COST OF TREATMENT SERVICES FOR STATE SYSTEM PROGRAMS

By

Paul L. Solano,
Associate Director and Associate Professor

Mary Joan McDuffie, Research Associate

David Pizzi and Patricia Powell, Research Assistants

School of Urban Affairs and Public Policy
Health Services Policy Research Group
College of Human Services, Education and Public Policy
University of Delaware

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I. INTRODUCTION

A. Purposes of Study

Since the early 1990's, the Division of Alcoholism, Drug Abuse and Mental Health (DADAMH) of the State of Delaware has financed substance abuse treatment and detoxification services for alcohol and drug abusers (hereinafter referred to as the State program). These services have been funded jointly by state moneys and federal block grant funds, --the Substance Abuse Prevention and Treatment Block Grant, SAPTBG. Most of the State program treatment and detoxification services have been delivered through providers under contract with DADAMH. The providers have been mostly private-nonprofit agencies with a few providers as private for profit firms. Service provision has been characterized by considerable changes in types of abuse by clients and treatment approaches known as modalities (Solano and McDuffie, 2000). As will be seen, these changes have effected the costs of treatment and detoxification.

Determination of the past costs of substance abuse services would be useful for resource allocation decisions of DADAMH. Knowledge of costs would permit predicting future budget outlays. A comparison of provider activities could be undertaken. A cost analysis can yield data on different financial burdens that are incurred for supporting the various modalities so that informed decisions could be made about reallocating moneys for alternative treatment approaches. In addition, knowledge of cost dimensions can assist in setting guidelines and standards for acceptable levels and types of service utilization and provision. The appropriateness and reasonableness of "prices" charged by providers can also be formalized through the awarding of provider contracts.

The objective of the present study is to provide estimates of the costs of service utilization for both substance abuse treatment and detoxification programs financed by DADAMH. An earlier analysis of costs was conducted for DADAMH and encompassed the fiscal years of 1992, 1993, and 1994 (Solano, 1996). The present analysis expands the cost inquiry to fiscal year 1999, and also extends the scope of analysis.

B. Scope of Analysis

Fulfilling the present research objective entails the presentation of two perspectives of the service costs of the State programs from 1992 to 1999.

1. COSTS FOR MODALITY SERVICES. For each fiscal year, service costs is estimated for each of six modalities provided through state contracts.
    - The modalities are detoxification (Detox), short-term inpatient care (SHRES), long-term and variable-term inpatient care (VARES), outpatient care (OC), methadone maintenance (MM), intensive case management (ICM). The costs of continuous team treatment (CTT) will be omitted since the services under that modality will be provided under State long-

term care and an actuarial analysis has already been conducted. Because of differences in clientele, goals, or therapies, a modality may be disaggregated into be separate subcategories for cost estimation. These estimations have been placed in the appendices.

- Three costs measures are provided for each modality for each fiscal year:
  a. Cost per service episode for a patient/client
  b. Cost per patient
  c. Cost per unit of service

- Several costs concepts are also calculated for each cost measure within a modality:
  a. DADAMH's contractual financial costs of a modality
  b. DADAMH's total financial cost of a modality
  c. Provider's total financial cost of a modality
  d. Total financial program cost of a modality
  e. Nominal and real (adjusted for inflation) cost

2. CAPITATION COSTS. Capitation payments based on annual service utilization of program clientele are estimated for every past fiscal year.
   - Capitation payments, which are the remuneration mechanism of Managed Care, are also known as the PMPM (per member per month) payment for a patient/client irrespective of the number of episodes and modalities used within a year.
   - Capitation payments are derived for classes of clients:
     a. Men and women
     b. Age
     c. Pregnant women
     d. Types of diagnoses
   - Clients enrolled only in detoxification services are excluded.
   - CTT and ICM clients are excluded since these modalities have been discontinued.

Because a very large number of cost estimates are generated, the presentation of estimates in Section 3 will be limited. First, the three cost measures for each of the six modalities will be shown for 1992/93 through 1999. Second, the cost concepts of (a) DADAMH's contractual costs, (b) provider's total financial cost, and (b) total financial program costs will be applied to the three cost measures. (Contractual cost estimates of each modality have been disaggregated by gender, race, age, and primary diagnosis. These estimates are provided in an appendix). Third, all these cost estimates will be provided in nominal and real dollars. Fourth, capitation costs will be given for the items listed above and shown in both nominal and real values.

C. Overview of Report

The remainder of this report is organized into the following sections. One, conceptual and methodological considerations are given. This entails (a) a discussion of various cost concepts and measures, (b) the concepts and measures employed in the study, and (c) the data used in the report and their sources. The remaining section encompasses the presentation of the various cost estimates derived form the selected cost concepts and measures.

II. CONCEPTS AND MEASURES OF COSTS

Several concepts and measures of the costs of substance abuse services are employed in the present study. This section of the report clarifies the different concepts and measures. Types of costs are defined, their purposes are denoted, and the measurement of them are presented. Because costs are incurred continually as services are provided, the measures and data for most tables have been adapted to the time frame of each fiscal year encompassing 1992 to 1999.

A. Types of Costs.

1. Program Expenditures

When substance abuse service are contracted by DADAMH, a provider delivers a program in the form of a modality by making expenditures. A provider is typically an agency that has the legal status of private nonprofit, private profit, governmental, or community center organization. An agency can be a provider of one or more programs. Although each contract is for a particular modality, an agency may in fact have two or more programs, some of which deliver the same modality but at different locations or to different types of clientele, e.g., pregnant women, TASC. (See Figure II.1).

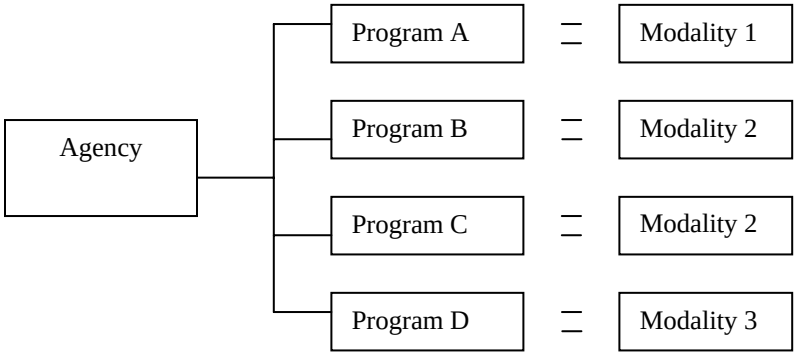


FIGURE II.1

Program expenditures made under a contract are comprised of moneys spent within a period, typically a fiscal year, for service provision. For virtually all contracts, these expenditures follow the budgetary format of objects of expenditures. The major objects of expenditure categories utilized are spending for personnel (PER), materials and supplies (MS), travel (T), contractual services (CS), operating expenditures (OE), occupancy costs (OC), capital expenditures (CE), and indirect costs (IC). The formula for program expenditures (PE) is:

$$\textbf{(1) } PE = PER + MS + T + CS + OE + OC + CE + IC + OAI$$

The budget format of contracts, however, is inconsistent across programs. As shown by their definitions, all programs do not use the same objects, some object categories do not always contain the same items, and different items are subsumed under the same object categories.

PER are spending on staff members, with benefits included for each member or as a lump sum. (See CS and IC).
MS are expenditures for office supplies and very small equipment, medical and pharmaceutical items, and food for inpatient care. (See OE).
T is spending on transportation for patients especially inpatient, and travel expenses for staff members. (See OE).
CS is payment for contracting services. Some programs hire personnel and purchase services-- e.g., travel, lease equipment, -- under a contract rather than spend directly for their own personnel or other items. (See CS and PER).
OE is operating expenditures. Some provider use this expenditure category to specify small spending on office supplies and material (rather than MS) and contractual services (CS) if they are small in scale. (See CS and MS).
OC is occupancy costs. These objects could include expenditures on real estate tax, licenses, utilities, custodial services, insurance, and rent or mortgage payments, which are merely rental payments. Some program contracts do not include rent since their facilities are owned and paid for and some are donated.
CE is spending for small equipment, which have life of more than one year.
IC is indirect cost allocation that is charged by the provider to cover the overhead of the program.
OAI is financial support for a program that is obtained from other sources of funding e.g., grants-in-aid, client fees, and contributions and donations.

2. Cost Concepts and Cost Determination

In virtually all cases, costs are not identical to expenditures, but some costs can be derived from the expenditures made for services. While expenditures indicate the value of money spent on services within a period, costs measure the value of resources consumed, or used up, in providing the (substance abuse) services for that period. There are numerous cost concepts, and the ones employed for research depend upon the purpose of analysis. The cost *concepts* used in the present study are:

<u>DADAMH Contractual Costs (CCOST)</u>

$$\textbf{(2) CCOST = PE – (CE + OAI) + RENT + ACE}$$

<u>DADAMH Total Financial Costs (TCCOST)</u>

$$\textbf{(3) TCCOST = CCOST + OVH, or}$$

$$\textbf{(4) CCOST = PE – (CE + OAI) + RENT + ACE + OVH}$$

Total Provider Financial Costs (TPCOST)

(5) TPCOST = CCOST + OAI, or

(6) TPCOST = PE – (CE + OAI) + RENT + ACE + OAI

Total Program Financial Costs (TPRCOST)

(7) TPRCOST = CCOST + OVH + OAI, or

(8) TPRCOST = PE – (CE + OAI) + RENT + ACE + OVH + OAI

Where PE is program (or modality) expenditure signified by the contract,

- ACE is adjusted capital expenditures for a program contract,
- RENT is the imputed value of rent for a program when not included in the contractual expenditure objects, and
- OVH is the overhead value contributed by DADAMH.

As indicated by the above concepts, expenditures for a contract period do not represent costs, i.e., resources consumed, of services. To determine costs, some objects included in contracts must be adjusted and some resource values must be added to expenditures.[1]

- CAPITAL EXPENDITURES (CE). Capital expenditures (CE) are directed at good/services that in turn provide services in the present as well as over a number of years. These expenditures are for purchases of equipment, computers, furniture, and motor vehicles. The spending on these objects have been apportioned according to the number of years for which the object are expected to render services; consequently they are transformed into adjusted capital expenditures (ACE). For the present analysis, provider capital expenditures of $1,000 to less than $10,000 (made for furniture, computers and small-scale equipment) were amortized for three years, i.e., the value of the spending was allocated (divided) equally over a three year period. Expenditures of $10,000 and above (made for motor vehicles and facility repairs) were amortized for a five year period.

- RENT. Some providers pay rent for their occupancy of the facilities (building) where they deliver their program. A number of providers have mortgage payments, comprised of principal and interest, for their delivery

[1]Some providers expenditures for a program under contract could be for past services, e.g. debt service, and not for goods in the present period. If so, this spending must be removed from the expenditure amounts. Such spending did not occur under the contractual obligations so adjustments were unnecessary.

sites; these outlays are in effect are rental payments. However, some providers do not indicate any rent or mortgage payments on their contracts, (but they do conduct a program from a building) because either their building is paid for or the facility is donated for usage or ownership. Although a rental charge is not made, there is a cost incurred in the form of a lost or foregone opportunity (referred to in economics as an opportunity cost). The building renders services of a value equal to what would have been paid in rent since the building could have been rented at the current market rate, --and earned income, -- to deliver alternative goods/services (other than substance abuse treatment). Put differently, even without a rental payment, building usage consumes resources because an alternative usage would have given benefits to society, and for these alternative benefits to be gained, a current market rent would have to be paid for the building. To obtain the opportunity cost of rent where for which a charge is not made in a contract, an imputed rental value (RENT) has been calculated. Two approaches were taken for imputing rent, depending on the availability of data.

(a). All providers were grouped into four areas of their site location: Wilmington, and New Castle, Kent, and Sussex Counties. For each location, programs were grouped according to inpatient and outpatient programs. The number of beds and the number of slots were ascertained respectively for inpatient and outpatient care programs. For each program with a rental charge, the ratio of number of slots (or beds) to rent were calculated for programs within the areas. An average ratio of slots/rent, and beds/rents were ascertained for each area. This average was applied to programs with no rental charge by scaling rent according to their number of slots or beds. The resulting figures are the estimated or imputed rent.

(b). Where (a) could not be undertaken (due to lack of slots or beds) then the average rental cost for a building in a program geographical location was employed.

- OVERHEAD (OVH). For all programs, DADAMH has used resources in the form of administrative services to manage and supervise the substance abuse programs for which they award contracts. These administrative services are an indirect expense to deliver the treatment programs and are defined as an overhead costs (OVH).[2] The overhead costs for DADAMH sponsored treatment programs emanates from two levels: (a) the amount of resources that DADAMH directly employs for their own agency activities, (b) and the amount of resources that DADAMH use of administrative services of the State Department of Health and Social Services (DHSS) to conduct it activities. The basis of the overhead (OVH) allocation is the amount of expenditures, i.e.; the unit for allocation is the amount of spending. The expenditures are the closed accounts of the fiscal year for DHSS and

[2] The contracts also included for compensation for overhead costs incurred by a provider so that adjustment not required.

DADAMH. The calculation of the overhead entailed several steps that are presented in Appendix A.

3. Economic Costs

None of the cost concepts described above include all the economic costs that are incurred in the provision of treatment services. The financial costs, --even with adjustment for capital expenditures, rent and overhead, --understate the economic (or true resource) costs of the delivery of substance abuse programs. This understatement occurs because, even though there is not a payment of moneys, resources are employed that could have been used for alternative uses other than treatment. That is, society could have used the resources to produce other goods and services for which societal member could have received benefits. These benefits are foregone if treatment services are provided.

There are three common items for which society incurs opportunity costs when substance abuse programs are delivered. One is donated building space or a building with a paid mortgage. These situations generate costs because the agency providing the program either could have used the space for alternative purposes by renting out the facilities and thus earning income, or the donator could have used the facilities for purposes other than substance abuse treatment. Two, in some instances, programs use volunteers (who are not paid) for their service delivery. By donating their time to substance abuse treatment, volunteers give up their resources in the form of labor activity that could have been employed for wages or for some alternative unpaid charity efforts. Third, patient time is not included in the financial cost estimates. Participation in treatment by clients consumes the clients' time which could have been used for other purposes and given value to other, e.g., time off from work that would produce goods/service of one's employer. Estimates of the resource value of volunteers and clientele time were not made; consequently, the costs of program activities are understated.

