

III. SYSTEM PERSPECTIVE OF SERVICE UTILIZATION

This section considers a system view of substance abuse services utilized by clients. One, the overall size and scope of the State program is presented. Included under this rubric are (a) the magnitude and growth of the State program and (b) the clientele linkage between detoxification and treatment. Two, the scope of service utilization is evaluated: (a), total clientele by different modalities, (b) total clientele by inpatient and outpatient modalities, and (c) the clientele connections among modalities.

1. OVERALL SIZE AND SCOPE OF SERVICE UTILIZATION

A. Magnitude and Growth

There are at least two interrelated and overlapping issues regarding the overall magnitude and growth of substance abuse services delivered through the State program.

1. What is the overall size of the program, and how has it changed over time?
2. What social-economic forces and clientele factors account for the size of the program and change in its magnitude?

The first question is answered with the following table. The second question is a global one. In essence, it entails the determination of why individuals choose to enter treatment. The analysis would require investigation of complex relationships between social forces,-- e.g., crime, education,-- economic conditions and structure-- such as unemployment, poverty-- and demographic factors--family structure, social mores as well as the personal characteristics of individuals that influence the decisions to use or not to use alcohol and/or drugs, as well as economic and social bases for seeking treatment. Such an analysis is beyond the purpose of present report.

Tables III.1 presents the overall size of service utilization of the State program from FY92 to FY99. Size or magnitude is measured in terms of unique clients enrolled in the State program on annual basis irrespective of the number of their episodes within a year. Three perspectives of unique clients are shown: (a) the total number who received substance abuse services, (b) clients who received treatment services, and (c) and detoxification clients. Both the absolute number and relative change in these three perspectives over the time period are given. The total number of clients within the State program --designated as "ALL"--is less than the combined clients in both detoxification and treatment modalities because of the overlap of individuals who have been clients in both types of services within the same year. (This point is considered below).

Table III.1: Size and Growth of Service Utilization

Number of Unique Clients											
Fiscal Year	All	Treatment		Detox		All		Treatment		Detox	
		#	% of All	#	% of All	Index	% Chg.	Index	% Chg.	Index	% Chg.
1992	4,483	2,756	61%	2,170	48%	100	-	100	-	100	-
1993	4,106	2,584	63%	1,977	48%	92	-8%	94	-6%	91	-9%
1994	4,336	2,762	64%	2,023	47%	97	-3%	100	0%	93	-7
1995	4,558	3,021	66%	2,119	46%	102	2%	110	10%	98	-2
1996	4,720	3,118	66%	2,226	47%	105	5%	113	13%	103	3
1997	4,375	3,178	73%	1,801	41%	98	-2%	115	15%	83	-17%
1998	5,079	3,905	77%	1,854	37%	113	13%	142	42%	85	-15%
1999	5,969	4,580	77%	2,170	36%	133	33%	166	66%	100	0%

*Note: sum of treatment and detox may add to more than "All" since some clients were in both treatment and detox
Source: CRF File, 1992-1999.*

- The total number unique (ALL) clients using services has increased --4,483 to 5,969-- between 1992 and 1999 representing a 33% increase. While the annual growth has been erratic, there appears to a rising trend in the number of clients utilizing State program services.
- Service utilization of all clients obscures the fact that since 1992 treatment services account for an increasing larger proportion of all clients as the relative role of detoxification has declined.
- However, the absolute number of clients in detoxification has been fairly stable, with slight increases and decreases in clients through the past eight years.
- In contrast, treatment utilization has undergone a rather steady increase in the number of enrolled clients since 1992; an additional 1,824 clients have entered the program, indicating a 66% growth in clientele.

B. Detoxification and Treatment Linkage

The figures on Table III.1 masks clientele linkage between detoxification and treatment services. Three types of clientele participation could occur. Some clients could utilize only detoxification. Clients could be engaged in just treatment. Finally, some clients could be users of both detoxification and treatment. Clients having experienced episodes in both treatment and detoxification would manifest this linkage.

