



**Rutgers** Center for  
State Health Policy

*The Institute for Health, Health Care Policy, and Aging Research*

# **Adult Day Health Services: A Review of the Literature**

**Judith A. Lucas, R.N., Ed.D,  
Nancy Scotto Rosato, M.A.,  
Jin Andrew Lee, M.A.,  
and Sandra Howell-White, Ph.D**

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## EXECUTIVE SUMMARY

### Introduction

The New Jersey Medical Day Care (NJ MDC) Program provides adult day health services (ADHS)<sup>1</sup> for individuals, who, due to their physical and/or mental impairment, need health maintenance, rehabilitation, and restorative services supportive to their community living. For some, this is a community-based alternative to institutionalization. New Jersey has over 100 licensed facilities, with 10 to 15 new facilities applying for licensure each year.

New Jersey spent \$23 million in 2000 (state share only) on ADHS. One hundred ADHS facilities receive funding through various public and private sources: Medicaid as part of the state health plan, Medicaid waivers and special programs, Title III, respite care contracts, reimbursement for developmentally disabled (DD), grants from the state Alzheimer's Association, and county funds, and private fees. The NJDHSS Medical Day Care Program is designed for adults who do not require 24-hour inpatient institutional care, yet need health maintenance and restorative services due to physical and /or mental impairment. Pediatric day health services are provided only for those technologically-dependent and/or medically unstable children who require continuous nursing care in a developmentally appropriate setting (NJDHSS, Medical Day Care Services Manual, 2000). For the year 2000, there are over 9,000 Medicaid-enrolled participants in New Jersey's adult and pediatric Medical Day Care Program. The majority of service users reimbursed through DHSS are over the age of 65, with this group using the most units of service.

Currently MDC program reimbursement for adult and pediatric day health services in New Jersey is facility-specific, which does not reflect the more intensive services needed by the frail and physically dependent participants. Due to concerns about the continued increases in annual Medicaid expenditures for adult day health services, the NJDHSS is examining the population served, client assessments, program goals, and additional potential approaches to reimbursement. The CSHP is providing the Department of Health and Senior Services (DHSS) with this review of the literature on adult day services, and of the literature that examines alternative types of reimbursement systems.

## **Methods**

We searched several health-related databases and contacted several national organizations to identify relevant literature. Studies of day services for adults, developmentally disabled, and pediatric populations as well as studies that focused on other community-based long-term care services were reviewed<sup>ii</sup>.

## **Results**

### ***Policy***

Amendments to Title XX of the Social Security Act and Title III of the Older Americans Act allowed for funding non-institutional forms of care, including adult day health services (ADHS). With federal Medicaid policy changes in recent years, states now have more flexibility (although they are not obligated under Medicaid) through the Home and Community Based Service (HCBS) Waiver (1915-c) to offer home and community-based services as alternatives to placing Medicaid eligible individuals in institutions. Home and community-based care (including adult day health services) has expanded nationally from a 10 percent share of Medicaid long-term care dollars in 1987 to a reported 24 percent in 1997 (Coleman, 1998). However, costs are still a concern, as policymakers are worried that they are adding to overall Medicaid expenditures for home and community based services while nursing home costs continue to rise.

### *Overview of ADHS: Regulations, Services, Populations Served, Funding, Cost, Staffing, and Utilization*

Adult day health services are sought primarily for the three broad purposes of social and health maintenance, rehabilitation, and caregiver respite. In 1990, ADS facilities reported costs between \$30 to \$35 dollars a day (Burke, Hudson, & Eubanks, 1990). Today, cost estimates for not-for-profit facilities range from \$40 to \$50 and for-profits range from \$60 to \$70 per day (Partners in Caregiving, 2001). States vary in their regulation of day service programs. However, most states require licensure, certification, standards, or voluntary guidelines (Lipson, 1994). Most adult day health service programs provide: health assessments, nursing supervision, and nursing assessments; medication administration and assistance with toileting, bathing, and other Activities of Daily Living (ADLs); therapeutic recreation, socialization, and group activities; and nutrition assessment, case management/care coordination, and transportation (Weaver, 1996). Additionally, in facilities that serve special populations such as individuals with dementia, other services are provided such as cognitive stimulation, family counseling, and music therapy (Jarrott, Zarit, Berg, & Johansson,

1998). The type of service a facility provides is very much linked to the level of staff needed, and to the variation in cost reported among facilities.

Nationally, the typical adult day health service user is elderly, disabled, and averages 75 years of age. Many are functionally dependent, needing assistance anywhere from one ADL to three ADLs. Adult day health service users are likely to have some type of dementia, such as Alzheimer's Disease, that requires constant supervision (Dabelko & Balaswamy, 2000), and they have a high prevalence of disordered behaviors. Those diagnosed with a disability before the age of 22 and children who have unstable medical conditions and are technologically dependent also utilize day health services but to a lesser degree.

### *Reimbursement Structures*

Three major types of Medicaid Long-term Care (LTC) payment systems are described by Schlenker (1991), facility-specific, class-rate, and case-mix systems:

- Facility-specific payment systems – the payment is linked in some way to the facility's reported costs.
- Class-rate system – a facility is paid a fixed amount per patient day based on facility characteristics (e.g., size, geographic location, freestanding / nursing home / hospital) or by class or category of patient (e.g., skilled/intermediate level of care, pediatric/adult).
- Case-mix systems – payment for services is linked directly to an individual's needs.
- Literature describing reimbursement systems for adult and pediatric day health services is scant. Two major types of state reimbursement approaches have been reported: fixed per diem or hourly rates and more complex needs-based reimbursement strategies.

It is clear from the literature that LTC services are moving toward patient-specific case-mix systems for reimbursement structures. These classify persons based on their functional health status. The diverse ages and conditions of the LTC population mean that we cannot classify the disabled and elderly with just a single measure such as a condition / diagnosis. Many different conditions, both physical and mental, can cause disability and subsequently the need for different types and amounts of assistance.