4. Real and Nominal Costs

The cost estimates are presented in both nominal and real dollars for the eight years of the study. The annual estimates are expressed in the actual dollar value (nominal dollars) that reflects the monetary values of spending in the year. The nominal values are based on the current prices of services in the year. The price change in nominal dollars over each of the eight years is the inflation rate of treatment costs. These nominal values are in turn adjusted for inflation (real dollars). The latter measures the real cost and will indicate if the true costs of resources for service provision have increased or decreased as inflation has occurred between 1992 and 1999. This analysis assumes that a unit of service of treatment that a modality delivers is the same in every year.

The basis for adjusting nominal costs to constant or real costs is an index of the category of professional medical services from 1992 to 1999 of the Philadelphia region. The index of professional medical services measures the average current (nominal) price

of services, and price changes in them, for a given period, e.g., a year. The price index its changes are shown in Table II.1 and will be shown on the tables of estimates. The index was obtained through the adaptation of the monthly Consumer Price Index (CPI) for professional medical services for the Philadelphia region. The adaptation entails setting the fiscal year of 1992 to a value of 100 to make the CPI figures congruent with the fiscal years (July to June) covered by the cost of care measures.[3] Real costs were derived by dividing the nominal cost estimates of a year by the CPI value of that year. The data on CPI were taken from Consumer Price Index, monthly series, for professional services of medical care in the Northeast Urban Areas and covered the years 1991 to 1999. The U.S. Department of Labor, Bureau of Labor Statistics publishes the CPI.

The interpretation of nominal and real cost estimates is illustrated by using Table II.1. If treatment costs have kept pace with inflation then the nominal costs estimates of each year would increase with the annual price changes indicated by the index (row D). (For example, if prices for professional medical services rose by 7.6 as occurred in 1993, then, assuming that the same price changes prevailed for treatment providers, with an initial treatment cost figure of $150 in 1992, treatment costs in 1993 would be expected to be $161 in 1993). In this case, real (or CPI adjusted) costs would yield cost estimates for every year identical to the base year (row E). When real costs are lower than nominal costs, as shown by the dramatic comparison of rows D with F, then costs have not kept pace with inflation and the true cost (of resources) of service delivery has declined. In this situation, the providers are receiving a reduction in the value of compensation to cover the current financing of their services. Consequently, providers will be under pressure to constrain their expenditures and thus costs by limiting the remuneration of staff member and/or restricting their spending on other items. An alternative view is that, contrary to the assumption made above, providers could reduce the items and activities that comprise the unit of service. In contrast, where real costs are greater than the base year costs (see row G) then true resource costs of services are higher; thus services are becoming more expensive. This rise may be due to higher wages/salaries or increasing costs of such objects as materials, supplies, equipment or rent.

[3] The formula is $X_n = 100 * (A_n)/Z$ where X_n is the newly computed index value for a particular year (e.g., 1993), 100 is the newly assigned index value for 1992, Z is the initial index value for 1992, and A_n is the initial index value for the same particular year as X_n.

TABLE II.1
Treatment Costs

	1992	1993	1994	1995	1996	1997	1998	1999
A. Consumer Price Index 1982-84 = 100	196.6	211.6	223.9	232.5	242.2	247.8	254.8	264.8
B. Consumer Price Index 1992= 100	100.0	107.6	113.9	118.3	123.3	126.0	129.6	134.7
C. Ave. % Change (Inflation)	-	7.6	5.8	3.8	4.2	2.3	2.8	3.9
D. Nominal Cost Consistent with Inflation	150	161	171	177	185	189	194	202
E. Real Cost Consistent with Inflation	150	150	150	150	150	150	150	150
F. Real Cost Lower than Inflation	150	154	143	140	135	130	128	125
G. Real Cost Higher than Inflation	150	165	173	180	189	195	199	207

Source: U.S. Dept. of Labor, U.S. Bureau of Labor Statistics; Health Services Policy Research Group, University of Delaware

B. Cost Measures

1. Four Cost Measures

Four cost measures are employed in the present study. They are:

a. Cost per episode in a modality: total costs/total number of episodes.
b. Cost per client for a modality: total costs/total number of clients.
c. Cost per unit of service of a modality: total costs/total number of service units.
d. Capitation cost: total modality costs for all clients/ total number of clients.

These measures are based upon the cost concepts that are described above. Each of the cost concepts is employed for all the modality measures. Only the total provider financial costs [equations 5 or 6 above: (TPCOST = CCOST + OAI), or (TPCOST = PE – (CE + OAI) + RENT + ACE + OAI)] is used for the capitation cost measure. Each cost measure is an *average* cost indicator. That is, they are calculated by dividing a total cost value by an indicator of total usage (a number of items or individuals). Average cost is also referred to as *unit* costs. Average (or unit) costs do not measure the differential or marginal cost that would be incurred for additional levels of service or additional individuals consuming services. Average cost only indicates the mean costs of all items/units measured in the denominator. The costs for individual units, as measured by the denominator, could vary little or substantially, depending on the range of value of the selected units, e. g., the number of services consumed.

2. Modality Cost Measures

a. Various Modalities.

Various organizational and therapeutic approaches, called modalities, are taken to provide services to clients. Seven modalities have been financed by the state program: (1) detoxification, (2) short term-residential care, (3) long-term residential care, (4) outpatient care, (5) intensive case management, (6) continuous team treatment, (CTT), and (7) methadone maintenance. These modalities are often classified into two groups: inpatient services and outpatient services. (See Figure II.2).

- Inpatient Services. Inpatient services include both short-term residential care and long-term residential care, and detoxification services.
- Outpatient Services. Outpatient services comprise outpatient care, intensive case management, continuous team treatment, and methadone maintenance.

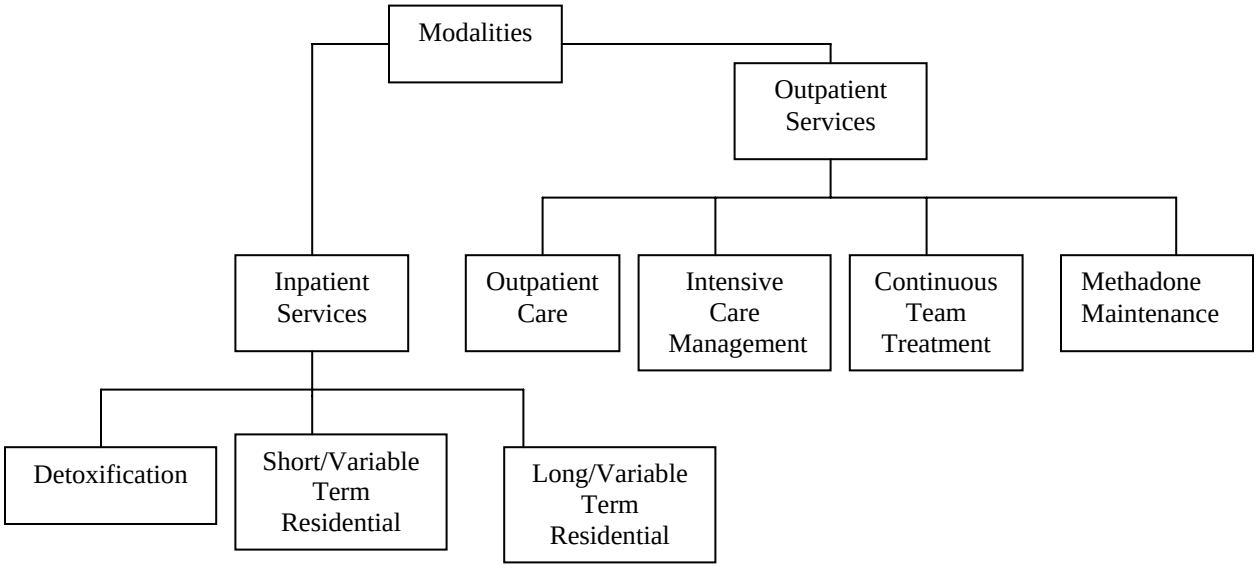


FIGURE II.2

Detoxification. Detoxification can be either freestanding residential care or hospital inpatient (acute) care.

- Freestanding residential care is twenty-four hour/day services in a non-hospital setting that provide for safe (pharmacological or non-pharmacological) withdrawal and transition to ongoing treatment.
- Hospital inpatient (acute) care is twenty-four hour/day medical acute care services for detoxification for persons with severe medical complications associated with (pharmacological or non-pharmacological) withdrawal from alcohol or drug intake.
- Acute detoxification care is not a modality implemented through provider contracts.

Residential Care. Three classes of residential care can be implemented for substance abuse treatment, -- short-term residential, and long-term residential both of which are variable term care since 1998), and hospital inpatient care.

- Short-term residential care involves treatment services for alcohol and other drug abuse and dependency for a maximum of 30 days in a non-acute (non-hospital) care setting (housing).
- Long-term residential care provides treatment services for alcohol and other drug abuse and dependency for more than 30 days in non-acute care setting (housing) which may include transitional living arrangements such as halfway houses.

- Hospital inpatient care includes twenty-four hour/day medical care (other than detoxification) in a hospital facility in conjunction with treatment services for alcohol and other drug abuse and dependency.
- The State program does not finance hospital inpatient services for the provision of residential care.

Outpatient services. Outpatient services are ambulatory care received by a patient who does not reside in a treatment facility. The patient could obtain drug abuse or alcoholism treatment therapy, with or without medication, and also counseling and supportive services. Four modalities are subsumed under outpatient services—outpatient care, intensive case management, continuous team treatment, and methadone maintenance.

- Outpatient care is the provision of treatment services in the form of periodic counseling and therapies that are delivered in either individual, family, or group sessions (encounters) of short time duration, viz. an hour per session.
- Intensive case management is intensive outpatient care for which services are provided to the client that last two or more hours per day for three or more days per week.
- Continuous team treatment is also intensive outpatient care for which services are provided to the client by a team of counselors and staff who provide a wide range of services inclusive of treatment therapy, vocational educational and social counseling.[4]
- Methadone Maintenance is the provision of methadone as a substitute drug for heroin addiction.

b. Modality Measures.

Cost per episode in a modality: total costs/total number of episodes.

A treatment episode is a separate occurrence of a modality (detoxification or treatment) in which services are provided to a particular client covering the time period of client admission to client discharge. A client could have multiple treatment episodes during the fiscal year, signified by each separate admission and discharge period (i.e. a number of admissions). A client can be admitted in one fiscal year and discharged in the following year; in this case, treatment episode is attributed to the year in which the admission occurred.

Cost per client for a modality: total costs/total number of clients.

The total number of clients are all unique clients. Unique clients are the number of distinct individuals receiving services within the fiscal year, irrespective of the number of admissions and/or quantity of services received within the year. These clients represent an unduplicated count within a year of every separate individual that participated in either detoxification and/or treatment services.

[4] The SAPTBG identifies CTT services as intensive outpatient or "intensive case management".

Cost per unit of service of a modality: total costs/total number of service units.

A client service unit is the mechanism through which an individual client received services. For inpatient modalities, a service unit is expressed as a ***single day***, since during this time frame, services are delivered to a client. For the outpatient modalities, a service unit is a single ***encounter*** that encompasses a therapy session of a short time frame, e.g., hours of a day, in which a client receives treatment from a provider.

3. Capitation Cost Measures

Capitation cost: total modality costs for all clients/ total number of clients.

Capitation costs are a cost per client for all services received/provided within a particular time period. These services are provided through all modalities within the period. Capitation costs are employed as the financing mechanism for the Managed Care approach to medical service provision. Sometime capitation costs are referred to as the PMPM or per member per month payments to the provider for delivering services to a patient for every month the client is enrolled in a program. That is, the PMPM or monthly capitation payment is the value of remuneration to a service provider.

Capitation costs are average costs. One payment could be used to pay a provider on the basis of each patient that is enrolled in treatment. Some patients use less services and therefore the capitation payment exceeds the providers costs, and thus the provider is "overcompensated". Other clients use many services and therefore the capitation payment could be less than service costs, and the provider would be "undercompensated". As long as clientele risks are similar, their service need and utilization are unlikely to vary much; consequently their individual service costs will be very similar and the overall capitation payment will cover provider costs.

Patients or clientele could have different characteristics inclusive of illness that lead them to have substantially different needs and demand for treatment. Therefore there would be a wide variation in service usage among the mix of patients. Consequently, if a provider treats large number of low (or high) users, the aggregate capitation payment based on the average costs of all patients would overcompensate (or undercompensate) the provider thereby enhancing its profits (or increasing its losses). A way to address this problem is to categorize the clientele into groups who have similar treatment needs and thus consume similar service levels, but also have different treatment needs and service utilization than other clientele groups.[5] That is, one should establish different capitation clientele classes that would be the basis of provider remuneration according to the defined clientele.

There are some obvious reasonable segmentations for which the group characteristics might produce substantial differences in service utilization. The

[5] Alternatively, a risk adjustment system could be implemented whereby the "excess' profits of providers could be distributed to providers that incurred "excessive" losses.

categories employed in the present study are: (a) all clientele, (b) gender--males and females, (c) age-- 18-34 years old, and above 34 years old, (d) primary diagnosis—alcohol or drugs, and (e) selected drugs—heroin and cocaine.[6] Additional disaggregation or combinations of categories may yield further insight into capitation costs.

The estimated capitation costs are based upon clients who were in (a) both treatment and detoxification and (b) treatment only within a fiscal year. These clients were enrolled programs for which providers could structure a level of service provision over time. Clients in "detoxification only" are patients who "appear" haphazardly and unpredictably so that a regimen of services are not planned or intended. In essence, such clients are not regular members or patients as would be required for a Managed Care plan, i.e., they would not be enrollees who were seeking a regimen of services and treatment. Also, the costs for any modality services by clients enrolled in CTT and ICM are excluded. These modalities are to be curtailed, and the persistently and severely ill (PSI), most of which were participants in the two modalities, are to enter the separate managed care system of Long-term Care for substance abusers.

The capitation costs derived from the cost concept of total provider financial costs [equations 5 or 6 above: (TPCOST = CCOST + OAI), or (TPCOST = PE – (CE + OAI) + RENT + ACE + OAI)]. The calculation of capitation (PMPM) costs involved the following steps for each fiscal year.

1. Clients were separated into the selected separate capitation categories.
2. Each modality for which clients received services was determined.
3. Then the number of services units a client consumed for each modality was determined.
4. The cost per service unit of the modality (derived from the measure described above) was multiplied by the number of service units consumed of that modality.
5. The derived separate total costs of <u>each</u> modality of <u>a</u> client were added to obtain a cost estimate for an individual for all service utilized in every modality.
6. The individual cost estimates of all clients within the selected capitation category were added together to produce the total costs incurred by providers for all clients classified as members of the selected capitation category.