Some specific policy and research interests regarding the linkage between detoxification and treatment modalities are:

1. More generally, what proportion of clients who participate in detoxification also enroll in treatment?
2. What clientele characteristics and types of substance abuse explain why clients receive only detoxification services but do not obtain treatment?

3. What factors explain differences in the number of detoxification episodes among clients?
4. What factors explain differences in the number of treatment episodes among clients?

These four questions are addressed with the available CRF data. One, client enrollment in detoxification only, treatment only, and both treatment and detoxification are determined. Two, the connection between detoxification episodes and treatment episodes of clients is explored. For each inquiry, a tabular display is given, followed by a statistical analysis.

Detoxification and Treatment Clients

Two tabular forms are presented for client enrollment in detoxification and treatment. One, a long-run view is given whereby during the 1992-1999 time period each unique client is considered a unit of analysis. That is, a client is counted only once over the eight-year period, regardless of the number of treatment or detoxification episodes in the time frame. Two, in a short-run view, each unique client within each fiscal year is a unit of analysis irrespective of the number of episodes within that year. Thus a client may appear for any year that he/she had one or more episodes.

Client participation in detoxification and treatment services is presented on Table III.2 for both the long-run and short-run perspectives.

Table III.2: Aggregate Linkage of Detoxification and Treatment Services				
A. Long-Run Linkage—1992 Through 1999				
Time Frame	Total Unique Clients	Clients in Treatment Only	Clients in Detoxification Only	Clients in Both Detoxification and Treatment
1992-1999	23,039	11,155	7,348	4,536
	100%	48%	32%	20%
B. Short-Run Linkage—Each Year From 1992 To 1999				
1992	4,483	1,727	2313	443
	100%	39%	52%	10%
1993	4,106	1,521	2,125	460
	100%	37%	52%	11%
1994	4,336	1,477	2,143	716
	100%	34%	49%	17%
1995	4,558	1,348	2,168	1,042
	100%	30%	48%	23%
1996	4,720	1,387	2,108	1,225
	100%	29%	45%	26%
1997	4,375	959	2,138	1,278
	100%	22%	49%	29%
1998	5,079	927	2,623	1,529
	100%	10%	52%	30%
1999	5,969	1,093	3,013	1,863
	100%	18%	51%	31%

Missing: 60 clients due to missing discharge data and/or modality data.

Source: CRF File, 1992-1999

- In the long run since 1992, with 23,039 clients were enrolled in the State program, detoxification and treatment services do not appear to be strongly connected.
 - a. 32% of all clients utilized only detoxification facilities.
 - b. 48% (11,155) of all clients were enrolled solely in treatment modalities and did not receive any detoxification services.
 - c. 20% were participants in both detoxification and treatment modalities.
 - d. Thus 68% of all clients have been enrolled in treatment services.
- The short-run perspective reveals that, on an annual basis, the clientele connection with treatment and detoxification has become stronger since 1992. After 1992, a larger proportion of clients enrolled for treatment in the State program have increasingly become users of detoxification services.
 - a. Since 1992 enrollment in only detoxification has remained constant at half of all unique clients.
 - b. Since 1992, the proportion of clients in treatment, with and without detoxification utilization, has remained stable.

- c. Since 1992, the proportion of clients enrolled in both detoxification and treatment has increased continually from 10% to 31% in 1999.
- d. However, between 1992 and 1999 an increasingly smaller proportion of clients—from 39% to 18%--have been participating only in treatment services.
- Two tentative interpretations/conclusions can be made, and they are subject to further investigation.
 - a. Treatment has been successful in reducing or limiting the need for detoxification service.
 - b. Since the proportion of clients using detoxification only is substantially large (50% of all clients in 1999), this service may not be very efficacious in channeling substance abusers into treatment.