All needs-based reimbursement systems use dimensions that fall into four main groups: ADLs, medical conditions, special services, and mental and behavioral status (Fries, 1990). These critical areas guided our literature review for measures appropriate for ADHS goals and for possible needs-based reimbursement application. They can be described as follows:



- Physical function - ADLs, Instrumental Activities of Daily Living (IADLs), and mobility are commonly used to determine eligibility for long-term care services and to determine case-mix, reimbursement, and staffing levels.
- Diseases/Conditions - Diagnoses provide insight into the knowledge and skills staff will need to provide effective care and monitoring for more complex or unstable chronic conditions.
- Cognitive Function –ADHS clients' characteristics and needs tend to mirror those of residents of nursing homes. The cognitively impaired require a safe environment with skilled staff providing close supervision and an individualized plan of varied activities.
- Problem Behaviors – For persons with Dementia, assistance with common personal care tasks, communicating with the persons who ask repeated questions, and ensuring safety related to impaired judgment and wandering, takes considerable amounts of time, and needs especially creative care approaches when the care recipient is reluctant (Reinhard, 2001).
- Special Services (e.g. complex nursing care and treatments)– are most appropriately involved in need-based reimbursement systems when they are costly, serious, or invasive and linked directly to a medical condition.

These critical areas have not been examined in the day health services population. If data related to these can be captured from day health services assessments instruments and are shown to account for care time needed, then appropriate measures can be identified for a possible needs-based system for reimbursement.

## **Summary**

Since the 1970s there has been a continued growth of adult day health service programs, with the most rapid growth occurring after additional Medicaid funds became available through waiver programs. There is no existing federal policy regarding adult and pediatric day health services, so there is great variability among states' approaches to ADHS, and thus, great variation in programs, services, and standards. Because literature on reimbursement approaches specific to day health services was scant, we relied on the long-term care literature to describe reimbursement structures and factors utilized for needs-based reimbursement systems.

To inform the Department, the CSHP is currently undertaking a survey of other states' adult and pediatric day health services and reimbursement systems. We are reviewing participant assessment instruments identified during the survey of states' ADHS programs. We are also identifying Medicaid claims data and other sources of data to better describe the NJMDC Program client profile.

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## **Introduction**

Socially-oriented day care programs are referred to as Adult Day Services (ADS), while health-based day care programs are called Adult Day Health Service (ADHS) or Medical Day Care (MDC) programs.<sup>i</sup> The differentiation often depends on the type of philosophy, medical or social, under which the program operates, and in some states, this affects funding and services. Programs that include both health and social components are defined as, “structured, community-based, group programs designed to meet the assessed physical, emotional, and psychosocial needs of functionally limited [individuals]” (Abraham, 2000 p.105).

Adult day health services in New Jersey provide for individuals, who, due to their physical and/or mental impairment, need health maintenance, rehabilitation, and restorative services supportive to their community living. For some, this is a community-based alternative to institutionalization. Over 9,000 Medicaid beneficiaries in New Jersey participate in Medicaid-financed adult day health services annually. With approximately 10-15 new facilities applying for licensure per year, the ADHS industry in NJ is growing at a fast pace (NJDHSS, 2000). New Jersey spent \$23 million (state share only) on ADHS services in 2000 through either the provision of direct services at various facilities, or by reimbursing providers through Medicaid. The DHSS is concerned about continued increases in annual Medicaid expenditures for adult day health services with no limits set on the number of participants. Current Medicaid reimbursement is a flat-rate reimbursement structure that varies by facility setting. Industry representatives have also expressed concerns that the flat-rate structure does not reflect the more intensive services provided to participants that are frailer and physically dependent.

## ***New Jersey’s Adult and Pediatric Day Health Service Program***

According to the 2001 program list of adult and pediatric day health service facilities in NJ, there are 100 licensed programs (85 of these are adult facilities, 8 are pediatric only, and 7 are specific facilities for the developmentally disabled). Current reimbursement for adult and pediatric day health services in NJ is facility-specific. Facilities associated with a nursing home average \$53.95 per day, while those that are hospital based average \$67.50 per day. Pediatric facilities differ by averaging \$86

per day for medically complex children and \$140 per day for technology dependent children. A day, the current unit of service, consists of 7 hours for adults regardless of facility association and 8 hours for children, both including transport time (NJDHSS, Medical Day Care Services Manual, 2000). Funding in New Jersey is available through Medicaid as part of the state health plan, Medicaid waivers and special programs, Title III, respite care contracts, reimbursement for DD, and grants from the state Alzheimer's Association. Although many of ADHS facilities receive funding from several sources, the majority of public funding is derived from Medicaid (Adult day health care is not a Medicare-covered service. However, a small amount of Medicare funding supports adult day care through programs such as the Program for All-Inclusive Care for the Elderly, known as PACE. See page 6 for a description.). As seen in Table 1, there were over 9,000 Medicaid-enrolled participants in New Jersey's adult and pediatric day health service programs in 2000. This table also depicts the complexity of having multiple plans, special programs, waivers, and other mechanisms funding ADHS for Medicaid participants. For example, participants in waiver programs, such as the Division of Developmental Disability (DDD) waiver and the Traumatic Brain Injury (TBI) waiver, may receive adult day health services as part of their comprehensive plan of service as well as from other departmental divisions. Overall, 92 percent of Medicaid-financed participants of adult and pediatric day health services receive reimbursement through DHSS, 5 percent through DHS, and 3 percent through other divisions.

### ***Services and Utilization***

The NJDHSS MDC Program reimburses for adult and pediatric day health services but not for socially oriented programs. The MDC Program is appropriate for individuals who do not require 24-hour inpatient institutional care, yet need health maintenance and restorative services due to physical and/or mental impairment. Pediatric day health services are available only for technologically-dependent and/or medically unstable children who require continuous nursing care in a developmentally appropriate setting (NJDHSS, Medical Day Care Services Manual, 2000). As seen in Table 2, the majority of day health service users whose services are reimbursed through DHSS are over the age of 65. They are also the group using the most units of service, followed closely by those between the ages of 22 and 64.

**Table 1: NJ MDC Program Clients and Units of Service by Special Programs in 2000.**

Special Program	Distinct Client Count	Units of Service
MEDICAID—STATE PLAN*	7,857	740,975
MODEL WAIVER III	3	527
ACCAP	20	2,114
MODEL WAIVER II	2	68
DDD WAIVER	478	80,522
CCPED (No prior LTC)*	696	66,962
HCEP*	5	427
ALIENS AND ASSETS	1	74
HOSPICE ENROLLEES	1	80
ABC DYFS	4	256
TBI WAIVER	2	123
ALTERNATE FAMILY CARE WAIVER*	59	3,536
AL COMP PERSONAL CARE HOME WAIVER*	2	4
AL RESIDENCE WAIVER*	5	14
AL PROGRAM WAIVER*	2	6
SPECIAL PROGRAM CODE 40	2	41
HMO E	31	2,590
HMO A	46	3,550
MERCY MEDIGROUP SOUTH	96	5,840
U.S. HEALTHCARE	51	2,562
FIRST OPTION	22	994
UNIV HEALTH PLAN	7	330

Source: NJDHSS, MDC Program

\*NJDHSS MDC program as funding source

**Table 2: NJ MDC Program Clients and Units of Service by Age Group  
From April 2000 – March 2001**

Age Group	Distinct Client Count	Percent	Units of Service*	Percent
Age less than 7	199	2.1	18,173	2.1
Age 7 to 21	45	0.5	2,089	0.2
Age 22 to 45	1,001	10.7	96,069	11.2
Age 46 to 64	2,380	25.4	201,644	23.4
Age 65 to 84	4,949	52.7	468,701	54.5
Age greater than 84	809	8.6	74,040	8.6

Source: NJDHSS, MDC Program

\*Unit of service is 7 hours for adults and 8 hours for children including transport time.