[6] The types of diagnosis are based upon the provider's assessment or diagnosis of a client's primary substance abuse problem. All substance abuse not designated as alcohol is defined as drug abuse. The categories of drugs are: (1) MARIJUANA: pot, hashish, reefer; (2) HALLUCINOGENS: LSD, PCP, "ecstasy", DMT, MDA, MDMA, mescaline, peyote, psilocybin, mushrooms; (3) COCAINE: coke, crack; (4) HEROIN, OTHER OPIATES, OPIODS: Codeine, morphine, Percocet, Percodan, Demerol, Methadone, Dilaudid, Fentanyl; (5) SEDATIVES: Tranquilizers or sleeping pills, including barbiturates, Valium, Librium, Xanax, Quaalude, methaqualone, Seconal, Halcion, phenobarbital, "downers", "barbs", "ludes", rohypnol; (6) STIMULANTS: Amphetamines, "speed" or "ice", including methamphetamine, Preludin, Ritalin, Dexedrine, Benzedrine, "uppers"; (7) ANALGESICS: Darvon, Talwin; (8) INHALANTS: Gasoline or lighter fluid, spray paints, shoeshine liquid or glue, paint solvents, amyl nitrate, nitrous oxide, "Poppers", cleaning fluids, locker room odorizers, "whippets". The designation of provider primary diagnoses was missing for very few cases; these missing data were assigned to the drug abuse category.

7. This total cost of all clients within the selected capitation category was then divided by the total number of clients within the capitation category to obtain the total annual capitation cost.
8. This total annual capitation cost then was divided by 12, (for the number of months within a year) to obtain the PMPM (per member per month) for the selected capitation category.

A. Sources of Data and Data Issues

Three data sets were employed to complete the present report.

(1). CRF File, 1992-1999. CRF refers to Consumer Reporting Form. The CRF File encompasses utilization data on substance abuse treatment of the State program. The data is collected and compiled by DADAMH, which provided the file to the Health Services Policy Research Group (HSPRG). Behavioral health care providers under contract with DADAMH are required to supply the information for variables stipulated on the CRF form. The data is reported for a fiscal year, the time frame of provider contracts. Clients treated under SENTAC program were excluded from the analysis.

The CRF file contains information for each client continuation, admission, and discharge. Data on client socioeconomic characteristics as well as treatment diagnoses and modalities are to be submitted by providers. An individual record is reported for each separate admission, irrespective of the number of times an individual client entered the system with a particular provider. Thus the data is organized according to separate client incidences rather than a separate record for each client. The present analysis required that the data be reorganized according to each separate client as an observation.

(2). Encounter Data, 1992-1999. A second data set employed encompasses client encounters of outpatient services by providers under contract to DADAMH. Data were only available from some providers. Most notably, data from of Brandywine Counseling was not obtained. The data was obtained from the billing records for the services. Because the data was in paper form and not yet computerized, the HSPRG compiled the information on the billing records into a computer file. A “cleaned” file has been given to DADAMH. Since the billing records were reported for each encounter (or separate treatment session) of a client, the computerized file had to be reorganized so that each client is a separate observation. The billing records included an MCI (client identification number) which allowed matching of the encounter data with the CRF File. Besides the MCI, the variables in the Encounter Data included, date of service, amount charged, client evaluation as well as the type of service unit, i.e., family, group, or individual therapies and education therapy.

(3). Provider Contracts, 1992-1999. DADAMH finances substance abuse programs through a series of contracts with numerous service providers. A

contract was initiated for the provision of a "program", which is merely a modality undertaken by a provider. Some providers have delivered multiple modalities, each of which were prescribe under a separate contract. Some providers also delivered the same modality either at a different site or for different clienteles, e.g., TASC, pregnant women, for which separate contracts were written. Copies of provider contracts were obtained for each of the 8 fiscal years from 1992 to 1999. Each contract contained a budget based on objects of expenditure format. Spending on the each object was specified separately for both DADAMH's allocation and for other funding sources (generally as aggregate figures).

Data on the provider's of detoxification and treatment services are given in Table II.2. The table presents each program according to its name, the modality delivered and the time frame of its service provision between 1992 and 1999.

TABLE II.2
Providers and Modalities by Time Frame of Service Delivery

Program #	Period	Modality	Provider	Program
10002201	92-99	detox	NET Delaware, Inc.	Kirkwood Detox
10005501	92-99	outpat	Kent County Counseling	Alcohol/Drug Outpatient
10005503	92-98	intcase	Kent County Counseling	Intensive Case Management
10005504	92-99	meth	Kent County Counseling	Methadone Program
10005505	96-99	outpat	Kent County Counseling	Alcohol/Drug Outpatient TASC
10005506	98-99	outpat	Kent County Counseling	Alcohol/Drug Outpatient
10010501	92-94	outpat	SODAT Counseling, Inc.	Alcohol/Drug Outpatient
10010503	96-99	outpat	SODAT Counseling, Inc.	Alcohol/Drug Outpatient TASC
10010504	94-99	ctt	SODAT Counseling, Inc.	Alcohol/Drug Continuous Treatment
10013901	92-99	outpat	Brandywine Counseling, Inc.	Alcohol/Drug Outpatient
10013903	92-99	ctt	Brandywine Counseling, Inc.	Alcohol/Drug Continuous Treatment
10013904	92-97	meth	Brandywine Counseling, Inc.	Methadone Program (became 10-16)
10013905	92-99	intcase	Brandywine Counseling, Inc.	Perinatal Program
10013906	92-99	intcase	Brandywine Counseling, Inc.	First Step
10013907	92-99	outpat	Brandywine Counseling, Inc.	Alcohol/Drug Outpatient
10013908	95-99	outpat	Brandywine Counseling, Inc.	Alcohol/Drug Outpatient
10013909	96-99	outpat	Brandywine Counseling, Inc.	Alcohol/Drug Outpatient
10013910	95-99	meth	Brandywine Counseling, Inc.	Methadone Program
10013912	96-99	meth	Brandywine Counseling, Inc.	Methadone Perinatal
10013913	96-99	meth	Brandywine Counseling, Inc.	Methadone CTT/Intensive Case Mgmt
10013914	96-99	meth	Brandywine Counseling, Inc.	Methadone First Step
10013915	99	Meth	Brandywine Counseling, Inc.	NSAFE Methadone
10013916	96-99	Meth	Brandywine Counseling, Inc.	Methadone TASC
10013917	98-99	Meth	Brandywine Counseling, Inc.	Methadone Program
10013918	99	Outpat	Brandywine Counseling, Inc.	TASC Outpatient
10013919	99	Outpat	Brandywine Counseling, Inc.	Bridge-Women Welfare Recipients
10013920	99	Outpat	Brandywine Counseling, Inc.	Bridge-Women Welfare Recipients
10017001	93-99	Ltres	ANKH, Inc.	Tau House - Halfway House
10020401	96-99	Outpat	Thresholds, Inc.	Alcohol/Drug TASC
10025301	93-99	Ltres	ANKH, Inc.	Houston Hall-Halfway House

Table II.2 cont.

10029501	93-98	Ltres	NET Delaware, Inc.	Glass House - 90 Day Drug Residential
10033701	92-99	Outpat	Open Door, Inc.	Alcohol/Drug Outpatient
10033702	93-97	outpat	Open Door, Inc.	Family Program
10041001	92-95	intcase	NET Delaware, Inc.	Continuing Care Unit
10041002	94-99	outpat	NET Delaware, Inc.	Continuum for Recovery
10041003	94-98	intcase	NET Delaware, Inc.	Outpatient TASC
10041004	95-96	outpat	NET Delaware, Inc.	Women's Intensive Outpatient
10041005	96-98	outpat	NET Delaware, Inc.	Outpatient TASC 2
10041006	97-99	outpat	NET Delaware, Inc.	Outpatient
10057601	93-99	ctt/intcase	Psychotherapeutic Services, Inc.	Continuing Treatment
10057602	96-99	ctt	Psychotherapeutic Services, Inc.	Georgetown Continuing Treatment
10057603	97-99	ctt	Psychotherapeutic Services, Inc.	Continuous Treatment Team
10060001	92-99	ltres	NET Delaware, Inc.	Alternatives
10061801	92-96	intcase	NET Delaware, Inc.	Foundations - Men's
10061802	93-96	intcase	NET Delaware, Inc.	Foundations - Intensive Case Management
10061803	95-99	ctt	NET Delaware, Inc.	Foundations - Continuous Treatment
10063401	92-99	ltres	Serenity Place, Inc.	Halfway House
10072501	92-99	ltres	NET Delaware, Inc.	Reflection House - Pregnant Women
10081601	95-99	ltres	Connections, Inc.	Cornerstone Residential
30108301	92-99	outpat	Peoples Place II, Inc	People's Place Counseling
75002401	92-99	detox	Kent/Sussex Detox	Alcohol/Drug Detox
90053801	92-99	ltres	DADMH	Corinthian House
90055301	92-99	shtres	NET Delaware, Inc.	RCD Short Term Residential
90055304	95-98	shtres	NET Delaware, Inc.	RCD Short Term Residential TASC
90055305	96-98	shtres	NET Delaware, Inc.	RCD TASC 2
90055306	97-98	shtres	NET Delaware, Inc.	RCD TASC 3
90055307	98-99	ltres	NET Delaware, Inc.	RCD Long Term Residential
90058701	93-99	ltres	Limen House	Women's Halfway House
90061004	96	outpat	Turnabout Counseling Center	Alcohol/Drug TASC
90061101	92-99	outpat	Turnabout Counseling Center	Alcohol/Drug
90061103	92-97	intcase	Turnabout Counseling Center	Intensive Case Management

Sources: Division of Alcoholism, Drug Abuse, and Mental Health.

shtres: short-term residential care.
detox: detoxification services.
outpat: outpatient care.
intcase: intensive case management.
meth: methadone maintenance.
ctt: continuous team treatment.
ltres: long-term residential care.

III. COST ESTIMATES

A. Modality Cost Estimates

Various cost estimates for FY92 to FY99 are given for each of the seven modalities. As stated in sections 1 and 2, the tabular presentation of modality costs are limited in the text to the measures of cost per service unit, cost per patient/unique client, and cost per episode. The tables provide these measures for the cost concepts: DADAMH contractual costs, provider program costs, and total program financial costs (provider program costs plus DADAMH overhead costs). Nominal and real dollar estimates are given for each of these measures and concepts. The analyses have generated a large volume of measures. Consequently, the discussion in the text is restricted to (a) the cost concept of total program financial costs, and (b) cost per service unit for inpatient services (average cost per day of detoxification, short-term residential care, and long-term or variable term-residential care), and (c) cost per episode for outpatient services (CTT, ICM, and methadone maintenance and traditional outpatient care).

1. DETOXIFICATION COSTS

Estimates of the costs of detoxification services are presented in Table III.1. (See Figure III.1 for a comparison of the average cost per day for all three cost concepts).

- In nominal dollars, total program financial costs manifest a bimodal distribution over eight years. From 1992 to 1994 costs per day of service rose by $40 from $152 to $191 and then declined over the next two years to $177 in 1996. In 1997 cost increased substantially by $91 per day and then declined by $30 dollars in 1998 and 1999.
- Thus the average cost per service unit of Detox has risen by $82 in nominal value between 1992 and 1999.
- The cost per day of Detox services in real terms (dollars) has also increased from 1992 to 1999. Although the cost per day of Detox services initially rose considerably in 1993, thereafter it declined steadily until 1996 when it fell below its 1992 level. Thereafter, real cost per day jumped significantly in 1997 and then dropped substantially in 1998 and 1999; however, at $174 per day of service, the cost of Detox is $22 greater in 1999 than in 1992.
- Over the 8-year period, with the exception of 1996, the rise real costs of Detox services indicates that the cost of service per day for Detox has become more expensive (for a unit of service), and this increased has been masked by inflationary price increases.
- This rise in real costs parallels the slight annual decrease in average days per episode by clients (Section A) from 4.8 to 3.8 days between 1992 and 1999. One implication is that while real costs have risen, and thus provider compensation has also, the total cost of Detox for a client has

been offset by the provision of less client service units as reflected by the decline in the length of an episode.