Statistical Analysis

- Research question: What factors distinguish clients who receive only detoxification services from clients who receive treatment (inclusive of treatment only or treatment and detoxification)?
- Dependent variable: Clients in (a) detoxification only, and (b) treatment only, and both detoxification and treatment.
- Unit of analysis: Unique client.
- Binary Logistic Equation with variables listed on Table III.1.
- Results of Estimated Equation:
 1. **Males** are more likely to experience detoxification only and females are more likely to be in treatment.
 2. **Younger** people are more likely to use just detoxification, but as people become older they are more likely to enter treatment.
 3. **Black** clients are more likely to use only detoxification service than **Hispanic, Asian** and **White** clients.
 4. **Married** clients are more likely to be sole users of detoxification than clients who are **divorced, widow or separated**. Clients who are **single** are more likely to be in treatment and less likely to rely on detoxification only compared to **married** clients and those clients having **other marital status**.
 5. Compared to clients residing in **New Castle** and **Sussex Counties**, clients residing in **Kent County** more likely to be in detoxification only rather than treatment.
 6. Compared to clients with **alcohol** problems and those abusing “**other**” **drugs (hallucinogens, sedatives, stimulants, and inhalants)**, clients with primary substance abuse of **crack and heroin** are more likely to be in treatment and not be a sole user of detoxification services. In contrast, clients with **coke** and **marijuana** problems are more likely to be enrolled in just detoxification than clients suffering from **alcohol** abuse and “**other**” **drugs problems**.

7. The **younger one's age at the first usage** of substances the more likely he/she will rely solely on detoxification and not engage in treatment.
8. Clients who seek services for the **first time** within the state program are more likely to have been in treatment.
9. As clients experience **more episodes**, they are more likely to be in treatment than have sole reliance on detoxification services.
10. The **longer a client is enrolled** in the state program the more likely he/she will be using treatment services and will not be limited to only detoxification.
11. Clients with lower **income** are more likely to restrict themselves to detoxification while higher income clients are more likely to be enrolled in treatment.

Detoxification and Treatment Episodes

Table III.3 provides a cross-reference of clients by the number of their treatment episodes with the number of their detoxification episodes for the long-run linkage between the two “modalities” during the 1992-1999 period. The findings are similar for the short-run perspective in which the linkage is established for each separate year. Given the similarity in findings, along with the length and complexity required to show the short-run results, the short-run table is omitted here and placed in the appendix.

Column A and the rows thereunder indicate the number of detoxification episodes that have been consumed by unique clients. Column B shows the number of unique clients in both detoxification and treatment in the State program over the past 8 years, broken-down according to the number of detoxification episodes. Columns C through G display the number of treatment episodes of clients that correspond to the number of their detoxification episodes. Column C designates the number and proportion of clients in Column B (total unique clients in the program) who were in detoxification but did not have any treatment episodes. Column H yields a summation of the figures in columns D through G (the number of treatment episodes), and presents all those clients who participated in both treatment and detoxification episodes. Column I is the sum of clients who had 5 or more treatment episodes, i.e., Column F + Column G. The interpretation of the tabular figures is clarified immediately below the table where the findings are given.

Table III.3: Long -Run Linkage of Detoxification and Treatment by Episodes								
		Clients By Number of Treatment (TX) Episodes						
A	B	C	D	E	F	G	H	I
# of Detox Episodes	Total Unique Clients	None(0): Detox but no TX	1	2 – 4	5 – 10	10 – 21	D-G: Total in TX	F + G
1	7,455	5,387	1188	784	91	5	2,068	96
2 – 4	3,474	1,695	768	830	172	9	1,779	179
5 – 10	792	233	146	296	105	12	559	117
10 – 20	123	27	20	43	27	10	96	33
> 20	40	6	5	14	14	1	34	15
Total in Detox	11,884	7,348	12,127	1,967	409	33	4,536	440
No Detox	11,155	0	8,531	2,441	181	2	11,155	183
Grand Total	23,039	7,348	10,658	4,408	590	35	15,691	623
Proportion of Clients By Number of Treatment (TX) Episodes								
1	100%	72%	16%	11%	1%	0%	28%	1%
2 – 4	100%	49%	22%	24%	5%	0%	51%	5%
5 - 10	100%	29%	18%	37%	13%	2%	71%	15%
10 - 20	100%	22%	16%	35%	22%	5%	78%	27%
> 20	100%	15%	13%	35%	35%	3%	85%	38%
Total in Detox	100%	62%	18%	17%	3%	0%	38%	4%
No Detox	100%	n/a	76%	22%	2%	5%	100%	2%
Grand Total	100%	32%	46%	19%	3%	0%	68%	3%