With no real limit on ADHS expenditures and no limitations on the number of Medicaid-eligible participants, NJDHSS is exploring the use of a needs-based model that reimburses facilities based on an assessed need-category for day health service participants. In order to consider this type of change in payment structure, information must be obtained about the currently served population, factors that might be used to develop categories of need (e.g., functional level, medical diagnosis, risk for nursing home placement, etc.), and the potential impact of alternative payment strategies upon Medicaid-funded ADHS program clients.

In this first report, we review the literature for adult day health service programs. We summarize:

- The history and background of ADHS
- Policy initiatives that affect adult and pediatric day health services
- Overview of day health services
- Reimbursement methods
- Factors and scaling issues for needs-based systems.

This report should inform NJDHSS, Division of Consumer Support discussions and the MDC Program Advisory Group about potential systems of reimbursement and the critical factors identified in the literature upon which these may be appropriately based for MDC Program participants.

## **Methods**

Since New Jersey's MDC Program involves adults, developmentally disabled, and pediatric populations, we reviewed ADHS literature for these three populations. We started with a general search about ADHS and then expanded the search to other long-term care areas such as policy and reimbursement. Additionally, we reviewed (from several national and state associations and organizations) relevant reports, research projects, and survey information.<sup>ii</sup>

## **Results**

### ***History and Background of Adult Day Health Services***

Adult day health services, encompass both the medical and social day care programs and originated in the 1950s as geriatric day hospital programs. Adult day health services began in response to the rising costs of nursing home care and the demand for more community-based services for the elderly. In the early 1970s, Congress proposed alternative forms of care and placed the U.S. Department of Health, Education and Welfare in charge of coming up with experimental demonstration projects that would be a response to calls for alternative forms of long-term care (Weaver, 1994). Later, the 1981 Omnibus Budget Reconciliation Act encouraged community-based services for adults and disabled and made additional state Medicaid funds available for ADHS through waiver programs. Since 1995 many independent ADHS facilities have been created by for-profit companies that expect solid growth rates as they seek to meet the needs of 'baby boomers' (Meuser, 1997).

### ***Policy Initiatives Affecting Adult Day Health Services***

Since 1990, over 51 percent of adult day health service programs have been federally financed (Weissert Elston, Bolda, Zelman, Mutran and Mangum, 1990).<sup>iii</sup> Other funding sources include state funds to assist people with special needs due to Alzheimer's Disease, developmental disabilities, or mental health problems, local funds through city and county revenues, and private revenues through participant fees. In effect, adult day health service programs must navigate complicated funding streams (Weaver, 1996).

Medicaid spending for ADHS has increased significantly in recent years. In 1996, the Home and Community-Based Services Waiver (1915-c) was reported by Weaver (1996) as the funding source used most often in 24 states. Although this waiver was originally designed for those with developmental disabilities, newer waiver proposals have incorporated language that supports aging-

in-place to stimulate alternatives to institutionalized long-term care. Medicaid as part of the state health plan, the Social Services Block Grant (SSBG), and Title III are other monies that allow states to provide services for eligible elderly or disabled persons, but have been traditionally oriented towards social day service programs. For example, Title III monies support community transportation, social, recreation, education, and nutrition programs (Weaver, 1996). States have also allocated significant state general revenue funds for home and community-based care.

Home and community-based care (including ADHS) has now expanded nationally from a 10 percent share of Medicaid long-term care dollars in 1987 to a reported 24 percent in 1997 as options to institutional care (Coleman, 1998). States are broadening the scope of publicly funded long-term care services beyond costly nursing home (NH) care both to control growth in Medicaid spending and to offer consumers greater options. However, costs are still a concern, as policymakers are worried that they may be adding to overall Medicaid expenditures for home and community based services while nursing home costs continue to rise.

Many states have been looking for ways to control the rapidly rising costs of long-term care (LTC), while meeting consumer demand to offer alternative forms of care. In their profile of LTC in thirteen states, Wiener and Stevenson (1998) note that almost all the states they studied are looking into/planning managed care for integration of acute and LTC to reduce the rate of increase in state expenditures. The best known example is the Program for All- Inclusive Care for the Elderly (PACE) which targets those at risk who meet patient-specific criteria for a nursing facility level of care. Both the elderly and persons with disabilities are eligible. PACE programs vary by state, but they include risk-sharing for long-term and acute care, with comprehensive services often provided out of multi-purpose ADHS programs (Rudolph & Lubitz, 1999).

Most states are also supporting the use of non-medical residential care as an alternative to NH care for the elderly in addition to regulating the growth of NH beds and tightening NH eligibility. Several other ways states are responding include: Community-based services under a single agency regardless of funding source, single point of entry agencies, assisted living facilities, and funds to persons with disabilities to manage their own care (Coleman, 1998).

### ***Overview of Day Health Services***

We have examined several surveys of adult day health service programs. A few of these surveys such as that conducted by NADSA (1998) and Partners in Caregiving: The Dementia Service Program (Reifler, Henry, & Cox, 1995) primarily provide program census information. Others such as the earlier studies conducted by Weissert and his colleagues (1990; 1989) were generally descriptive surveys.<sup>iv</sup> The following general description of the day health service industry is based

on these survey findings as well as current reports from associations, and other relevant studies found in the literature.<sup>v</sup>

### *Regulations/Licensing/Certification/Accreditation*

There is great variation among states in their regulation of day health service programs. The Intergovernmental Health Policy Project (Lipson, 1994) reported that some states require licensure, certification, standards, or voluntary guidelines for adult day health service programs, while other states require none. Additionally, the Commission on Accreditation of Rehabilitation Facilities (CARF) offers voluntary accreditation to ADHS programs as a way to maintain standards and quality assurance. Since 1998, CARF has provided accreditation for ADHS programs through an agreement with NADSA.