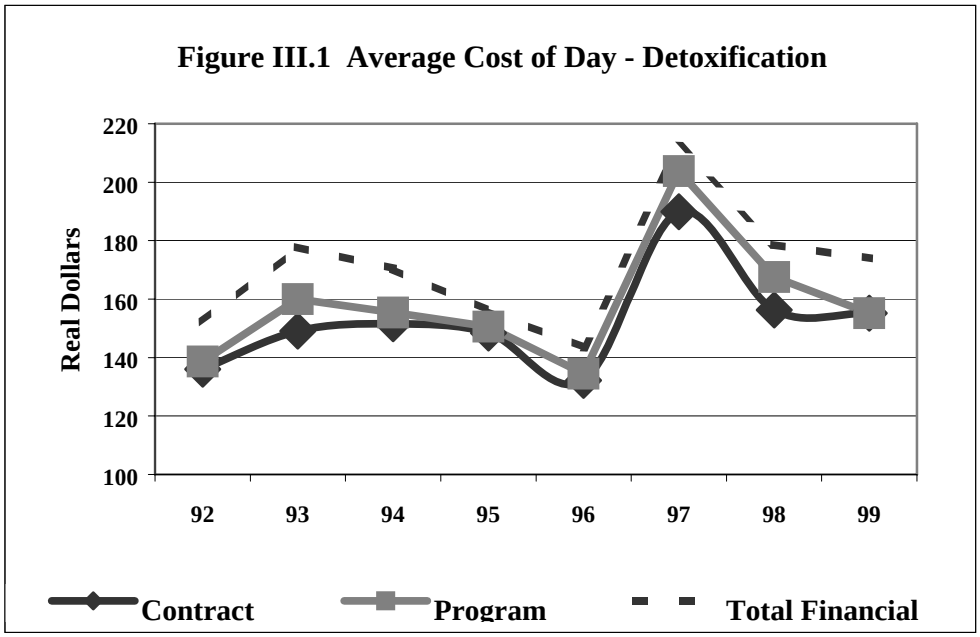


TABLE III.1
Cost of Detoxification

A. Detoxification	1992	1993	1994	1995	1996	1997	1998	1999
Consumer Price Index, 82-84=100	196.6	211.6	223.9	232.5	242.2	247.8	254.8	264.8
Consumer Price Index, 1992=100*	100.0	107.6	113.9	118.3	123.2	126.0	129.6	134.7
Annual Per Cent Change	-	7.6%	5.8%	3.8%	4.2%	2.3%	2.8%	3.9%
Average days per episode per year	4.6	4.4	4.4	4.1	4.2	4.2	4.1	3.7
Average days per episode	4.8	4.5	4.6	4.1	4.3	4.3	4.1	3.8
# of episodes	3,315	3,021	3,120	3,214	3,264	2,571	2,721	3,408
# of unique clients	2,170	1,977	2,023	2,119	2,226	1,801	1,854	2,170
B. Contractual Costs								
Contract Amount - Nominal	2,075,000	2,132,704	2,368,986	2,312,148	2,231,975	2,583,863	2,259,229	2,635,183
Average cost per day	136	160	173	175	163	239	203	209
Average cost per day - 1992 $	136	149	152	148	132	190	156	155
% Change Cost Per Day - 1992 $	-	9.6%	1.6%	-2.1%	-10.9%	43.6%	-17.7%	-0.7%
Average cost per episode	653	722	794	719	700	1,029	830	794
Average cost per episode - 1992 $	653	671	697	608	568	816	641	590
% Change Average 1992 $ Cost	-	2.7%	3.9%	-12.7%	-6.6%	43.6%	-21.5%	-8.0%
Average cost per unique client	956	1079	1171	1091	1003	1435	1219	1214
Average cost per unique client - 1992 $	956	1,002	1,028	923	814	1,138	940	902
% Change cost per unique client - 1992 $	-	4.8%	2.6%	-10.3%	-11.8%	39.9%	-17.4%	-4.1%
C. Provider Program Costs								
Program Amount (nominal)	2,114,810	2,288,374	2,428,986	2,346,948	2,271,816	2,773,863	2,423,383	2,635,183
Average cost per day	139	172	177	178	166	257	217	209
Average cost per day - 1992 $	139	160	155	151	135	204	168	155
% Change Cost Per Day - 1992 $	-	15.3%	-2.9%	-3.1%	-10.7%	51.5%	-17.8%	-7.4%
Average cost per episode	666	775	814	730	713	1,105	891	794
Average cost per episode - 1992 $	666	720	715	617	578	876	687	590
% Change Average 1992 $ Cost	-	8.1%	-0.7%	-13.6%	-6.3%	51.5%	-21.6%	-14.2%
Average cost per unique client	975	1,157	1,201	1,108	1,021	1,540	1,307	1,214
Average cost per unique client - 1992 $	975	1,075	1,054	937	828	1,222	1,009	902
% Change cost per unique client - 1992 $	-	10.4%	-2.0%	-11.2%	-11.5%	47.5%	-17.5%	-10.6%

Table III.1 cont.

D. Total Program Financial Costs: Provider Program Costs Plus Overhead Allocation								
Program Amount + Overhead (nominal)	2,319,582	2,544,284	2,663,379	2,427,791	2,420,567	2,890,485	2,583,233	2,953,431
Average cost per day	152	191	194	184	177	268	232	234
Average cost per day - 1992 $	152	178	170	156	143	212	179	174
% Change Cost Per Day - 1992 $	-	16.9%	-4.2%	-8.5%	-8.0%	48.2%	-15.9%	-2.7%
Average cost per episode	730	861	892	755	759	1,151	949	890
Average cost per episode - 1992 $	730	800	784	639	616	913	733	661
% Change Average 1992 $ Cost	-	9.6%	-2.1%	-18.5%	-3.5%	48.2%	-19.8%	-9.8%
Average cost per unique client	1,069	1,287	1,317	1,146	1,087	1,605	1,393	1,361
Average cost per unique client - 1992 $	1,069	1,196	1,156	969	883	1,273	1,075	1,010
% Change cost per unique client - 1992 $	-	11.9%	-3.3%	-16.2%	-8.9%	44.3%	-15.6%	-6.0%

**CPI-All Urban Consumers, Medical Care, Phil-Wilmington-Atlantic City, PA NJ*
Source: Health Services Policy Research Group, University of Delaware, 2001

2. SHORT-TERM (NOW VARIABLE-TERM) RESIDENTIAL CARE

- Cost Estimates of Short term Residential care are shown in Table III.2. (See Figure III.2 for a comparison of the average cost per day for all three cost concepts).
- In nominal dollars, average cost per day (or cost per service unit) has manifested a slight declining trend until 1997. In 1998, costs more than doubled from $82 in 1997 to $180 and $170 in 1998 and 1999.
- The same pattern of behavior is applicable to the real cost per day. Between 1992 and 1997, cost per service unit for short-term residential care decreased ($93 to $65), indicating that provider compensation did not keep pace with inflation. It should be noted that the average days per client episode show a very slight decline during this period.
- However, the average days per client episode rose substantially in 1998 and 1999 from 22.5 day in 1997. This increase corresponds to a considerable jump in real costs of $139 and $126 in 1998 and 1999 respectively. Thus when 1992 is compared with 1999, real cost per day has risen by 50% but this increase is misleading to the extent that between 1992 and 1997 real as well as nominal costs were declining.

Figure III.2 Average Cost Per Day - Short Term Residential

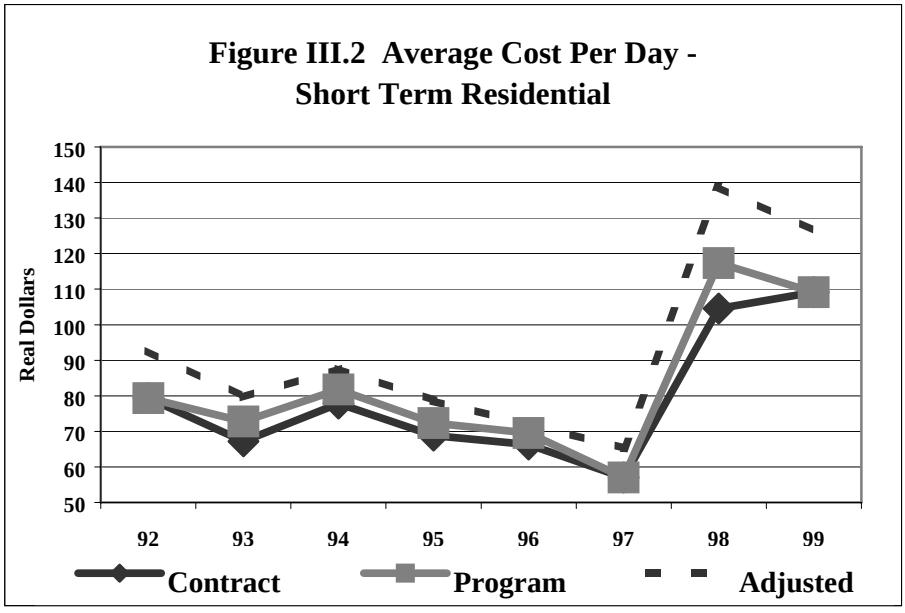


Table III.2
Cost of Short Term Residential

A: Service Utilization	1992	1993	1994	1995	1996	1997	1998	1999
Consumer Price Index, 82-84=100	196.6	211.6	223.9	232.5	242.2	247.8	254.8	264.8
Consumer Price Index, 1992=100*	100.0	107.6	113.9	118.3	123.2	126.0	129.6	134.7
Annual Per Cent Change	-	7.6%	5.8%	3.8%	4.2%	2.3%	2.8%	3.9%
Average days per episode per year	22.4	22.1	23.3	19.1	19.1	21.1	27.9	28.1
Average days per episode	23.7	23.3	23.3	20.1	20.3	22.5	31.5	31.4
# of episodes	408	416	332	454	459	526	480	519
# of unique clients	394	399	322	434	433	491	463	491
B. Contractual Costs								
Contract Amount - Nominal	725,253	665,213	685,216	705,767	716,372	798,290	1,814,448	2,142,915
Average cost per day	79	72	89	81	82	72	135	147
Average cost per day - 1992 $	79	67	78	69	66	57	105	109
% Change Cost Per Day - 1992 $	-	-15.3%	15.7%	-11.5%	-3.6%	-14.0%	83.2%	4.4%
Average cost per episode	1,881	1,686	2,064	1,636	1,659	1,618	4,268	4,614
Average cost per episode - 1992 $	1,881	1,566	1,812	1,383	1,346	1,284	3,293	3,426
% Change Average 1992 $ Cost	-	-16.7%	15.7%	-23.7%	-2.7%	-4.6%	156.5%	4.0%
Average cost per unique client	1,841	1,667	2,128	1,626	1,654	1,626	3,919	4,364
Average cost per unique client - 1992 $	1,841	1,549	1,869	1,375	1,343	1,290	3,024	3,240
% Change cost per unique client - 1992 $	-	-15.8%	20.6%	-26.4%	-2.3%	-3.9%	134.4%	7.2%
C. Provider Program Costs								
Program Amount (nominal)	725,253	720,261	720,261	741,824	751,427	798,290	2,036,449	2,142,915
Average cost per day	79	78	93	86	86	72	152	147
Average cost per day - 1992 $	79	73	82	72	70	57	117	109
% Change Cost Per Day - 1992 $	-	-8.3%	12.3%	-11.5%	-3.8%	-18.0%	105.6%	-7.0%
Average cost per episode	1,881	1,825	2,169	1,720	1,740	1,618	4,790	4,614
Average cost per episode - 1992 $	1,881	1,696	1,905	1,454	1,412	1,284	3,696	3,426
% Change Average 1992 $ Cost	-	-9.8%	12.3%	-23.7%	-2.9%	-9.1%	187.8%	-7.3%
Average cost per unique client	1,841	1,805	2,237	1,709	1,735	1,626	4,398	4,364
Average cost per unique client - 1992 $	1,841	1,677	1,964	1,445	1,409	1,290	3,394	3,240
% Change cost per unique client - 1992 $	-	-8.9%	17.1%	-26.4%	-2.5%	-8.4%	163.1%	-4.5%

Table III.2 cont.

D. Total Program Financial Costs: Provides Program Costs Plus Overhead Allocation								
Program Amount + Overhead (nominal)	847,097	786,525	771,861	806,559	778,311	912,455	2,409,030	2,480,067
Average cost per day	93	86	100	93	89	82	180	170
Average cost per day - 1992 $	93	79	88	79	72	65	139	126
% Change Cost Per Day - 1992 $	-	-14.2%	10.2%	-10.2%	-8.4%	-9.5%	112.8%	-9.0%
Average cost per episode	2,197	1,993	2,325	1,870	1,802	1,850	5,666	5,340
Average cost per episode - 1992 $	2197	1852	2041	1581	1463	1468	4372	3964
% Change Average 1992 $ Cost	-	-15.7%	10.2%	-22.6%	-7.5%	0.3%	197.9%	-9.3%
Average cost per unique client	2,150	1,971	2,397	1,858	1,797	1,858	5,203	5,051
Average cost per unique client - 1992 $	2,150	1,832	2,105	1,571	1,459	1,474	4,015	3,750
% Change cost per unique client - 1992 $	-	-14.8%	14.9%	-25.3%	-7.2%	1.1%	172.3%	-6.6%

**CPI-All Urban consumers, Medical Care, Phil-Wilmington-Atlantic City, PA NJ*
Source: Health Services Policy Research Group, University of Delaware, 2001

3. LONG-TERM (NOW VARIABLE-TERM) RESIDENTIAL CARE

Table III.3 shows the cost estimates of long-term and variable–term residential care. (See Figure III.3 for a comparison of the average cost per day for all three cost concepts).

- Cost per day for long-term residential care has been quite erratic between 1992 and 1999, with cost decreasing and then decreasing every subsequent year.
- Although real cost is virtually identical in 1992 and 1999 at $61 and $60 respectively), the figures obscure the fact that during the eight years, except for 1995, real costs has declined with the annual values always below the initial 1992 (and 1999) amount.
- In effect, remuneration to providers may have been insufficient to compensate them for price increases of objects encompassed in their service delivery. Put differently, increases in the level of compensation paid to providers may have been inadequate to cover the price increases for objects that produce services.