Source: CRF File, 1992-1999.

- A very large majority of clients who have been enrolled in treatment (clients in treatment only and in both detoxification and treatment) have been limited to four or less episodes.
 - a. Of the 68% of all clients who received treatment, (15,691 shown in column H, row “Grand Total”), 96% of them [see (10,658+4,408)/15,691 in Columns D and E, row “Grand Total”] had four or less treatment episodes.

- With respect to the number of treatment episodes, a larger proportion of clients in treatment only have had fewer treatment episodes than clients enrolled in both detoxification and treatment.
 - a. Client enrolled in treatment only, (11,155 shown in row “No Detox”, Column H), 98% of them [see $(8,531+2,441)/11,155$ in Columns D and E] had between one and four treatment episodes; thus 2% experienced 5 or more episodes.
 - b. Clients who participated in both detoxification and treatment (4,536 shown in row “Total in Detox”, Column H), 90% of them [see $(2,127+1,967)/4,536$ in Columns D and E] had 4 or less treatment episodes; thus 10% experienced 5 or more episodes.
- For clients who experienced both detoxification and treatment, there appears to be a positive relationship between the detoxification episodes and treatment episodes.
 - a. The proportion of detoxification clients enrolled in treatment is larger for the higher number of detoxification episodes that are experienced. See the increase in the percentages from 28% to 85% of clients in treatment, shown in column H, which corresponds to the rise in the number of detoxification episodes.
 - b. For clients who experience a higher number of detoxification episodes and are in treatment, the proportion of clients with 5 or more treatment episodes is also larger. Put differently, those clients in treatment and who have fewer detoxification episodes were more likely to have fewer treatment episodes.

Statistical Analysis Of Detoxification Episodes

- Research question: What factors explain the number of detoxification episodes that are experienced by clients in the State program?
- Dependent variable: The number of detoxification episodes of a client.
- Unit of analysis: Unique clients who had detoxification, detoxification and treatment, and only treatment episodes.
- A Tobit equation with the variables listed on Table II.1. The observations include all clients who had detoxification, detoxification and treatment and treatment only and thus no detoxification episodes. Two separate specifications (models) were tested: (a) the number of client treatment episodes was added to the independent variables listed on Table II.1, and (b) a variable identifying clients who were in both detoxification and treatment was added to the independent variables listed on Table II.1.
- Results of Estimated Equations:

The statistical findings were virtually identical for both types of equations.

 1. **Older** individuals have had a greater number of detoxification episodes.
 2. **Male** clients had more detoxification episodes than **female** clients did.

3. **Black** and **Hispanic** clients have had fewer detoxification episodes than **Asian** and **White** clients.
4. Clients in **Sussex** and **Kent Counties** had fewer episodes than clients residing in **New Castle County**.
5. **Married** clients have fewer detoxification episodes compared to **single** and **widow/divorced/separated** clients who have experienced approximately an equal number of episodes.
6. Clients from higher **income** households had fewer episodes than clients of lower **income** households.
7. Clients with **alcohol** as their primary substance abuse problem experienced more detoxification episodes than all clients abusing drugs. However, clients abusing **cocaine** have fewer detoxification episodes than clients who abuse **other types of substances**. These latter groups encountered approximately the same number of episodes.
8. The analysis confirms the observation on Table III.3. The number of detoxification episodes consumed by clients is higher for those clients who have been enrolled in **both detoxification and treatment**.