Staffing and service differences were related to licensing and certification of adult day health service programs (Weissert et al., 1990). Certified centers had more staff as well as a higher skill mix. They were also more likely to have a medical director and a registered nurse than uncertified, unlicensed, or even licensed-only centers. Certified centers also had smaller participant-to-staff ratios and were more likely to provide certain services such as transportation and case management. The latter held true for licensed centers as well. In their most recent data, NADSA (1998) report that 34 states require licensure, while the rest offer certification, some type of program standards, or nothing at all.

### *Goals and Services*

Adult day health services are sought primarily for the three broad purposes of social and health maintenance, rehabilitation, and caregiver respite. According to a survey of 24 states by Weaver (1996) most adult day health service programs provide: health assessments, nursing supervision, and nursing assessments; medication administration and assistance with toileting, bathing, and other activities of daily living (ADLs); therapeutic recreation, socialization, and group activities; and nutrition assessment, case management/care coordination, and transportation. Additionally, in facilities that serve special populations such as individuals with dementia, other services are provided such as cognitive stimulation, family counseling, and music therapy (Jarrott, Zarit, Berg, & Johansson, 1998). Some ADHS facilities also provide transportation, case management, and specialized medical services such as habilitation if the individual is developmentally disabled (Buchanan & Chakravorty, 1997). Weissert and colleagues (1990) found that transportation services, although costly, are provided by most adult day health service facilities. Most own and operate their



own vehicles or contract for transportation services. The majority use this service for either transporting individuals for physician appointments or for two-way transport by the facility. In fact, it is noted that facilities that provide transportation to and from facilities have higher attendance but not more frequent use of ADHS.

### *Costs*

In 1990, ADHS facilities reported costs between \$30 to \$35 dollars a day (Burke, Hudson, & Eubanks, 1990), while in 1998, NADSA reported that ADHS facilities averaged \$43.16 a day, with a high of \$200.00 and a low of \$1.00. Current cost estimates for not-for-profit facilities range from \$40 to \$50 and for-profits range from \$60 to \$70 per day (Nancy Cox, Partners in Caregiving, personal communication, October 11, 2001).

In a survey of 60 ADHS facilities located in standard metropolitan statistical areas throughout the U.S., cost for ADHS was primarily attributed to direct labor (54.4%), followed by transportation (12.2%), facility expenses (10.5%), food (7.5%), and administration (5.1%) (Zelman, Elston, and Weissert, 1991). Costs per participant per day were inversely related to utilization. That is, the costs per participant decreased as the number of participants that attended the programs increased. Also frequent absenteeism of clients while maintaining a full complement of staff contributed to high costs.

Operating costs have also been linked to service intensity (Weissert et al., 1990). Socially-oriented facilities reported less per diem costs than those that provided more costly services such as nursing care and participant supervision (i.e., health-oriented facilities).

### *Staffing and Utilization*

Staffing ratio and skill-mix vary based on facility size, type, and services provided (Weissert et al., 1990; NADSA, 1998; Reifler et al., 1995). For example, smaller facilities with fewer clients have reported lower staff ratios. Facilities that primarily provide social-oriented services had fewer professional staff or staff with high-level skills, while those who provide a health component such as rehabilitative services or health monitoring use staff members who have specialized skills. Therefore, the type of service provided was very much linked to the level of staff needed, and to the variation in cost reported among facilities.

Adult day health service attendance and demand have been related to a number of factors, particularly to the type of services offered (Conrad, Hughes, & Wang, 1992). Services such as occupational, physical, and speech therapy as well as ADL and instrumental activities of daily living (IADL) training were associated with higher demand and attendance. Also, individuals with higher

needs were more likely to attend day health services more frequently while those who were higher functioning demanded day health services availability but did not attend day health service facilities regularly.

In comparison, full-time utilization of day health services has been found to be dependent on several factors. Prior nursing home use, having a history of mental illness, stroke, or cancer, and paying for services privately increased the likelihood of clients' full-time attendance at AHDS. Interestingly, having only Medicaid reimbursement for services did not increase full-time day care attendance, unless these individuals who were paid for by Medicaid also needed assistance in toileting and/or eating. However, for those with high income, dependency in ADLs, impaired mobility, cognitive impairment such as with Alzheimer's Disease, and transportation provided did not assure full-time attendance (Weissert et al., 1990).

Differences in utilization were also recently reported between privately paying and publicly supported ADHS participants in Maryland (Travis & McAuley, 2000). Private pay clients were older and usually made up only 23 percent of the ADHS population. Private payers also had more ADL dependencies, more short-term and long-term memory loss, and greater loss of cognitive functioning within the past 90 days than publicly supported clients.

### *Populations Served*

Surveys (NADSA, 1998; Reifler et al., 1995; Weaver, 1996; Weissert et al., 1990) have shown the typical ADHS user to be elderly, disabled, and averaging 75 years of age. Most participants tend to be white non-Hispanic women, who live with either a spouse or some other relative.

The most commonly reported diagnoses among ADHS users included Alzheimer's Disease or some type of dementia disorder, mental retardation/developmental disability, chronic mental illness, or some type of physical problem such as stroke, heart disease, hypertension, or diabetes (Reifler et al., 1995; Weissert et al., 1990). Many were functionally dependent, needing assistance with anywhere from one ADL to three ADLs, including either toileting or eating.

Currently, a high number of cognitively impaired individuals are served by adult day health service facilities (Dabelko & Balaswamy, 2000; Teresi, Holmes, Koren, Dichter, Ramirez, & Fairchild, 1998). In fact, compared to those individuals in home health care, ADHS users were more likely to have some type of dementia, such as Alzheimer's disease, that required constant supervision (Dabelko & Balaswamy, 2000). Furthermore, many of the clients in ADHS were found to have a prevalence of disordered behaviors, such as complaining, feeling depressed, and repeating questions, not unlike nursing home residents (Teresi, Holmes, Dichter, Koren, Ramirez, & Fairchild, 1997). Other populations using day health services include children and adults with developmental disabilities (DD) and children who have unstable medical conditions and/or are technologically

dependent. Persons diagnosed with a disability before the age of 22 made up only about 15% of Medicaid enrollees, but were in fact, the heaviest users of Medicaid reimbursement, using 39% of all payments (Davis & O'Brien, 1996).