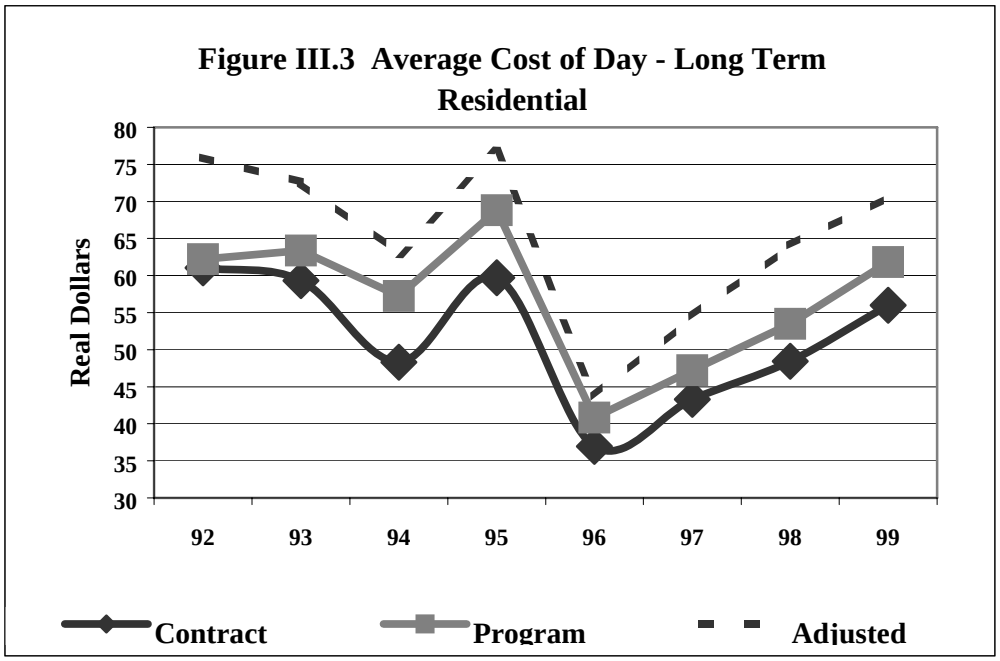


Table III.3
Cost of Long Term Residential Care

A. Service Utilization	1992	1993	1994	1995	1996	1997	1998	1999
Consumer Price Index, 82-84=100	196.6	211.6	223.9	232.5	242.2	247.8	254.8	264.8
Consumer Price Index, 1992=100*	100.0	107.6	113.9	118.3	123.2	126.0	129.6	134.7
Annual Per Cent Change	-	7.6%	5.8%	3.8%	4.2%	2.3%	2.8%	3.9%
Average days per episode per year	85	98.7	92.8	85	103.2	110.1	83	72.4
Average days per episode	99	109	81	100	133	147	118	94
# of episodes	250	317	330	309	429	333	391	411
# of unique clients	235	298	306	283	341	298	362	378
B. Contractual Costs								
Contract Amount - Nominal	1,037,637	1,436,785	1,452,392	1,548,628	1,581,907	1,654,429	1,792,391	1,921,102
Average cost per day	49	46	47	59	36	45	55	65
Average cost per day - 1992 $	49	43	42	50	29	36	43	48
% Change Cost Per Day - 1992 $	-	-12.6%	-2.4%	19.7%	-41.8%	23.4%	19.0%	12.5%
Average cost per episode	4,834	5,005	3,842	5,896	4,752	6,633	6,517	6,069
Average cost per episode - 1992 $	4,834	4,651	3,373	4,986	3,857	5,263	5,029	4,506
% Change Average 1992 $ Cost	-	-3.8%	-27.5%	47.8%	-22.6%	36.4%	-4.5%	-10.4%
Average cost per unique client	4,415	4,821	4,746	5,472	4,639	5,552	4,951	5,082
Average cost per unique client - 1992 $	4,415	4,480	4,168	4,627	3,766	4,405	3,820	3,773
% Change cost per unique client - 1992 $	-	1.5%	-7.0%	11.0%	-18.6%	17.0%	-13.3%	-1.2%
C. Provider Program Costs								
Program Amount (nominal)	1,057,637	1,534,856	1,721,760	1,784,949	1,748,664	1,804,354	1,979,014	2,121,726
Average cost per day	50	49	56	68	39	49	61	71
Average cost per day - 1992 $	50	46	49	57	32	39	47	53
% Change Cost Per Day - 1992 $	-	-8.4%	8.3%	16.4%	-44.2%	21.8%	20.5%	12.5%
Average cost per episode	4,927	5,347	4,554	6,796	5,253	7,234	7,196	6,702
Average cost per episode - 1992 $	4,927	4,968	3,999	5,747	4,264	5,740	5,552	4,976
% Change Average 1992 $ Cost	-	0.8%	-19.5%	43.7%	-25.8%	34.6%	-3.3%	-10.4%
Average cost per unique client	4,501	5,151	5,627	6,307	5,128	6,055	5,467	5,613
Average cost per unique client - 1992 $	4,501	4,785	4,941	5,333	4,163	4,804	4,218	4,167
% Change cost per unique client - 1992 $	-	6.3%	3.2%	7.9%	-22.0%	15.4%	-12.2%	-1.2%

Table III.3 cont.

D. Total Program Financial Cost (Program Costs Plus Overhead Allocation)								
Program Amount + Overhead (nominal)	1,290,635	1,758,250	1,891,267	1,992,943	1,869,593	2,080,421	2,370,786	2,423,979
Average cost per day	61	56	62	76	42	57	73	81
Average cost per day - 1992 $	61	52	54	64	34	45	56	60
% Change Cost Per Day - 1992 $	-	-14.0%	3.9%	18.3%	-46.6%	31.3%	25.2%	7.3%
Average cost per episode	6,013	6,125	5,002	7,588	5,616	8,341	8,620	7,657
Average cost per episode - 1992 $	6013	5691	4392	6416	4559	6618	6651	5685
% Change Average 1992 $ Cost	-	-5.4%	-22.8%	46.1%	-28.9%	45.2%	0.5%	-14.5%
Average cost per unique client	5,492	5,900	6,181	7,042	5,483	6,981	6,549	6,413
Average cost per unique client - 1992 $	5,492	5,482	5,427	5,955	4,450	5,539	5,053	4,761
% Change cost per unique client - 1992 $	-	-0.2%	-1.0%	9.7%	-25.3%	24.5%	-8.8%	-5.8%

**CPI-All Urban consumers, Medical Care, Phil-Wilmington-Atlantic City, PA NJ*
Source: Health Services Policy Research Group, University of Delaware, 2001

4. COST ESTIMATION OF OUTPATIENT CARE AND INTENSIVE CASE MANAGEMENT

Cost estimates have been prepared for three outpatient care services. They are "traditional" outpatient care (OC) that involves counseling encounters, methadone maintenance (MM) that entails the dispensing of methadone to opiate addicted persons as well as counseling, and intensive case management (ICM) that encompasses intensive amounts of therapy for clients within a treatment period. For each modality, costs have been estimated for two cost measures: cost per episode and cost per patient/client. (The cost per service unit is the service charge paid by DADAMH, which may or not be sufficient to cover provider costs of service).

The cost estimates of outpatient care and intensive case management have been calculated in the same basic way using the unit of service charges and the number of encounter sessions. The cost estimation involves the following financial characteristics and considerations.

1. The contract amounts only indicate the maximum limit of provider compensation (or revenues) that could be received from the provision of services to approved DADAMH clients within a fiscal year.
2. Outpatient client receive services while enrolled for an episode of treatment, i.e., a period covering an admission until a discharge.
3. Clients who are enrolled receive services at a counseling session known as an encounter.
4. At an encounter, a client could receive one of several types of counseling.
5. For each type of counseling, there are units of service, generally encompassing an hour session.
6. DADAMH stipulates a schedule of charges for each type of counseling.
7. For each type of service unit received by a client DADAMH pays the provider remuneration on a periodic basis (e.g., monthly) based on the number and type of services (counseling sessions) provided to a client.
8. These charges and units of service are shown presented on the Table III.4.

The calculation of the cost measures entailed the following steps.

1. Encounter data of client outpatient service utilization, based on the billing records (described above), were compiled for each fiscal year.
2. For each fiscal year, records of service utilization for the two outpatient modalities were segmented.
3. The data was further separated according to individual clients enrolled in a particular modality.
4. The different types of counseling sessions/encounters and the number of service units (counseling) consumed by each client within the selected modality were determined, irrespective of the number of episodes that a client experienced in the selected modality within a year.

5. Then the number of service units for each type of counseling was multiplied the value of the DADAMH service charge for that type of counseling to obtain the total cost of services for the client receiving service through the selected modality.
6. The separate estimates of the total costs of services for each client were added to produce total costs incurred by all clients enrolled in the selected modality within a year.
7. This total cost is the total cost of episodes for a modality.
8. Two cost measures were calculated using total cost of episodes.
    - The total cost of episodes of a modality was divided by the number of client episodes that occurred within the modality to obtain the average cost per episode.
    - The total cost of episodes of a modality was divided by the number of clients who received services within the modality to obtain the average cost per client.
9. These two cost measures in nominal dollars were then adjusted for inflation to ascertain real costs.

5. CHARGES FOR UNITS OF SERVICE

Table III.4 presents the charges that DADAMH pays to providers for various counseling session/encounters that are delivered to approved clients. The charges allowed for services have not increased very much in nominal dollars between 1992 and 1999. While the real value of service charges is the same (or nearly so) in 1992 and 1999, as attested to by the figure in columns 9 and 10, service charges have not kept pace with inflation over the 8 years. In those years, the (nominal) value of compensation received by provider for the different service units were inadequate to cover the price increases that providers incurred to produce the various counseling services. This fall in real costs for providers could have had substantial financial impact on them, given the number of sessions/encounters in an episode and number of clients involved in these outpatient service modalities.

TABLE III.4
Rates Per Hour for Types of Counseling

1 Fiscal Year	2 Individual	3 Group	4 Family	5 Case Management	6 Education	7 Evaluation	8 CPI, Base=92	9 Indiv., Family, Case Mgmnt & Evaluat. Rates, 92 $'s	10 Group & Education Rates, 92 $'s
1992	42	10	42	42	10	42	100.0	42	10
1993	42	10	42	42	10	42	107.6	39	9
1994	42	10	42	42	10	42	113.9	37	9
1995	45	10	45	45	10	45	118.3	38	8
1996	46.4	10	46.4	46.4	10	46.4	123.2	38	8
1997	46.4	10	46.4	46.4	10	46.4	126.0	37	8
1998	46.4	10	46.4	46.4	10	46.4	129.6	36	8
1999	55	13	60	55	13	55	134.7	41	10

Source: DADAMH provider contracts 1992-1999; Health Services Policy Research Group, University of Delaware, 2001

Figure III.4a Individual, Family, Case Mgment & Evaluation Rates

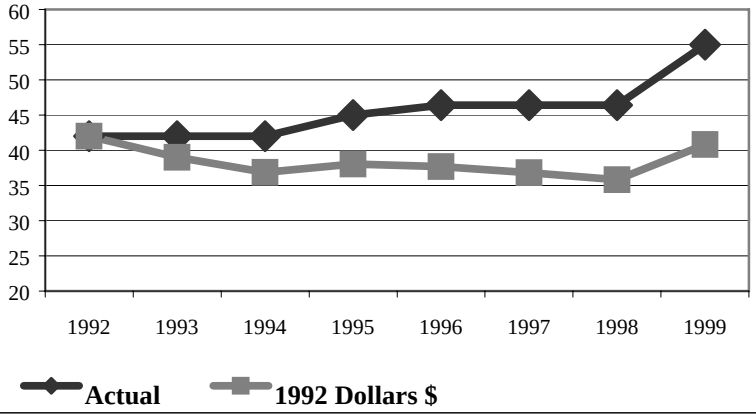
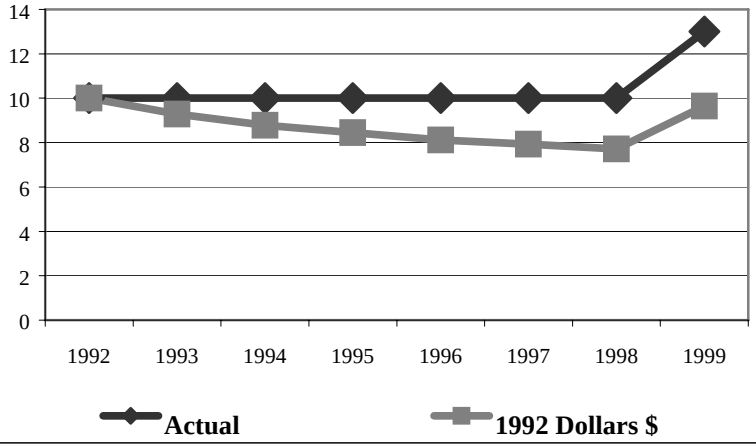


Figure III.4b Group and Education Rates



6. COSTS OF OUTPATIENT CARE

Table III.5 presents a history of encounter utilization and costs for outpatient care counseling between 1993 and 1999.

- Over this 7-year period (see section A), outpatient encounters have been characterized mainly by individual counseling and secondarily by family counseling. Family counseling has not been utilized in 1998 and 1999.
- In nominal dollars of total program financial costs, cost per episode (see section C) increased from 1993 to 1995 but then fell precipitously in 1996; thereafter costs has risen steadily on an annual basis to $433 in 1999.
- Real costs per episode follows the same pattern as nominal dollar cost, but the real costs has grown and, except for 1996, has been significantly above the initial 1992 level.
- Cost per client parallels cost per episode.
- Although the rates for counseling services declined in real terms between 1992 and 1999 (see Table III.4), what might account for the general rise in cost per episode and cost per client is that, except individual counseling, the average number of hours for counseling per episode has increased for all types of client counseling.

Figure III.5 Average Cost of Episode - Outpatient

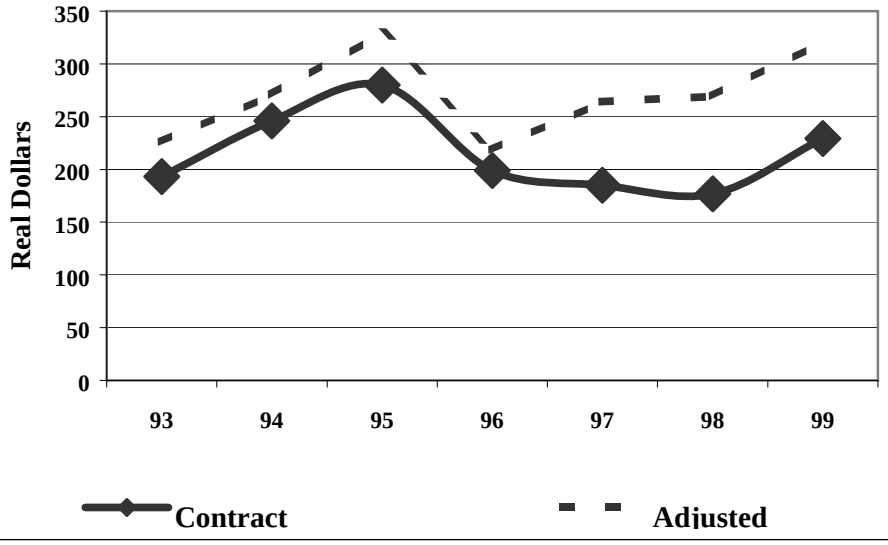


Table III.5
Cost of Outpatient Counseling

A. Encounter Utilization	1993	1994	1995	1996	1997	1998	1999
Consumer Price Index, 82-84=100	211.6	223.9	232.5	242.2	247.8	254.8	264.8
Consumer Price Index, 1992=100*	107.6	113.9	118.3	123.2	126.0	129.6	134.7
Annual Per Cent Change	-	5.8%	3.8%	4.2%	2.3%	2.8%	3.9%
Avg. Total Counseling Hours Per Episode	5.8	7.5	8.6	6.8	6.5	6.9	7.3
Avg. Individual Counseling Hours Per Episode	4.1	6.0	6.4	4.5	4.4	4.1	4.9
Avg. Family Counseling Hours Per Episode	0.2	0.3	0.3	0.2	0.1	0.0	0.0
Avg. Group Counseling Hours Per Episode	1.2	1.1	1.5	1.9	1.8	2.3	1.5
Avg. Evaluation Hours Per Episode	0.1	0.1	0.1	0.1	0.2	0.3	0.2
Avg. Education Hours Per Episode	0.0	0.0	0.0	0.0	0.1	0.2	0.7
Avg. Case Management Hours Per Episode	0.3	0.0	0.2	0.2	0.0	0.0	0.0
# of episodes	1,963	1,696	2,000	2,278	2,209	2,717	3,290
# of unique clients	1,655	1,490	1,888	2,043	2,025	2,493	3,032
B. Contract Costs							
Average Cost Per Episode	$208	$280	$331	$245	$233	$229	$309
Average Cost Per Episode - 1992 $	$193	$246	$280	$199	$185	$177	$229
% Change Cost Per Episode - 1992 $	-	27%	14%	-29%	-7%	-4%	30%
Average Cost Per Unique Client	$247	$319	$351	$273	$254	$250	$335
Average Cost Per Unique Client - 1992 $	$229	$280	$296	$222	$202	$193	$249
% Change cost per unique client - 1992 $	-	22%	6%	-25%	-9%	-5%	29%
C. Total Financial Costs: (Provider Program Costs Plus Overhead Allocation)							
Average Cost Per Episode	$243	$308	$390	$269	$333	$349	$433
Average Cost Per Episode - 1992 $	$226	$271	$330	$218	$264	$269	$322
% Change Cost Per Episode - 1992 $	-	20%	22%	-34%	21%	2%	19%
Average Cost Per Unique Client	$288	$351	$413	$300	$363	$380	$470
Average Cost Per Unique Client - 1992 $	$268	$308	$349	$244	$288	$294	$349
% Change cost per unique client - 1992 $	-	15%	13%	-30%	18%	2%	19%

**CPI-All Urban Consumers, Medical Care, Phil-Wilmington-Atlantic city, PA NJ*
Source: Health Services Policy Research Group, University of Delaware, 2001

7. COSTS OF INTENSIVE CASE MANAGEMENT

Table III.6 shows encounter utilization and costs for intensive case management counseling between 1993 and 1997. Intensive case management is being phased out and only 40 clients were enrolled in 1999. Many of these ICM clients were persistently and severely ill (PSI) and have been enrolled in the Continuous Team Treatment (CTT) modality in 1998 and 1999, which has been discontinued and the PSI clients are to be transferred into Long-term Care.