Statistical Analysis Of Treatment Episodes

- Research question: What factors explain the number of treatment episodes that are experienced by clients in the State program?
- Dependent variable: The number of treatment episodes of a client.
- Unit of analysis: Unique clients who had detoxification, detoxification and treatment and only treatment episodes.
- A Tobit equation with the variables listed on Table II.1. Two separate specifications (models) were tested: (a) the number of client treatment episodes was added to the independent variables listed on Table II.1, and (b) a variable identifying clients who were in both detoxification and treatment was added to the independent variables listed on Table II.1.
- Results of Estimated Equation:
 1. **Female** clients experience more treatment episodes than **male** clients do.
 2. **Older** clients consume more treatment episodes.
 3. **Black** and **Asian** clients have fewer treatment episodes than both **White** and **Hispanic** clients who experience approximately the same number of episodes.
 4. **Married** clients have fewer treatment episodes than both **single** and **widow/divorced/separated** clients who have participated in the same amount of episodes.
 5. The number of treatment episodes experienced by clients decreases as **household income** rises.
 6. Clients abusing **marijuana** generally experienced fewer treatment episodes than clients abusing “**other**” **drugs (hallucinogens, sedatives, stimulants, and inhalants)**. But compared to clients abusing “**other**” **drugs**, the amount of treatment usage by clients with **Heroin, Crack,**

Coke, and **Alcohol** is greater. The magnitude of utilization, from the highest to lowest usage, for **Heroin**, then **Crack**, then **Coke**, and then **Alcohol**.

7. Clients residing in **New Castle County** have enrolled in more treatment episodes than clients in both **Kent** and **Sussex** Counties who have experienced about the same amount of episodes.
8. The analysis confirms the observation on Table III.3. The number of treatment episodes consumed by clients is higher for those clients who have been enrolled in **both detoxification and treatment**.

2. SCOPE OF SERVICE UTILIZATION

A. Client Enrollment in Treatment Modalities

The aggregate figures on Tables III.1 and III.2 obscure the scope of enrollment in treatment modalities. Table III.4 presents the number of unique clients enrolled in treatment modalities (excluding detoxification) within each fiscal year, irrespective of the number of their annual treatment episodes. The total number of clients in treatment modalities, -- denoted by “All Treatment Modalities” in the last column, -- of Table III.4 is the sum of all the clients in the individual modalities, and it is greater than the total unique clients shown under the heading of “Treatment” on Table III.1. This is because, as will be explored in more detail below, many clients were enrolled in more than one modality within a year.

TABLE III.4: UNIQUE CLIENTS BY EACH TREATMENT MODALITY

Year	All Treatment Modalities			Short-term Residential			Long-term Residential					
	#	% of All in Year	Index	#	% of All in Year %	Index	#	% of All in Year	Index			
1992	2,756	100	100	395	14.3	100	235	8.5	100			
1993	2,584	100	94	400	158.4	101	298	11.5	127			
1994	2,762	100	100	323	11.7	82	306	11.1	130			
1995	3,021	100	110	434	14.4	110	283	9.4	120			
1996	3,118	100	113	433	13.9	110	341	10.9	145			
1997	3,178	100	115	491	15.4	124	298	9.4	127			
1998	3,905	100	142	463	11.9	117	362	9.3	154			
1999	4,580	100	166	491	10.7	124	378	8.3	161			
Year	Outpatient Care			Intensive Care Management			Continuous Team Treatment			Methadone Maintenance		
	#	% of All in Year	Index	#	% of All in Year	Index	#	% of All in Year	Index	#	% of All in Year	Index
1992	1,901	69	100	432	15.7	100	2	0.1	100	35	1.31	100
1993	1,655	64	87	566	21.9	131	3	0.1	150	71	2.7	202
1994	1,490	54	78	909	32.7	210	54	2.0	270	259	9.4	740
1995	1,888	62.5	91	554	18.3	128	100	3.3	500	413	13.7	1,180
1996	2,043	65.5	107	423	13.6	98	147	4.7	735	513	16.5	1,466
1997	2,025	63.7	107	247	7.8	57	288	9.1	1,440	642	20.2	1,834
1998	2,493	63.8	131	115	2.9	27	333	10.5	1,665	817	20.9	2,334
1999	3,032	66.2	159	40	0.9	9	349	7.6	1,745	994	21.7	2,740