Individuals in special DD day health service programs have needed more assistance with ADLs, particularly with toileting, eating and bathing, and required more services such as occupational, physical, and speech therapies, and dental care (Hedrick, Rothman, Chapko, Inui, Kelly, & Ehreth, 1993; Weissert et al., 1990). These services necessitated more staff care time and more specialized skills. Similarly, children who were medically unstable and/or technologically dependent needed care for a wide range of physical conditions and highly technical equipment. According to a recent issue of the Guidelines for Pediatric Home Health Care from the American Academy of Pediatrics (Ruppert & Host, 2002), children who are medically needy and technologically dependent in pediatric day health care typically utilize such services as nursing care (including daily measures of temperature, pulse, respiration, cardiopulmonary assessment, and neurological assessment), special therapies such as physical therapy, and developmental intervention activities. Because of these highly skilled services, most day health service programs for children reported employing registered nurses or specialized pediatric registered nurses for this care (Briggs, 1987; Crowley, 1990; Porter, 1992; Ruppert & Host, 2002).

### *Outcomes Research: Effectiveness of ADHS*

Gaugler and Zarit (2001) reviewed several surveys of ADHS that measured impact<sup>vi</sup>. Early programs such as the On Lok program in San Francisco showed several positive outcomes when clients of ADHS were compared to nursing home residents. However, subsequent evaluations of ADHS programs, such as those conducted by Weissert et al. (1980; 1990), demonstrated more client satisfaction and lower mortality rates among adult day health service users than nursing home residents, but showed little or no improvement in ADL functioning and no reduction in nursing home utilization. Gaugler and Zarit noted that many of the outcome evaluations they examined lacked generalizability because the samples used were small and homogeneous.

According to Gaugler and Zarit (2001), ADHS programs were found to be most effective when they were part of an integrated network of services such as PACE. Preliminary studies of these types of programs, such as Arizona's Long-Term Care System (ALTCS) showed fewer nursing home stays by participants. However, this could not be duplicated with individuals with Alzheimer's Disease, when the Medicare Alzheimer's Disease Demonstration Evaluation (MADDE) was reviewed.

## ***Reimbursement Structures***

### *Reimbursement Methods from the Long-Term Care Literature*

Only a small amount of literature specific to ADHS reimbursement methods was found and most of these studies focused on reported costs, components of cost, and sources of funding, and not on specific reimbursement systems such as needs-based reimbursement. Thus, most of the literature regarding needs-based reimbursement provided here is derived from nursing home literature with only a few sources recently available from the assisted living literature.

Three major types of Medicaid LTC payment systems have been described by Schlenker (1991), facility-specific, class-rate, and case-mix systems:

- Facility-specific payment systems: In these systems, the payment is linked in some way to the facility's reported costs. Many of these systems are now prospective so that past costs are used to pre-set per diem payment rates, creating an incentive for facilities to keep their costs below a set ceiling.
- Class-rate system: A facility is paid a fixed amount per patient day based on facility characteristics (e.g., size, geographic location, freestanding / nursing home / hospital) or by class or category of patient (e.g., skilled/intermediate level of care, pediatric/adult).
- Case-mix systems: Payment for services is linked directly to an individual's needs. Payment may be based on each individual's service plan, tiers /categories, or the facility's overall case-mix of residents. Early case-mix systems tied payment to need (e.g., tiers based on additive/weighted patient characteristics) and often included the receipt of specific services as an "add-on" (e.g., treatments, tube feedings, IV therapy, frequent clinical or behavior problem monitoring). Now case-mix systems use complex classifications with many resource utilization groupings.

Early state case-mix rate structures, such as reported by Maryland and Minnesota, used expert panels or regressions to differentiate residents into 3-4 classifications/groups simply by the number of dependencies in ADL. They then identified those needing "special care." This led to groupings of light to heavy care categories. This type of additive model has significant appeal because managing particular resident conditions directly adds to care time and resource use (Fries, 1990). More recent case-mix systems classify patients according to common problems/conditions and resource utilization (staff/time), known as "resource-utilization groups" or RUGS (Fries, 1990). RUGS-III now uses clinical characteristics data from the Minimum Data Set (Morris, Fries, & Mehr, 1994), levels of assistance used in ADL (index score), and a staff time-weighted measure to differentiate seven sub-groups (Cornelius and Feldman, 1994).

The trend for case-mix systems in long-term care is exemplified by states such as Minnesota, New York, and Maryland. These states have longstanding reimbursement systems using ADL, cognitive and behavioral status, and special care services. As these same factors are often used by ADHS providers to determine their own internal service levels, these measures may be critical to include in a needs-based system of reimbursement for Medicaid-funded ADHS participants.

The assisted living literature supports these same types of publicly funded reimbursement approaches. Mollica's (2000) national survey of state assisted living policies reports that 13 states use flat-rate reimbursement. Some of these provide add-ons for specific ADL impairments (e.g., North Carolina), or use a flat-rate based on the range of settings (e.g., New Jersey). Tiered rates in assisted living have evolved to reimburse facilities more fairly for care to more frail tenants and create an incentive to serve those more likely to enter a nursing home. Tiered systems tend to include 3-5 tiers based on type, number, and severity of the ADL, cognitive or behavioral impairments, incontinence, medication administration, and/or special services (Mollica, 2000).

Literature describing reimbursement systems for adult and pediatric day health services is scant. Only one study by Weaver (1996) describes reimbursement strategies as well as funding sources. This study limited detailed program descriptions to eight states (CA, FL, NJ, NC, OK, PA, and WA) for comparison with the study state, Texas. Significant disparity in levels of reimbursement was reported. Two major types of state reimbursement approaches for ADHS were reported by these 8 states: fixed per diem or hourly rates and more complex needs-based reimbursement strategies. For example, Illinois was described as using a flat-rate based on a simple Determination of Need (DON) assessment score, that reimbursed at \$22.43 for "regular" adult day health service clients and \$24.43 for "hard-to-serve" clients. Transportation for trips to the center was reimbursed at \$2.81 each way /day. The study does not define "regular" or "hard-to-serve," and who conducts the assessment was also not made clear.

A more recent informal survey of reimbursement methods was conducted by the NJDHSS in 1998. Seventeen states were contacted and asked about reimbursement strategy, amount, and whether or not transportation was included as a service. Most states contacted based reimbursement on a per diem rate, ranging from \$17.50 per day to \$192.38 per day. A day typically consisted of 4 to 5 hours. Some states reimbursed based on a per unit rate, with a unit equaling 3 hours. A few states such as New York, Colorado, and Delaware, had a higher reimbursement rate for facilities serving special populations such as those with Alzheimer's Disease, AIDS, and medically unstable or technology-dependent children.