Figure III.6 Average Cost of Episode - Intensive Case Management

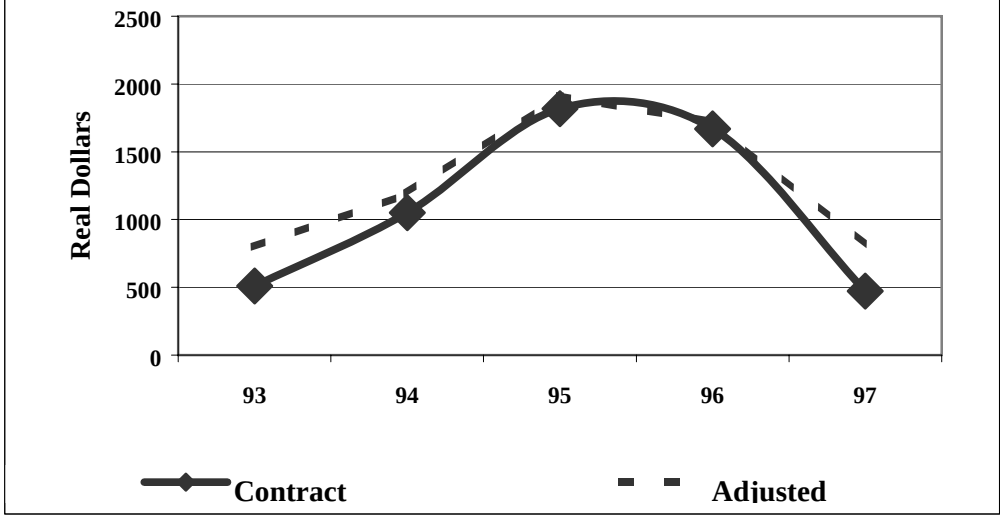


Table III.6
Costs of Intensive Case Management

A. Service Utilization	1993	1994	1995	1996	1997
Consumer Price Index, 82-84=100	211.6	223.9	232.5	242.2	247.8
Consumer Price Index, 1992=100*	107.6	113.9	118.3	123.2	126.0
Annual Per Cent Change	-	5.8%	3.8%	4.2%	2.3%
Avg. Total Counseling Hours Per Episode	12.4	25.1	40.4	36.3	11.5
Avg. Individual Counseling Hours Per Episode	0.6	0.3	14.2	13.0	6.2
Avg. Family Counseling Hours Per Episode	0.0	0.0	0.1	0.2	0.0
Avg. Group Counseling Hours Per Episode	0.3	0.1	0.0	0.4	0.6
Avg. Evaluation Hours Per Episode	0.0	0.0	0.0	0.0	0.0
Avg. Education Hours Per Episode	0.0	0.0	0.0	0.0	0.8
Avg. Case Management Hours Per Episode	11.5	24.7	26.1	22.7	3.8
# of episodes	623	984	582	456	267
# of unique clients	566	909	554	423	247
B. Contractual Costs					
Average Cost Per Episode	$510	$1,051	$1,817	$1,670	$471
Average Cost Per Episode - 1992 $	$474	$923	$1,537	$1,355	$374
% Change Cost Per Episode - 1992 $	-	95%	66%	-12%	-72%
Average Cost Per Unique Client	$562	$1,138	$1,909	$1,800	$509
Average Cost Per Unique Client - 1992 $	$522	$999	$1,614	$1,461	$404
% Change cost per unique client - 1992 $	-	91%	62%	-9%	-72%
C. Total Program Financial Costs: (Program Costs Plus Overhead Allocation)					
Average Cost Per Episode	$797	$1,193	$1,912	$1,720	$804
Average Cost Per Episode - 1992 $	$740	$1,047	$1,617	$1,396	$638
% Change Cost Per Episode - 1992 $	-	41%	54%	-14%	-54%
Average Cost Per Unique Client	$877	$1,291	$2,009	$1,854	$869
Average Cost Per Unique Client - 1992 $	$815	$1,134	$1,699	$1,505	$690
% Change cost per unique client - 1992 $	-	39%	50%	-11%	-54%

**CPI-All Urban Consumers, Medical Care, Phil-Wilmington-Atlantic city, PA NJ*
Source: Health Policy research Group, University of Delaware, 2001

8. COSTS OF METHADONE MAINTENANCE

Cost estimation of methadone maintenance involved the following financial considerations and computations.

1. The contract amounts only indicate the maximum limit of provider compensation (or revenues) that could be received from the provision of methadone services to approved DADAMH clients within a fiscal year.
2. Methadone maintenance clients receive services while enrolled for a treatment episode, i.e., a period covering an admission until a discharge.
3. Clients who are enrolled receive methadone dosage on a daily basis, as well as counseling and evaluation sessions known as encounters.
4. For DADAMH client, the clients pay for the methadone dosages, but encounters are paid for by DADAMH on the basis of a slot rate. That is, DADAMH pays for a slot or position that is filled by a client who receives treatment.
5. The payment received by a provider is made monthly based upon the number of slots that have been filled. (The typical contract stipulation has been that the DADAMH slot payment rate is applicable as long as the provider fills 90% of the slots each month).
6. These charges for a slot are shown presented on the Table III.7.
7. A client in a slot receives services in the form of counseling and/or evaluation based upon the provider's determination of a client's need.
8. DADAMH pays the agreed upon slot rate for each client irrespective of the amount and type counseling and evaluation received by the client. In effect, slot rate is a cost reimbursement and capitation approach to provider remuneration.
9. The cost measures are based upon the slot rates and the number of clients in the slots, with each time a client had an episode counted as a separate filled slot.
10. The number of occupied slots was merely multiplied by the DADAMH slot price per month and then by 12 to obtain the total annual costs of methadone maintenance.
11. This total cost is the total cost of episodes for methadone maintenance.
12. Two cost measures were calculated using total cost of episodes.
13. The total cost of episodes of methadone maintenance.
    - This total cost is the total cost of episodes for methadone maintenance was divided by the number of client episodes that occurred to obtain the <u>average cost per episode</u>.
    - The total cost of episodes of methadone maintenance was divided by the number of clients who received services to obtain the <u>average cost per client</u>.
14. These two cost measures in nominal dollars were then adjusted for inflation to ascertain real costs.

Tables III.7 through III.9 present various dimensions of utilization and cost of methadone maintenance.

- Table III.7 indicates that encounter sessions have been heavily dominated by individual counseling rather than all other types of counseling, which have rarely been employed.
- Evaluation is the second most important use of encounters.
- Table III.8 provides a review of the slot rates for the methadone maintenance programs. Rates1 and 2 represent different providers. For both of them, the nominal and real values of slot rates have declined considerably between 1992 and 1997. However, in 1998 and 1999 a substantial increase in rates did occur.
- The costs per episode and the cost per client correspond to the slot rate behavior.
- Between 1992 both nominal and real costs of episode and client dropped annually and then rose very greatly in 1998 and 1999.

Figure III.8 Methadone Monthly Slot Rates

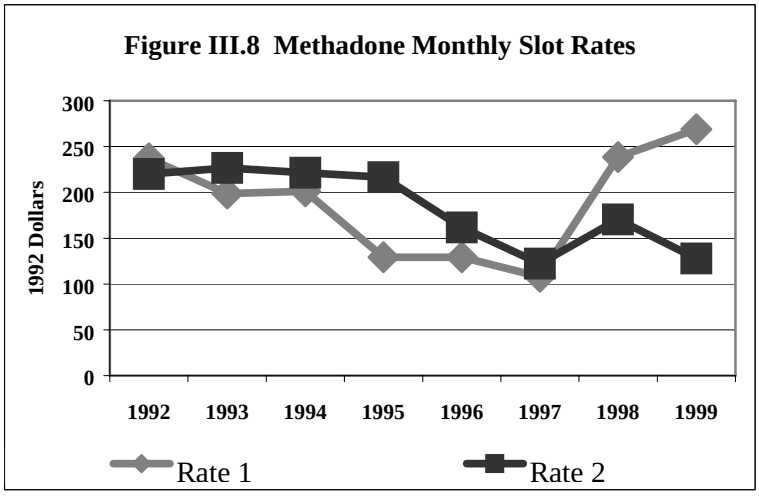


Figure III.9 Average Cost Per Episode - Methadone Program

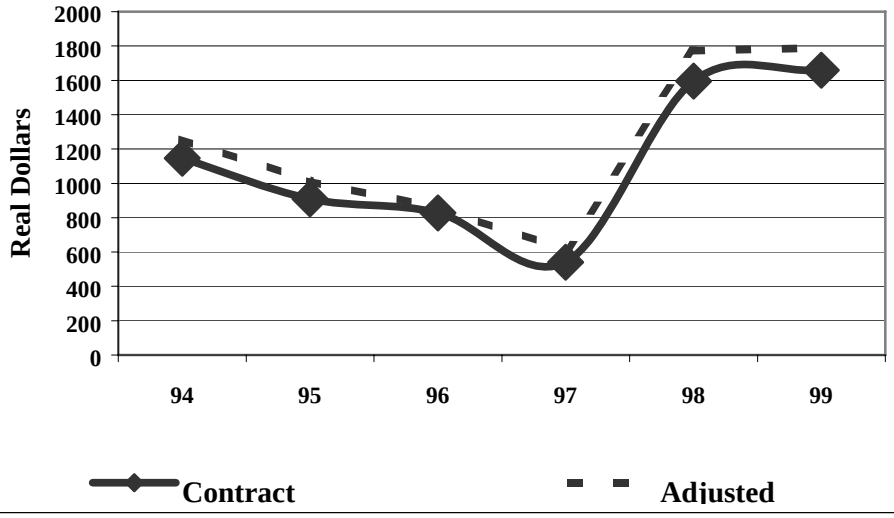


TABLE III.7
Counseling Sessions (Encounters)

Fiscal Year	Average Hours Per Episode during Fiscal Year						
	Case Management	Education	Evaluation	Family	Group	Individual	Total Hours
Methadone - Hours							
93	0.0	0.0	0.2	0.0	0.0	7.8	8.0
94	0.0	0.0	0.3	0.0	0.0	9.9	10.2
95	0.0	0.0	0.4	0.1	0.1	11.3	12.0
96	0.0	0.0	0.2	0.0	0.0	12.8	13.1
97	0.0	0.0	0.3	0.0	0.0	7.3	7.7
98	0.0	0.0	0.1	0.1	0.0	9.1	9.3
99	not avail	not avail	not avail	not avail	not avail	not avail	not avail

Source: Health Services Policy Research Group, University of Delaware, 2001

TABLE III.8
Methadone Monthly Slot Rates

Methadone	1992	1993	1994	1995	1996	1997	1998	1999
Consumer Price Index, 82-84=100	196.6	211.6	223.9	232.5	242.2	247.8	254.8	264.8
Consumer Price Index, 1992=100*	100.0	107.6	113.9	118.3	123.2	126.0	129.6	134.7
Annual Per Cent Change	-	7.6%	5.8%	3.8%	4.2%	2.3%	2.8%	3.9%
Rate 1	212	214	229	153	159	136	309	362
Rate 1 - 1992 $	237	199	201	129	129	108	238	269
% Change - 1992 $	-	-38%	2%	-72%	0%	-21%	131%	30%
Rate 2	200	244	252	256	199	154	221	172
Rate 2 - 1992 $	220	227	221	216	162	122	171	128
% Change - 1992 $	-	7%	-5%	-5%	-55%	-39%	48%	-43%
Average of Two Rates	208	222	235	170	168	140	293	328
Average of Two Rates - 1992 $	208	206	206	144	136	111	226	243
% Change - Rate Averages 1992 $	-	-2%	0%	-62%	-8%	-25%	115%	17%

Source: Health Services Policy Research Group, University of Delaware, 2001

TABLE III.9
Cost of Methadone

A. Service Utilization	1992	1993	1994	1995	1996	1997	1998	1999
Consumer Price Index, 82-84=100	196.6	211.6	223.9	232.5	242.2	247.8	254.8	264.8
Consumer Price Index, 1992=100*	100.0	107.6	113.9	118.3	123.2	126.0	129.6	134.7
Annual Per Cent Change	-	7.6%	5.8%	3.8%	4.2%	2.3%	2.8%	3.9%
Average months per episode per year	8.2	9.0	5.6	6.3	6.1	4.9	7.1	6.8
# of episodes	35	71	289	448	630	894	1,112	1,282
# of unique clients	35	71	259	413	513	642	817	994
B. Contractual Costs								
Average cost per month	$208	$222	$235	$170	$168	$140	$293	$328
Average cost per episode	$1,697	$1,992	$1,305	$1,075	$1,019	$681	$2,068	$2,234
Average cost per episode - 1992 $	$1,697	$1,851	$1,146	$909	$827	$541	$1,596	$1,659
% Change Average 1992 $ Cost	-	9.1%	-38.1%	-20.7%	-9.0%	-34.7%	195.1%	4.0%
Average cost per unique client	$1,697	$1,992	$1,456	$1,166	$1,252	$949	$2,815	$2,882
Average cost per unique client - 1992 $	$1,697	$1,851	$1,278	$986	$1,016	$753	$2,172	$2,140
% Change cost per unique client - 1992 $	-	9.1%	-30.9%	-22.9%	3.1%	-25.9%	188.5%	-1.5%
C: Total Program financial Costs: (Contractual Cost Plus Overhead Allocation)**								
Average cost per month	$486	$294	$258	$190	$174	$158	$326	$354
Average cost per episode	$3,958	$2,635	$1,431	$1,197	$1,057	$770	$2,296	$2,411
Average cost per episode - 1992 $	$3,958	$2,448	$1,257	$1,012	$858	$611	$1,772	$1,790
% Change Average 1992 $ Cost	-	9.1%	-38.1%	-20.7%	-9.0%	-34.7%	195.1%	4.0%
Average cost per unique client	$486	$294	$288	$206	$214	$221	$443	$456
Average cost per unique client - 1992 $	$486	$273	$253	$174	$173	$175	$342	$339
% Change cost per unique client - 1992 $	-	-43.8%	-7.4%	-31.1%	-0.4%	1.0%	95.3%	-0.9%

**CPI-All Urban consumers, Medical Care, Phil-Wilmington-Atlantic City, PA NJ*

Source: Health Services Policy Research Group, University of Delaware, 2001

***Overhead allocation is based on the total contracted amount in the fiscal year. Because all slots were not reported in 1992 and 1993, the difference between the contract average cost per episode and the contract plus overhead average cost is large.*

Capitation Costs (PMPM)

Tables III.10 through III.11 present the per member per month (PMPM) capitation costs for several classes of clients. The classes are: (a) gender (men and women), (b) age (18-34 and 35 and above), (c) pregnant women, (d) TASC (Treatment Alternative to Street Crime), (e) alcohol versus drug abuse as primary diagnosis, and (f) different types of drugs. Clients enrolled only in detoxification services, and CTT and ICM clients have been excluded.