Note: sum of treatment modalities may add to more than "All" as some clients were in more than one modality in a year.
 Source: CRF File, 1992-1999.

- **Short-term residential care.** Although the number of unique clients in short-term residential care has risen steadily on an annual basis by almost 100 (a 24% increase) between 1992 and 1999, clientele enrollment in this modality has declined slightly from 14.3% to 10.7% as a proportion of total clientele in all treatment modalities.
- **Long-term residential care.** During the same period, 143 additional clients were enrolled in long-term residential care (a 61% increase). However, clientele in this modality has remained approximately at the same proportion of total enrollment in all treatment modalities.
- **Outpatient care.** Since 1992, enrollment in outpatient care has risen by 59% due to an addition of 1,131 clients. Despite this overall absolute increase, outpatient care has fluctuated between 54% to 69 % of all unique clients in treatment modalities.

- **Intensive Case Management.** Intensive Case Management has manifested a precipitous decline in the absolute number of clients (432 to 40 clients), or a 97% decrease in enrollment, between 1992 and 1999. Consequently, the proportion of clients in this modality has fallen substantially relative to all other treatment modalities, as indicated by the fact that 15.7% all unique treatment clients received services through this modality in 1992 and only 0.9% in 1999.
- **Continuous Team Treatment (CTT).** Approximately 80% of this decrease in intensive case management (349 of 392 clients) appears to have been “picked up” by the CTT modality, which accounted for 0.1% of all unique treatment clients in 1992 but 7.6% of them in 1999.
- **Methadone maintenance.** Methadone maintenance has grown substantially over the 8 year period, rising from 35 clients in 1992 to 994 clients in 1999, a 2,740% increase and accounting for 0.8% of all treatment clients in 1992 to 21.7% in 1999.

B. Inpatient-Outpatient Services

Tables III.5 displays unique clients enrolled each year in inpatient or outpatient services. Two views are shown: enrollment inclusive and exclusive of methadone maintenance.

Table III.5: Clients by Inpatient and Outpatient Modalities									
A. Treatment Modalities Inclusive of Methadone Maintenance									
	Inpatient Services			Outpatient Services Including Methadone			All Treatment Modalities Including Methadone Maintenance		
Year	#	% of All in Year	Index	#	% of All in Year	Index	#	% of All in Year	Index
1992	630	22.9	100	2,370	86.0	100	2,756	100	100
1993	698	27.0	111	2,295	88.8	97	2,584	100	94
1994	629	22.8	100	2,712	98.2	114	3,762	100	100
1995	717	23.7	114	2,955	97.8	125	3,021	100	110
1996	774	24.8	123	3,126	100.3	132	3,118	100	113
1997	789	24.8	125	3,202	100.8	135	3,178	100	115
1998	825	18.0	131	3,758	96.2	159	3,905	100	142
1999	869	19.0	138	4,415	96.4	186	4,580	100	166
B. Treatment Modalities Exclusive of Methadone Maintenance									
	Inpatient Services			Outpatient Services excluding Methadone Maintenance			All Treatment Modalities excluding Methadone Maintenance		
Year	#	% of All in Year	Index	#	% of All in Year	Index	#	% of All in Year	Index
1992	630	22.9	100	2,335	84.7	100	2,721	100	100
1993	698	27.0	111	2,224	86.1	95	2,513	100	92
1994	629	22.8	100	2,453	88.8	105	2,503	100	92
1995	717	23.7	114	2,542	84.1	109	2,608	100	96
1996	774	24.8	123	2,613	83.8	112	2,605	100	96
1997	789	24.8	125	2,560	80.6	110	2,536	100	93
1998	825	18.0	131	2,941	75.3	126	3,088	100	113
1999	869	19.0	138	3,421	74.7	147	3,586	100	132