Several experts caution us to remember that in any reimbursement system, the amount of the payment and the approach to reimbursement create incentives and disincentives for the provider (Fries, 1990; Mollica, 2000; Schlenker, 1991; Schneider, Fries, Foley, Desmond & Gormley, 1988). Key issues to consider are:

- Flat-rates keep costs down for the payer but encourage the provider to admit individuals with lighter care needs, so this may create access issues for individuals with multiple impairments/behavioral problems or other particular needs.
- Facility-specific approaches that have reimbursement based solely on provider type without considering patient characteristics may unfairly overcompensate some and undercompensate other providers (Sulvetta & Holahan, 1986).
- Tiered and case-mix approaches encourage providers to serve more impaired/ heavier care individuals. Simple tiered categories would need the least administrative and data support. Case-mix systems have more groupings and require extensive functional and health data on clients. Both tiered and case-mix rates are subject to “category creep” and “gaming,” such as interpreting assessment data to support increased payment levels. Some states successfully use case managers to make/validate these assessments.

Since we were limited to examining literature available from other long-term care settings regarding reimbursement systems, we caution that some of the reimbursement methods examined may be inapplicable to ADHS. For example, the case-mix system used in nursing homes was developed from the clinical characteristics of NH residents using the Minimum Data Set-Resident Assessment Instrument (MDS-RAI). While similar in some aspects, the service populations and environments are different enough to raise questions of validity. Forms of the MDS-RAI are under development for assisted living and home care, but these have not been tested in ADHS.

### ***Factors Included in the Literature for Needs-based Systems***

It is clear from the literature that long-term care services are moving toward patient-specific case-mix systems for reimbursement structures. All of these classify persons based on their functional health status. The diverse ages, and conditions of the long-term care population mean that we cannot classify the disabled, elderly, and chronically ill with just a single measure such as a condition/diagnosis. Many different conditions, both physical and mental, can cause disability and subsequently the need for different types and amounts of assistance.

There are several domains essential for assessment of needs for the elderly (Williams, 1983). These domains are: physical functioning, mental and emotional functioning, family and social supports, environmental characteristics and adaptations, need for specific medical or rehabilitative therapies, and the potential for personally rewarding use of time. Without such comprehensive assessment, the disabled and elderly may be institutionalized when living at home with support services is possible. Conversely, they may not receive the intensity of care really needed resulting in accelerated decline. All needs-based reimbursement systems use dimensions that fall into four main groups: ADLs,

medical conditions, special services, and mental and behavioral conditions (Fries, 1990). These critical areas guided our literature review for measures appropriate for ADHS goals and possible needs-based reimbursement application.

### *Physical Function*

Measures of functional dependency are often used to assess outcomes, predict mortality, predict nursing home admissions, establish eligibility for long-term care services, and structure payment systems. ADL, IADL, and mobility are commonly used to determine eligibility for long-term care services and to determine case-mix, reimbursement, and staffing levels (Lazardis, Rudberg, Furner & Cassel, 1994; Travis & McAuley, 1999).

Six basic ADL functions are bathing, dressing, toileting, transfer, continence, and feeding (Katz, Ford, Moskowitz, Jackson, and Jaffe, 1963). These are related hierarchically (Guttman-scaling). A combined measure of ADLs can be used to assess change in functional ability over time. IADL are more complex behaviors and are concerned with the ability to cope with one's environment (Lawton & Brody, 1969). These include shopping, cooking, housekeeping, laundry, use of transportation, managing money and medications, and using the telephone. Mobility, a third measure, constitutes another basic domain of function (Katz, 1983).

ADL measures have been incorporated within many comprehensive instruments (e.g., OARS) or as separate measures of ADL/IADL in index/rating scales (e.g., Barthel Index) (Katz, 1983). Given the large number of instruments and measures and the use of different item wording, compatibility and comparability among instruments has been an issue.

Another important issue to consider is how ADLs are measured. ADL scores are most often used as simple counts, ordered, or hierarchical scores. Each approach has its advantages and disadvantages:

- Simple Counts -- A threshold is set, below which the individual is rated as functionally dependent. Each ADL is counted as equal. ADL that may take more personal assistance or staff care time are not recognized. It is important to use multiple levels of functioning, not just a dichotomy of independent versus dependent (Fries, 1990). Simple counts do not differentiate well between levels of disability.
- Ordered ADL -Based on the assumption that ADLs follow a pattern of development and loss such that the least complex are acquired first and retained the longest, while the most complex are acquired later and lost sooner, ADLs are often used in an ordered format reflecting this pattern of biologic development (Katz et al., 1963; Travis & McAuley, 1990). However, persons may become disabled through a variety of pathways and disability may be task-specific. Since these pathways are not always uniform, a single ordered pattern of disability, such as the ADL scale, may be limiting (Lazardis et al., 1994).

- Hierarchical ADL – Certain ADLs are counted as more significant contributors (weights) to the rating of severity of disability.

ADL measures are key in most reported long-term care eligibility and reimbursement strategies. Based on the literature, ADL scores (Katz et al., 1963) and IADL scores (Lawton & Brody, 1969) as related to need are worth investigating in the ADHS population. More important the question is: Do these factors alone account for the care time and resources needed for day care participants?

### *Diseases/Conditions*

Over the years as functional status became the major criterion for determining LTC need and service eligibility, attention to the medical conditions of LTC clients has decreased. In the case of the elderly or those with chronic disease, there are multiple coexisting problems that make accurate diagnoses difficult. Often as older persons become ill they experience one or more nonspecific functional change (s) that rapidly result in functional dependency and even death, if unrecognized or untreated. These markers include: reduction in food/fluid intake, falling, urinary incontinence, dizziness, acute confusion, new onset/worsening of mild dementia, weight loss, and failure to thrive. The underlying disease producing these changes in functional impairment can often be treated and often reversed.

The omission of medical diagnoses/conditions in classifying clients in needs-based systems conceals the need for more qualified staff to monitor physiological changes and complex medication regimens, and provide prevention and early intervention (Travis and McAuley, 1999). In a study of ADHS in Maryland, the following diagnostic categories were reported as most prevalent in descending order: dementia, cardiovascular conditions, neurological disorders, endocrine disorders, musculoskeletal conditions, respiratory conditions, sensory disorders, neoplasms, digestive disorders, and other (Travis and McAuley 1999). Among those disabled utilizing personal assistance benefits such as rehabilitation services, the same conditions were found to be prevalent as well as arthritis, mental retardation, autism, cerebral palsy, epilepsy, asthma, and mental disorders (Kennedy, 1997).