APPENDIX

DETERMINATION OF DADAMH OVERHEAD (OVH)

1. Allocation of Department of Health and Human Services (DHSS) administrative expenditures to DADAMH administrative expenditures

   A. DHSS overhead rate = DADAMH total expenditures/DHSS total expenditures
   B. Allocated DHSS administrative expenditures to DADAMH = DHSS overhead rate * DHSS total administrative expenditures

2. Determination of Total DADAMH Overhead

   A. Total DADAMH overhead = DADAMH administrative expenditures + allocated DHSS administrative services

3. Allocation of Total DADAMH overhead to Drug and Alcohol Expenditures

   A. Drug and Alcohol Expenditure overhead rate = Expenditures on Drug and Alcohol Services / Total DADAMH Expenditures (on Drugs and Alcohol, and Mental Health).
   B. Total Drug and Alcohol Expenditures = Drug and Alcohol Expenditure overhead rate * DADAMH total overhead (See Step 2).

4. Removal of Treatment and Prevention Contract Moneys

   A. Drug and Alcohol expenditures less contract moneys for both treatment and prevention.

5. Adjust for Prevention and separate out overhead for prevention

   TX $/ Total Contracts (TX AND PREV) = TXOVH

   OVH = TXOVH * DAASOVH

6. Allocate OVH among treatment programs

   OVH * (PROGx/PROGt) = individual program overhead

TABLE APP. 1
Detoxification: Average Cost Per Day by Gender, Race, Age, Primary Diagnosis, and Provider

Contract Cost - Nominal Dollars								
Detoxification	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Average days per episode	4.8	4.4	4.5	4.1	4.3	4.3	4.2	3.9
Average cost per day - All Clients	136	160	173	175	163	239	203	209
Average cost per episode - All Clients	653	706	777	719	700	1,029	851	815
Gender - Males								
avg. days per episode	4.8	4.5	4.6	4.2	4.3	4.3	4.2	3.9
Average cost per episode	653	722	794	737	700	1,029	851	815
Gender - Females								
avg. days per episode	4.8	4.1	4.3	4	4.2	4.1	4.1	3.9
Average cost per episode	653	658	742	702	684	981	830	815
Race - Caucasian								
avg. days per episode	4.4	4.3	4.4	4	4.3	4.3	4.1	3.8
Average cost per episode	599	690	759	702	700	1,029	830	794
Race - Minority								
avg. days per episode	5.2	4.6	4.7	4.3	4.3	4.2	4.3	4
Average cost per episode	708	738	811	754	700	1,005	871	836
Age: 18-34								
avg. days per episode	4.7	4.1	4.8	4	4.1	4	3.9	3.5
Average cost per episode	640	658	828	702	668	957	790	731
Age: 35 and over								
avg. days per episode	4.9	5.1	4.7	4.2	4.4	4.6	4.6	4.2
Average cost per episode	667	818	811	737	716	1,101	932	878
Primary Diagnosis: Alcohol								
avg. days per episode	4.7	4.4	4.5	4.1	4.4	4.7	4.7	4.2
Average cost per episode	640	706	777	719	716	1,125	952	878
Primary Diagnosis: Drugs								
avg. days per episode	5	4.5	4.6	4.1	4.1	4	3.9	3.7
Average cost per episode	680	722	794	719	668	957	790	773
Primary Diagnosis: Crack								
avg. days per episode	-	4.9	5.3	5.3	4.9	4.7	4.9	4.4
Average cost per episode	-	786	915	930	798	1,125	992	920
Primary Diagnosis: Heroin								
avg. days per episode	4.3	3.6	3.8	3.3	3.6	3.6	3.5	3.3
Average cost per episode	585	578	656	579	586	861	709	690
Provider: 75002401								
avg. days per episode	4.9	4.6	5.2	5.2	4.8	4.7	4.8	4.5
Average cost per day (contract)*	126	270	257	197	164	213	224	220
Average cost per episode (contract)	618	1,242	1,335	1,023	787	999	1,077	990
Provider: 10002201								
avg. days per episode	4.5	4.3	4.1	3.7	4	4	3.8	3.5
Average cost per day (contract)	140	128	144	166	162	255	194	200
Average cost per episode (contract)	630	552	591	615	647	1,019	736	698
Average cost per day (program)	94	112	116	126	117	186	147	139
Average cost per episode (program)	424	480	474	468	469	743	557	487

**Average cost per episode (program) is the same as Average cost per episode (contract) for provider 75002401.*

Source: Health Services Policy Research Group, University of Delaware, 2001.

Figure App. 1 Cost of Detoxification by Age Group

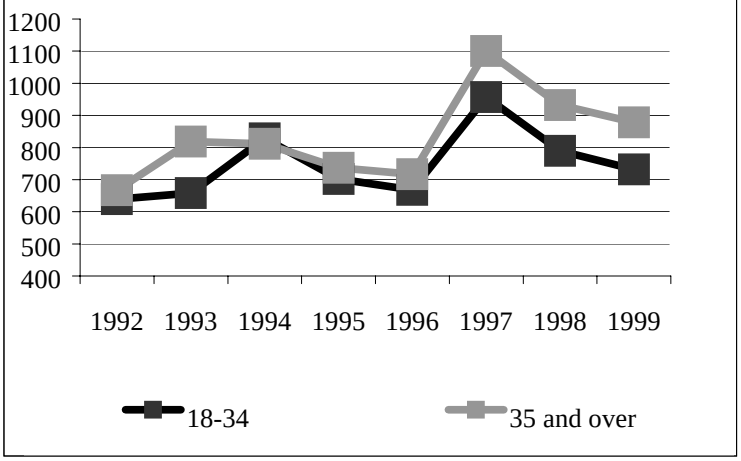


TABLE APP 2
Short Term Residential: Average cost Per Day by Gender, Race, Age, Primary Diagnosis, and Provider

Contract Cost - Nominal Dollars								
Short Term Residential	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Average days per episode	24.6	24.2	23.4	20.1	20.2	22.5	31.9	31.4
Average cost per day - All Clients	79	72	89	81	82	72	135	147
Average cost per episode - All Clients	1,952	1,751	2,073	1,636	1,651	1,618	4,322	4,614
Gender - Males								
avg. days per episode	24.8	24.3	23.8	20.5	20.9	22.7	32.3	32.3
Average cost per episode	1,968	1,758	2,108	1,668	1,708	1,633	4,376	4,746
Gender - Females								
avg. days per episode	24	23.9	22.7	18.9	18.3	21.9	30.6	29.3
Average cost per episode	1,905	1,729	2,011	1,538	1,495	1,575	4,146	4,305
Race - Caucasian								
avg. days per episode	23.9	23.8	23.5	19.5	20	22.6	32.4	32.9
Average cost per episode	1,897	1,722	2,082	1,587	1,634	1,626	4,390	4,834
Race - Minority								
avg. days per episode	25.4	24.7	23.4	20.8	20.5	22.2	30.8	29.2
Average cost per episode	2,016	1,787	2,073	1,693	1,675	1,597	4,173	4,291
Age: 18-34								
avg. days per episode	24	24.2	23	20.3	19	21.7	31.2	29.8
Average cost per episode	1,905	1,751	2,037	1,652	1,553	1,561	4,227	4,379
Age: 35 and over								
avg. days per episode	25.7	24.1	24.4	19.7	21.5	23.5	32	32.8
Average cost per episode	2,039	1,744	2,161	1,603	1,757	1,690	4,336	4,820
Primary Diagnosis: Alcohol								
avg. days per episode	24	23.4	23.8	20.8	20.7	23.3	32	34.6
Average cost per episode	1,905	1,693	2,108	1,693	1,691	1,676	4,336	5,084
Primary Diagnosis: Drugs								
avg. days per episode	31.8	27.2	22.6	19.4	19.7	21.8	31.8	29.8
Average cost per episode	2,524	1,968	2,002	1,579	1,610	1,568	4,309	4,379
Primary Diagnosis: Crack								
avg. days per episode	-	-	26.7	20	18.7	22.8	28.7	31.2
Average cost per episode	-	-	2,365	1,628	1,528	1,640	3,888	4,584
Primary Diagnosis: Heroin								
avg. days per episode	-	-	25.8	25.1	20.9	21.8	35.7	30.7
Average cost per episode	-	-	2,285	2,043	1,708	1,568	4,837	4,511

Source: Health Services Policy Research Group, University of Delaware, 2001

Figure App. 2 Cost of Short Term Residential, Drugs vs. Alcohol

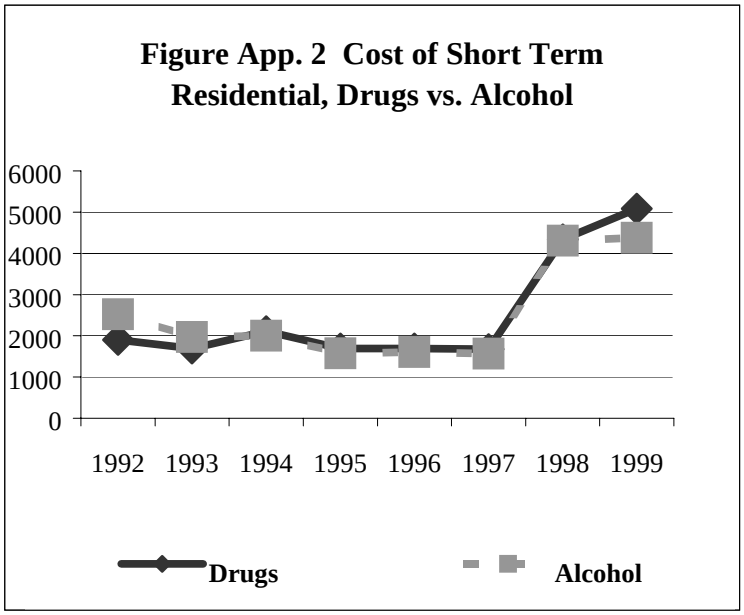


TABLE APP 3
Long Term Residential: Average Cost Per Day by Gender, Race, Age, Primary Diagnosis, and Provider

Contract Cost - Nominal Dollars								
Long Term Residential	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Average days per episode	99	109	81	100	133	147	118	94
Average cost per day - All Clients	61	64	55	71	46	55	63	75
Average cost per episode - All Clients	1,952	1,751	2,073	1,636	1,651	1,618	4,322	4,614
Gender - Males								
avg. days per episode	101.0	99.0	80.0	102.0	123.0	130.0	94.0	80.0
Average cost per episode	6,165	6,320	4,401	7,200	5,599	7,098	5,903	6,031
Gender - Females								
avg. days per episode	93	126	85	97	147	167	158	115
Average cost per episode	5,676	8,043	4,676	6,847	6,692	9,118	9,922	8,670
Race - Caucasian								
avg. days per episode	114	110	77	102	134	154	115	95
Average cost per episode	6,958	7,022	4,236	7,200	6,100	8,408	7,222	7,162
Race - Minority								
avg. days per episode	84	107	84	98	131	168	123	94
Average cost per episode	5,127	6,831	4,621	6,918	5,964	9,172	7,724	7,087
Age: 18-34								
avg. days per episode	139	124	89	106	130	157	140	118
Average cost per episode	8,484	7,916	4,896	7,482	5,918	8,572	8,791	8,896
Age: 35 and over								
avg. days per episode	80	99	78	97	135	138	104	79
Average cost per episode	4,883	6,320	4,291	6,847	6,146	7,534	6,531	5,956
Primary Diagnosis: Alcohol								
avg. days per episode	127	124	95	105	132	143	117	109
Average cost per episode	7,752	7,916	5,226	7,412	6,009	7,807	7,347	8,218
Primary Diagnosis: Drugs								
avg. days per episode	73	97	73	97	134	149	119	89
Average cost per episode	4,456	6,192	4,016	6,847	6,100	8,135	7,473	6,710
Primary Diagnosis: Crack								
avg. days per episode	-	164	66	114	157	138	150	133
Average cost per episode	-	10,469	3,631	8,047	7,147	7,534	9,419	10,027
Primary Diagnosis: Heroin								
avg. days per episode	104	112	98	95	94	104	86	76
Average cost per episode	6,348	7,150	5,391	6,706	4,279	5,678	5,400	5,730

Source: Health Services Policy Research Group, University of Delaware, 2001

Figure App. 3 Cost of Long Term Residential By Gender

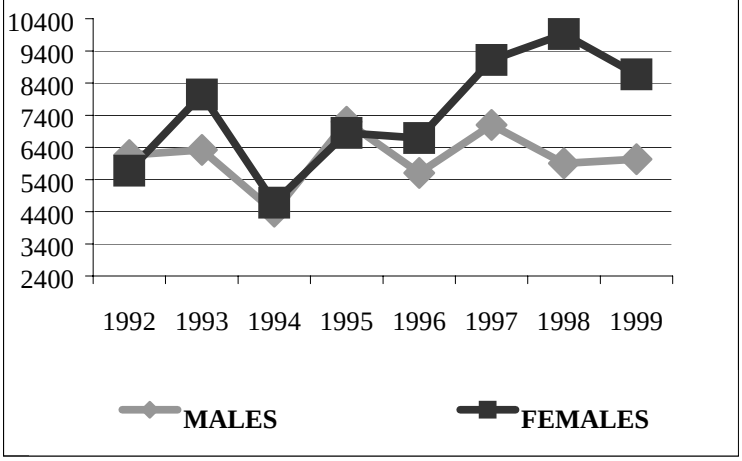


TABLE APP 4
Outpatient Counseling: Average Cost Per Day by Gender, Race, Age, Primary Diagnosis, and Provider