Source: CRF File, 1992-1999.

- Total enrollment in inpatient and outpatient treatment inclusive of methadone maintenance has grown by 66% between 1992 and 1999.
- Enrollment in inpatient services (short-term and long-term care) has increased by 38%.
- Outpatient service utilization by unique clients, inclusive of methadone maintenance, has risen by 86%.

- Client treatment through outpatient services, however, without methadone maintenance, has risen only by 45% over the period indicating that methadone maintenance, as confirmed above, has contributed substantially to proportionate increase in outpatient services.

C. Interconnection of Modalities

The figures in Table III.4 and III.5 mask the connections among modalities that result from the client service provision. As shown in Table III.6, the annual totals of “All Treatment Modalities” in Table III.4 and III.5 overstate the number of clients in treatment within a year. Clients enrolled in the State program can receive services through more than one modality and utilization of substance abuse services has been characterized by multiple episodes of clients. These multiple episodes have resulted in a very complex pattern of utilization in which the majority of clients have been enrolled in multiple modalities within a (fiscal) year. Table III. 5 show a "snapshot" of the combinations of modalities, encompassing multiple episodes, that have been consumed by most clientele on a yearly basis from 1992 to 1999. Only the annual utilization of multiple modalities in which a “large” numbers of clients have participated is presented, i.e., where 10 or more clients have enrolled in two or more modalities within a year. A full presentation of mix of annual modality utilization by all clientele between 1992 and 1999 is provided in the Appendix.

Table III. 6: Sample of Unique Clients by Mix of Modality Types Consumed Within Each Fiscal Year								
Modality Mix	1992	1993	1994	1995	1996	1997	1998	1999
A. DETOX-OTHER MODALITY MIX								
Detoxification (Detox) Only	1,727	1,522	1,574	1,538	1,604	1,198	1,177	1,391
Detox/Continuous Treatment Team (CTT)	0	0	3	8	8	34	51	54
Detox/CTT/Methadone/Outpatient	0	0	0	0	13	7	0	1
Detox/Intensive Case Management (ICM)	38	55	102	46	30	11	1	0
Detox/ICM/Long Term Residential	3	16	20	12	10	0	0	0
Detox/ICM/Outpatient	10	17	8	8	8	0	5	0
Detox/ICM/Short Term Residential	12	23	25	8	14	18	3	0
Detox/Long Term Residential	50	60	44	57	76	62	24	22
Detox/Long Term Residential/Outpatient	11	14	15	15	13	10	23	11
Detox/Short Term Residential/Long Term Residential	13	17	19	22	52	37	25	22
Detox/Short Term Residential/Long Term Residential/Outpatient	0	0	0	0	0	8	11	13
Detox/Methadone (Meth)	0	0	5	14	9	17	104	111
Detox/Meth/Outpatient	0	0	9	22	50	47	23	28

Table III. 6: Sample of Unique Clients by Mix of Modality Types Consumed Within Each Fiscal Year (Cont.)

