All Optometric Services and Supplies	2.43
Optometric Services	2.48
Optical Supplies	1.90

Inpatient General Hospitalization	1.34
Long-Term Care Facilities	19.32
All Mental Health Services	13.82
Inpatient Psychiatric Hospitalization	8.21
Psychiatric Clinic Services	7.74
Services by Mental Health Providers	16.01
Support Services	2.18
Physical Therapy	3.65
Speech Therapy	1.94
Occupational Therapy	4.19
Audiology Services	3.11
Social Work Services	2.29
Psychological Services	2.11
Clinical Lab Services	2.53
Anesthesia Services	1.37
Transportation	1.71

(a) Comparison was made for children ages 1-4 only

All values p [is less than] .001 except General Clinic Services

## Appendix B

## Raw Data

Study/ Year	Research Addresses 1. Comparison Data 2. Foster Health data 3. Both 4. Background	Level of Evidence 1.Retrospective 2.Literature Review 3.Background	Demographics	Findings	Supportive of Research 1. Yes,Difference 2. No Difference 3. Same 4. Background
AFCARS 1999	3	3	N/A	Background: Foster care data	4
Halfon et al 1995	2	1	213 w/ initial comprehensive assessment	82% at least one chronic physical/medical condition, 84% developmental/ emotional problems	4
Bilaver et al 1999	1	1	563,317 children eligible for Medicaid	FC 2.72 times more likely to have chronic condition, etc	1
Gorski et al 2002	3	2	n/a	Higher rates of emotional, physical, developmental health	1
Chernoff et al 1994	2	1	1407 children w/in 5 days of entering care	>90% had abnormality	4
A&DAW 2001	1	2	n/a	>Substance abuse/mental health needs	1
GAO 1995	3	1	22,755 FC in Cal, NY, and Penn	12% no routine health care 34% no immunizations 32% unmet health needs	1
Simms et al 2000	3	2	n/a	> physical, mental, developmental health needs	1
Hochstadt et al 1987	3	1	149 children taken into state custody in Cook County Illinois	> incidence of chronic med cond, weigh less, shorter than GP	1
Barth 2000	3	2	n/a	Abused and neglected children 3 x's more likely to die than GP	1
Harden	4	2	n/a	FC at greater risk than GP	1

Report to Surgeon General	1	2	n/a	FC use mental health services 15 > Medicaid child	1
Bergman 2000	1	2	n/a	FC used mental health services 11 > AFDC	1
Barton 1999	2	2	n/a	60% girls give birth w/in a few yrs of leaving Foster care	4
Schor and Abel 1985	1	2	n/a	Vision abnormalities 2x's > GP, 10% fail hearing test	1
Leslie et al 2003	1	1	6000 children in contact w/ child welfare	FC 35-50% mental health prob. GP 11-38.5% FC 20-60% developmental prob. GP 10%	1
Kools and Kennedy 2003	3	2	n/a	FC 46-80% psychopathology rate vs. 10% GP	1
Szilagyi 1998	2	2	n/a	80% FC high risk for HIV, 10% screened	4
Family Economics 1996	2	2	n/a	12% no routine health care 34% no immunizations 32% unmet health needs	4
Carlson 1996	2	2	n/a	FC still have high needs after 18 mo	4
Leslie et al 2003	3	2	n/a	FC > and complex health problems than GP	1
Fisher et al 2000	1	1	3 groups of 10 children	FC behind GP developmentally	1
Chung et al 2001	1	1	1825 FC 519 pre-FC 821 Siblings 73,608 GP	FC ½ as likely to have Elevated Blood lead levels	1 GP > FC
Rosenfeld et al 1997	3	2	n/a	FC 3-7 times more acute and chronic health conditions, developmental delay and emotional adjustment	1

FC = Foster children  
GP = General population

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