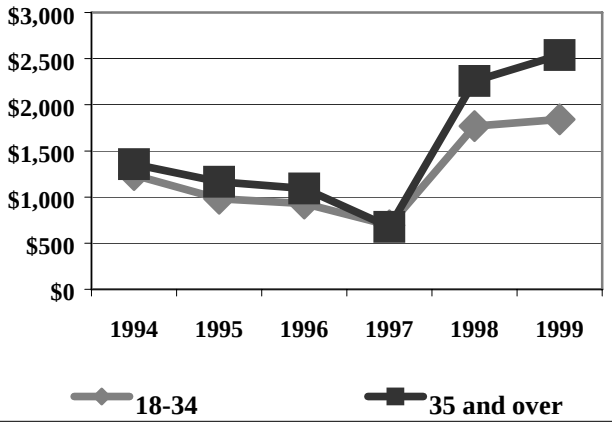
Contract Cost - Nominal Dollars								
Outpatient	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Average days per episode	233.2	240.2	188.9	190.2	201	193.6	194.5	177.8
Average cost per day - All Clients	4	3	4	6	6	7	6	7
Average cost per episode - All Clients	1,025	816	879	1,198	1,289	1,364	1,173	1,237
Gender - Males								
avg. days per episode	203.3	213.2	162.1	174.8	200.6	190.2	192.0	179.7
Average cost per episode	878	687	601	1,080	1,248	1,251	1,151	1,235
Gender - Females								
avg. days per episode	294.5	285.3	235.9	220.3	201.8	202.9	203.1	171.8
Average cost per episode	1,272	919	875	1,361	1,255	1,335	1,218	1,180
Race - Caucasian								
avg. days per episode	254.1	268.7	220.9	203.3	212.6	195.7	197.4	178.4
Average cost per episode	1,098	866	819	1,256	1,322	1,287	1,184	1,226
Race - Minority								
avg. days per episode	206.9	208.8	147.8	168.8	184.9	190.4	190.5	177
Average cost per episode	894	673	548	1,043	1,150	1,253	1,142	1,216
Age: 18-34								
avg. days per episode	210.1	226	177.7	176.4	196.5	183.4	187.8	176.6
Average cost per episode	908	728	659	1,090	1,222	1,207	1,126	1,213
Age: 35 and over								
avg. days per episode	274	261.8	204.1	208.7	206.7	207.4	205.2	179.7
Average cost per episode	1,184	843	757	1,289	1,286	1,364	1,231	1,235
Primary Diagnosis: Alcohol								
avg. days per episode	194.3	235	216.3	166.1	175.4	168.7	162	157.6
Average cost per episode	839	757	802	1,026	1,091	1,110	972	1,083
Primary Diagnosis: Drugs								
avg. days per episode	279	267.4	253.7	217.9	228.3	231.2	215.5	191.6
Average cost per episode	1,205	861	941	1,346	1,420	1,521	1,292	1,316
Primary Diagnosis: Crack								
avg. days per episode	-	176.5	143.1	139.1	198.9	173.6	163.5	146.6
Average cost per episode	-	569	531	859	1,237	1,142	980	1,007
Primary Diagnosis: Heroin								
avg. days per episode	432.9	299.2	202.4	276	267.6	265.6	347.4	305.7
Average cost per episode	1,870	964	751	1,705	1,665	1,747	2,083	2,100

Source: Health Services Policy Research Group, University of Delaware, 2001

TABLE APP 5
Methadone: Average Cost Per Day by Gender, Race, Age, Primary Diagnosis, and Provider

Contract Cost - Nominal Dollars						
Methadone	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Average months per episode per year	5.6	6.3	6.1	4.9	7.1	6.8
Average cost per month	$235	$170	$168	$140	$293	$328
Average cost per episode	$1,305	$1,075	$1,019	$681	$2,068	$2,234
Gender - Males						
Average months per episode per year	5.5	6.4	6.4	4.9	7.1	7.2
Average cost per episode	$1,300	$1,096	$1,068	$692	$2,093	$2,364
Gender - Females						
Average months per episode per year	5.6	6.1	5.6	4.8	6.9	6.1
Average cost per episode	$1,326	$1,046	$941	$679	$2,031	$2,001
Race - Caucasian						
Average months per episode per year	5.6	7.1	6.8	4.8	7.1	6.6
Average cost per episode	$1,313	$1,210	$1,147	$673	$2,080	$2,181
Race - Minority						
Average months per episode per year	5.6	5.7	5.6	4.9	7.1	7.0
Average cost per episode	$1,305	$971	$936	$692	$2,068	$2,305
Age: 18-34						
Average months per episode per year	5.3	5.8	5.5	4.9	6.0	5.6
Average cost per episode	$1,239	$981	$928	$692	$1,768	$1,842
Age: 35 and over						
Average months per episode per year	5.8	6.8	6.5	4.8	7.7	7.7
Average cost per episode	$1,355	$1,166	$1,092	$678	$2,257	$2,540

Figure App. 5. Methdone Expenditures Per Episode by Gender



References

American Psychiatric Association. 1987. The Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised.

Ball, J.C. and Ross. 1991. A The Effectiveness of Methadone Maintenance Treatment. New York: Springer-Verlag.

Berglund, G., Bergmark, A., Bjorling, B. Gronbladh, L. Lindberg, S. Oscarsson, L., Alsson, B., Segraeus, V. and Stensmo, C. 1991. The SWEDATE Project: Interaction Between Treatment, Client Background, and Outcome in a one-year Follow-up. Journal of Substance Abuse Treatment 8:161-169.

Buddle, D., Rounsavaille, B., and Bryant, K. 1992. Inpatient and Outpatient Cocaine Abusers: Clinical Comparisons at Intake and One-year Follow-up. Journal of Substance Abuse Treatment 9:337-342.

California Department of Alcohol and Drug Program, Evaluating Recovery Services: The California Drug and Alcohol Treatment Assessment (CALDATA). Sacramento: California Department of Alcohol and Drug Programs, 1994.

Cartwright, W. 1995. Substance Abuse Treatment Services, Managed Care, and Institutional Reform (Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, U.S. Debarment of Health and Human Services.

Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services, Forecasting Costs of Chemical Dependency Treatment Under Managed Care and Health Reform: The Washington State Study, (Working Draft), 1995.

Christianson, J. 1989. A Capitation of Mental Health Care in Public Programs, Advances In Health Economics and Health Service Research, 10:281-311.

Congressional Budget Office, Policy Choices for Long-term Care (Washington, D.C.: U.S. Government Printing Office, June 1991).

Congressional Budget Office, Restructuring Health Insurance For Medicare Enrollees (Washington, D.C.: U.S. Government Printing Office, August 1991).

Congressional Budget Office, Rising Health Care Costs: Causes, Implications, and Strategies (Washington, D.C.: Congress of the United States, Congressional Budget Offices, April 1991).

Congressional Budget Office, Selected Options for Expanding Health Insurance Coverage (Washington, D.C.: U.S. Government Printing Office, July 1991).

Feldstein, P. 1988. Health Care Economics, 3d ed. (New York: John Wiley & Sons.)

Freeman, R. and Shoulders, C. 1995. Governmental And Non-Profit Accounting: Theory and Practice, 5th ed., New Jersey: Prentice-Hall.

Folland, S., Goodman, A. and Stano, M. 1993. The Economics of Health and Health Care, New York: Macmillan Publishing Company.

French, M., Zarkin, G., Hubbard, R., and Rachal, J. 1993. The Effect of Time in Drug Abuse Treatment and Employment of Post Treatment Drug Use and Criminal Activity, American Journal of Drug and Alcohol Abuse 19:19-33.

Gelber, S. 1996. A Managed Care and Drug Abuse: Partnership or Peril? Connection, February.

Gerstin, D., and Harwood, H. 1990. Treating Drug Problems Vol. 1 Washington D.C.: National Academy Press.

Goodman, A., Holder, H., and Nishiura, E. 1991. "Alcoholism Treatment and Offset Effects: A Cost Model." Inquiry, Vol. 28.

Government Finance Officers Association, Governmental Accounting, Auditing and Financial Reporting, 1994.

Group for the Advancement of Psychiatry: Committee on Alcoholism and the Addictions. 1991. "Substance Abuse Disorders: A Psychiatric Priority." American Journal of Psychiatry, 148:10, October 1991.

Harrison, P., Hoffman, N., Gibbs, L. Holister, C. and Luxenberg, M. 1988. A Determinants of Chemical Dependency Treatment Placement: Clinical, Economic, and Logistic Factors. Psychotherapy 25: 356-364.

Harrison, P. 1995. Developing State Outcomes Monitoring Systems for Alcohol and Other Drug Abuse Treatment, Treatment Improvement Protocol (TIP) Series 14, Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

Harwood, H. and Rachal, J. 1985. "Social and Economic Costs of Alcohol Abuse and Alcoholism: Issues Report 2." Research Triangle Park, North Carolina: Research Triangle Institute.

Hatashida, M., Alterman, A., McLellan, A., O'Brien, C., Purtill, J., Volpicelli, J., Raphaelson, A., and Hall, C. 1989. "Comparative Effectiveness and Costs of Inpatient and Outpatient Detoxification of Patients with Mild-to-Moderate Alcohol Withdrawal Syndrome." The New England Journal of Medicine, Vol. 320, No. 6.

Hay, L. and Wilson, E. 1994. Accounting For Government and Non-Profit Entities, 10th ed., Chicago: Irwin Press.

Heien, D. and Pittman, D. 1993. "The External Costs of Alcohol Abuse." Journal of Studies on Alcohol. Vol. 54, No. 3. May 1993.

Hodgson, T. and Meiners, M. 1982. "Cost-of-Illness Methodology: A Guide to Current Practices and Procedures." Milbank Memorial Fund Quarterly, 60(3): 429-462.

Holder, H. 1987. "Alcoholism Treatment and Health Care Cost Savings, Medical Care 25, 52-71, 1987.

Holder, H. and Hallan, J. 1986. Impact of Alcoholism Treatment on Total Health Care Costs: A Six-Year Study, Advances in Alcoholism and Substance Abuse, 6:1-15,.

Holder, H. and Blose, J. 1991. "Typical Patterns and Cost of Alcoholism Treatment across a Variety of Populations and Providers". Alcoholism: Clinical and Experimental Research. Vol. 15, No. 2.

Holder, H., Longabaugh, R., Miller, W., and Rubonis, A. 1991. "The Cost Effectiveness of Treatment for Alcoholism: A First Approximation." Journal of Studies on Alcohol, Vol. 52, No. 6.

Hubbard, R. 1986. A Finding from DATOS Show Clients Receiving Less Drug Abuse Services, Connection, February.

Horngren, F. 1994. Cost Accounting: A Managerial Emphasis, 8th ed., New Jersey: Prentice-Hall.

Hyman, D. 1994. Public Finance: A Contemporary Application of Theory to Policy, 4th ed. (Fort Worth, Texas: The Dryden Press).

Jones, K. and Vischi, T. 1979. An Impact of Alcohol, Drug Abuse and Mental Health Treatment on Medical Care Utilization. Medical Care, 17(Suppl. 12)1-82.

Johnson, Bassin, & Shaw, Inc. 1994. A Study of Patient Service Costs in Selected Drug Abuse Treatment Sites, The Center for Substance Abuse Treatment, August.

Kushner, J. and Moss, S. 1995. Purchasing Managed Care Services for Alcohol and Other Drug Treatment: Essential Elements and Policy Issues, Technical Assistance Publication Series 16, Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

Levin, B., Glasser, J., and Jaffee, C. 1998. A National Trends in Coverage and Utilization of Mental Health, Alcohol, and Substance Abuse services within Managed Care, Systems, American Journal Of Public Health, 78(9): 1222-23.

Long, S. and Rogers, J. 1990. The Effects of Being Uninsured on Health Care Service Use: Estimates from the Survey of Income and Program Participation, Bureau of the Census, Sipp Working Paper #9012.

Luckey, J. 1987. Justifying Alcohol Treatment on the Basis Of Cost Savings: the Cost A Offset Literature. Alcohol and Health Research World 12(1):8-15.

McClellan, T., Meyers, K., Hogan, T., and Hubbard, R. 1996. Alcohol Data Supports National Trend of Decline In Substance Abuse Systems, Connection, February.

Phelps, C. 1992. Health Economics. New York: Harper Collins Publishers Inc.

Rand Corporation, Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment, Santa Monica, CA: 1988.

Rice, D., Kelman, S., Miller, L., Dunmeyer, S. 1990. The Economic Costs of Alcohol and Drug Abuse and Mental Illness: 1985. University of California, San Francisco, CA: Institute for Health and Aging.

Rosen, H. 1996. Public Finance, Irwin.

Solano, P. 1996. The Utilization and Costs of The Treatment of Drug and Alcohol Abuse In Delaware's State Program, Newark, Delaware: College of Urban Affairs and Public Policy, University of Delaware.

State of Delaware, Department of Health and Social Services. 1994. Delaware Vital Statistics Annual Report: 1992. Dover, DE: Bureau of Health Planning and Resources Management. State of Delaware, Department of Health and Social Services. Division of Social Services, Delaware State Health Plan, July 27, 1994.

State of Delaware, Department of Health and Social Services. Request For Proposals For Managed Care Organizations, 1995.

State of Delaware, Department of Health and Social Services and Division of Alcoholism, Drug Abuse and Mental Health. Behavioral Healthcare Performance Indicators for Managed Care Organizations, Version 1.0, 1996.

State of Delaware, Department of Health and Social Services. 1994. Delaware Vital Statistics Annual Report: 1992. Dover, DE: Bureau of Health Planning and Resources Management.

Strumwasser, I., Paranjpe, N., Udow, M., Share, D., Wisgerhof, M., Ronis, D., Bartzack, C., and Saad, A. 1991. "Appropriateness of Psychiatric and Substance Abuse Hospitalization: Implications for Payment and Utilization Management". Medical Care, Vol. 29, No. 8.

Votey, H. and Phillips, L. 1976. "Minimizing the Social Cost of Drug Abuse: An Economic Analysis of Alternatives for Policy". Policy Sciences, 7, 3, 315 - 336.