For both elderly and non-elderly, arthritis and heart disease are two of the most common causes of LTC needs; for non-elders mental retardation or related developmental disability and mental illness are next; for elders, dementia (ADRD) is the next most frequent cause of LTC need; while for children respiratory disorders, mental retardation, and nervous system conditions limit activities (Pryor, Cohen, & Duhrenberger, 1994).

A diagnosis alone is a weak proxy for level of need, since it does not offer information about severity, stability, or treatment needs. However, it does provide insight into the knowledge and skills



staff will need to provide effective care and monitoring of more complex or unstable chronic conditions. Diagnostic categories also recognize the greater needs of special populations (e.g., clients with dementia, DD, AIDS/ARC) within general ADHS programs, and if tied to reimbursement, might act as an incentive for increased access and specialized program services for special populations.

### *Cognitive Function*

As more community-based services are funded by waivers to decrease NH admissions, it is not surprising that two recent ADHS studies indicate that ADHS clients' characteristics and needs tend to mirror those of residents of nursing homes. Specifically, they have few social supports and low physical functioning; about 60 percent have short and long term memory deficits, communication, and judgment problems related to dementia, and, they experience anxiety, depression, and behavior problems (Teresi et al., 1997; Travis & McAuley, 1999, 2000). The ability to care for ADHS participants with dementia has long been a role of ADHS (Reifler, Cox, Jones, Rushing & Yates, 1999; Zarit et al., 1998) and therefore, a fair payment system should account for these clients' needs.

The cognitively impaired require a safe environment with skilled staff providing close supervision and an individualized plan of varied activities (Jarrott et al., 1998). As many know, it may take as much or more time to encourage, cue and prompt a person to self-perform a task than to provide assistance. Others may have long-term care needs for supervision or guidance, because of their mental impairments—such as mental retardation or schizophrenia. They may be physically capable of performing self-care tasks, but may be unlikely to do them in a safe, consistent, or appropriate manner that does not endanger themselves or others without substantial supervision (Pryor et al., 1994). This has implications for staff time and effort, and therefore, needs-based systems / tiered reimbursement should include measures of cognitive functioning as well as levels of assistance needed.

There has been some concern that basic ADLs may not directly measure cognitive impairment and may underestimate assistance requirements. ADLs can be a proxy for cognitive impairment, depending on the wording of the assistance needed scale. For example, assessing that a person requires cueing or prompting to initiate or complete an ADL primarily measures cognitive function. The IADLs generally considered most closely related to cognitive impairment are limitations in a person's ability to manage medications, manage finances, or to use the telephone (Kassner & Jackson, 1998). The Folstein (1975) Mini Mental State Exam (MMSE) is the gold standard used extensively to measure cognitive impairment in community LTC. In addition, the MDS-COGS is an index of MDS-RAI items that has convergent validity with the MMSE in nursing home populations. However, it remains to be seen if these are used in ADHS, in comprehensive assessment instruments

used by states for waiver programs, or in instruments specific to children and the DD population. If cognitive impairment relates to care time needed for ADHS participants, then an appropriate measure for cognition should be included in a needs-based methodology.

### *Problem Behaviors*

It is well known that disturbed behaviors such as wandering, disturbed sleep patterns, crying, and aggressive behaviors, as well as incontinence, often lead to decisions for nursing home admission by community caregivers. As ADHS provide an alternative to or delays institutional care, these behaviors will become more prevalent in the ADHS service population. In one study by Teresi, et al. (1997) of general ADHS programs, staff observed that 24 percent of the study sample (n = 336) exhibited five or more disturbed behaviors, and about 60 percent were cognitively impaired as determined by the MMSE. Demanding, complaining, and argumentative behaviors were perceived as most disturbing by both family members and day care staff. These clients needed increased staff supervision and skilled psychosocial interventions.

The literature on caregiver activity with dementia clients provides ample evidence that assistance with common personal care tasks, communicating with the person who asks repeated questions, and ensuring safety related to impaired judgment and wandering, takes considerable amounts of time, and needs especially creative care approaches when the care recipient is reluctant (Reinhard, 2001). Jarrott, et al. (1998) report that in the New Jersey and Ohio, ADHS programs sampled, most administrators reported they would not enroll someone with severe cognitive impairment, and the most common restrictions for admission concerned incontinence and disruptive behavior. Early nursing home needs-based systems such as used in Minnesota differentiated ADL groups if residents had one or more frequently occurring behavior problems, ranging from disorientation and wandering to being physically abusive (Fries, 1990). A needs-based reimbursement structure should consider these most disturbing behaviors, and the additional staff skill and vigilance, time, and varied social and recreational programs needed. There are several instruments related to problematic behavior reported in the literature as valid and reliable for the elderly population (Cohen-Mansfield, 1989b).

## *Special Services*

Long-term care recipients also receive special services and treatments to maintain or improve their health status. These services might include oxygen, suctioning, respiratory and monitoring equipment, medication by injection, intravenous therapy, pain medication, ostomy and catheter care, tube feeding, dressings, bowel and bladder re-training, etc. Nursing home and assisted living reimbursement literature indicate that as early as the 1980's flat-rate and case-mix systems recognized these special services as "add-ons" to the basic care definitions for additional reimbursement (Fries, 1990).

In Maryland, about one-fifth of ADHS participants of all ages received special treatments, which included physical, occupational and speech/language therapies (Travis & McAuley, 2000). These also included "habilitation services" such as training and therapies to improve clients' personal and community living skills for younger special populations (Coburn, Kilbreth, Fortinsky, McGuire & Adler, 1990). The special treatment and skill levels needed for technologically-dependent and medically unstable participants, as is the case in pediatric day health services in New Jersey, should be included in special services.

There is some evidence that services such as case management and family/caregiver education should be considered as special. Considering that adult day health service participants are predominately over age 75, unmarried women, and living with an adult child, several researchers make the point that the social support that can mitigate declines in ADLs is limited, so there tends to be an increased use of formal helpers. These clients/ families need more formal case management services to navigate the health system, particularly for clients with multiple physical and mental health problems, and those who need a mix of home care and day care services (Diwan, 1999). Reinhard (2001) suggests that education and counseling are needed for family members of the cognitively impaired and of clients requiring complex nursing care. She argues that these should be considered in addition to levels of ADL impairment when defining domains and the appropriate staff skill-mix needed in developing needs-based systems.

The provision of special services should be distinguished from the medical conditions that prompt service (Fries, 1990). He suggests that using the underlying condition rather than service received may avoid "gaming". He has found "special services" to be most appropriately involved in need-based systems when they are costly, serious, or invasive and linked directly to a medical condition. On those grounds, he did not suggest general participant or family education, range-of-motion, or reality orientation as special services in the nursing home setting.

Special services need to be examined using a similar approach to ADLs. If this factor accounts for the care time needed for these day service participants, then we will identify the most appropriate measure.

## Summary and Key Points

Adult day health service programs had early beginnings but are now definitely perceived as an alternative to institutional care, particularly for the elderly. ADHS is a rapidly growing industry, especially in the for-profit sector, but the Medicaid program should anticipate continued growth, particularly for the home and community-based waiver programs. Funding for ADHS is derived from many sources but the HCBS waiver was the one most often named by states in the limited literature found on ADHS.

Although programs are either socially-oriented, health-oriented, or both, the general definition of ADHS is a “structured, community-based, group programs designed to meet the assessed physical, emotional, and psychosocial needs of functionally limited [individuals]” (Abraham, 2000, p.105). Currently, no overall federal policy exists regarding adult and pediatric day health services, so most states set the policies, regulate care, and control the resources. Thus, there is great variability among states’ approaches to ADHS, with variation in licensure, certification, and program standards.

Most users of ADHS are elderly and disabled. Children who have unstable medical conditions or are technologically dependent use day health services as well but to a lesser degree. Utilization of day health services depends on several factors: number and skill level of facility staff, types of services provided, and client characteristics. In New Jersey, the MDC Program serves varied participants, also mostly elderly and disabled. While pediatric special needs have been well-defined for day health services, those of the DD population have not. For example, some DD participants are served in special programs under the DDD comprehensive program, while others may be part of the adult day health program.

Reimbursement information on ADHS is scant but the LTC literature describes three possible reimbursement systems: facility specific, class-rate, and case-mix systems, each with advantages and disadvantages. There is a clear move toward patient-specific needs-based systems reported for reimbursement structures because the needs of both the elderly and non-elderly vary based on age, disability, and conditions, that affect both the intensity and duration of care. Several dimensions are recognized as critical for classification systems: physical functioning using ADL and IADL, assessments, disease/conditions, cognitive function, problem behaviors, and special services needed. These have not been tested in the day health service population.

### ***Next Steps***

Since the literature produced only limited information regarding the various populations served by day health service programs as well as the reimbursement strategies specifically used for ADHS, we are currently undertaking:

- A review of other states' adult day health service programs and current reimbursement strategies
- A review of assessment domains in instruments used with various populations (primarily for older adults, but including disabled, and special populations as available) in ADHS, and,
- An investigation of available data sources to create a profile of NJ's MDC Program clients that may link client assessment data with various reimbursement approaches.

Attempting to develop a client profile, selecting assessment domains and evaluating specific factors for use in a needs-based reimbursement structure that can address all the sub-populations served in New Jersey's Medical Day Care Program may not be feasible within the scope of this project - especially with the limited client-specific information available. Therefore, the DD and pediatric populations should be evaluated separately following an initial evaluation of the reimbursement structure for older adult participants, and with added involvement of the appropriate Department services.

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## Endnotes

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- <sup>i</sup> Because the literature as well as most states' materials refer to medical day care (MDC) as adult day health services (ADHS) or adult and pediatric day health services, these terms will be used instead of medical day care throughout this report unless we are specifically referring to the NJDHSS Medical Day Care Program. For simplicity, we will only use the term ADHS even when studies refer to both ADHS and ADS programs.
- <sup>ii</sup> Databases that were searched include MEDLINE, HEALTHSTAR, PROQUEST, and DIGITAL DISSERTATIONS. Organizations that were contacted were Research Triangle Institute, Human Services Research Institute, National Adult Day Services Association (NADSA), CMS (Centers for Medicaid & Medicare Services, formerly HCFA), National Council On the Aging (NCOA), American Association of Retired Persons (AARP), Partners in Caregiving: The Dementia Service Program as well as several state adult day services associations. Most of the searches were about policy, reimbursement, and general information on adult day health services.
- <sup>iii</sup> Federal funding comes from several sources through the Social Security Act including Medicaid (Title XIX), Social Services Block Grants-Title XX (SSBG), and Older Americans Act (Title III) programs. Medicare does not cover ADHS, although it may reimburse for medical rehabilitation services provided in an ADHS facility that is CARF-certified as a comprehensive out-patient rehabilitation facility. Nevertheless, Medicaid is the primary source of public funding. The Department of Veterans' Affairs also contract to reimburse ADHS for eligible veterans in select locations (Weaver, 1996).
- <sup>iv</sup> A few surveys such as NADSA (1998) and Weissert et al. (1990) used national samples of ADHS facilities, while other studies focused on one state or a comparison of selected state programs for ADHS (NJDHSS, 1998; Travis & McAuley, 1999; 2000; Weaver, 1996); still others evaluated special-purpose day health service facilities such as ADHS for disabled veterans (Hedrick, Rothman, Chapko, Inui, Kelly, & Ehreth, 1993), and ADHS for individuals with dementia (Jarrott, S.E., Zarit, S.H., Parris-Stephens, M.A., Townsend, A., & Green, R. 1999; Leitsch, S. A. Zarit, S.H., Townsend, A., & Green, R.2001; Zarit, S.H., Parris-Stephens, M.A., Townsend, A., & Greene, R., 1998).
- <sup>v</sup> It should be noted that the majority of these sources focus on the adult population. A minimal amount of information was found that addressed child day health services.
- <sup>vi</sup> Evaluative surveys of ADHS and integrated services that were reviewed by Gaugler & Zarit (2001) include: Arling, Harkins, & Romaniuk, 1984; Branch, Coulam, & Zimmerman, 1995; Capitman, 1982; Cohen, 1998; Gaugler, 1999; Harder, Gornick, and Burt 1986; Hedrick, Rothman, Chapko, Ehreth, Diehr, Inui, Connis, 1993; Jarrott, Zarit, Stephens, Townsend, & Greene, 1999; Lawton, Brody, & Saperstein, 1989; Montgomery and Borgatta, 1989; Newcomer, Fox, Yordi, Wilkinson, Arnsberger, Donattoni, & Miller, 1998; Strain, Chappell, & Blandford, 1988; Weissert, Elston, Bolda, Zelman, Mutran, & Mangum, 1990; Weissert, Lesnick, Musliner, & Foley, 1997; Weissert, Wan, Livierators, & Katz, 1980;; Wimo, Wallin, Lundgre, Ronnback, Asplund, Mattsson, & Krakau, 1990; Zarit, Stephens, Townsend, & Greene, 1998.