Modality Mix	1992	1993	1994	1995	1996	1997	1998	1999
Detox/Outpatient	119	104	88	161	129	92	144	237
Detox/Short Term Residential	155	111	69	132	125	137	116	110
Detox/Short Term Residential/Outpatient	23	17	17	31	32	55	70	70
Detox/Meth/CTT	0	0	0	9	19	20	8	5
Detox/Short Term Residential/CTT	0	0	0	1	0	17	23	22
Detox/Short Term Residential/Meth	0	0	0	0	0	0	16	18
B. NON-DETOX MODALITY MIX								
CTT	2	2	50	52	54	128	171	171
Meth/Outpatient/CTT	0	0	0	5	13	18	1	1
ICM	299	326	569	351	249	127	28	16
ICM/Long Term Residential	10	19	19	18	5	1	0	0
ICM/Meth/Outpatient	0	0	12	0	0	0	0	7
ICM/Outpatient	13	36	51	25	26	9	46	10
ICM/Short Term Residential	10	32	41	33	31	46	0	0
ICM/Meth	14	11	16	8	7	17	13	2
Long Term Residential	114	117	137	88	116	117	122	127
Long Term Residential/CTT	0	0	0	3	8	10	12	12
Long Term Residential/Outpatient	18	28	27	29	17	19	76	116
Short Term Residential/Long Term Residential	6	8	4	5	8	11	18	8
Meth	3	11	33	109	116	224	559	691
Meth/CTT	0	0	0	6	4	18	7	9
Outpatient only	1652	1347	1181	1501	1614	1561	1914	2344
Meth/Outpatient	0	2	14	15	58	115	66	64
Outpatient/CTT	0	0	0	1	1	4	11	13
Short Term Residential	144	119	93	132	111	70	71	75
Short Term Residential/CTT	0	0	0	1	0	7	14	12
Short Term Residential/Long Term Residential/Outpatient	0	0	1	5	3	0	14	7
Short Term Residential/Meth	0	0	0	0	0	0	4	20
Short Term Residential/Outpatient	21	57	31	37	34	58	57	68
C. TOTAL CLIENTS	4483	4106	4336	4558	4720	4375	5079	5969
D. Clients in All Modalities Mix (A+B)	526	627	640	737	803	905	986	1073
E. D as a % of all clients (C)	11.7%	15.3%	14.8%	16.2%	17.0%	20.7%	19.4%	18.0%
F. Clients in Detox Modality Mix	434	434	424	546	588	572	647	724
G. F as a % of all clients (C)	9.7%	10.6%	9.8%	12.0%	12.5%	13.1%	12.7%	12.1%
H. Non-Detox Modality Mix (B)	92	193	216	191	215	333	339	349
I. H as a % of all clients (C)	2.1%	4.7%	5.0%	4.2%	4.6%	7.6%	6.7%	5.8%
J. Clients in Two or More Non-Detox Modalities [(B+A) (less clients in one treatment modality and detox)]	164	297	329	319	426	552	546	539
K. J as % of All Clients (C)	3.7%	7.2%	7.6%	7.0%	9.0%	12.6%	10.8%	9.0%

Source: CRF File, 1992-1999.

- Between 1992 and 1999 multiple usage of modalities by clients within a year has always exceeded 11% of all clients and has been as high as 21% of all clients. (See Lines D and E).
- Most multiple usage of modalities on an annual basis has involved detoxification with one or more treatment modalities. (See Lines E, F, and H).
- However, even when clients using one treatment modality and detoxification are removed, it is clear that the number and proportion of total clients consuming two or more treatment modalities within a year has been substantial. (See Lines J and K).

Tables III. 4 through III.6 leave several interrelated behaviors unclear regarding client service utilization and provision.

1. Multiple utilization of modalities by clients could occur not only within a limited time period, as presented for each fiscal year, but also over a long term, given that many program clientele have been enrolled for a number of years. Determination of the types of clients who move through the “system” over time and how they do so could enhance treatment regimen and fiscal planning of the program.
2. Whether a pattern of client service utilization has prevailed and the reasons for the way service utilization has occurred should be determined. The considerable multiple modality usage by clients found in the separate (fiscal) years is likely to have occurred over a number of years for many clients. Multiple modality utilization has been characterized by enrollment in (a) inpatient and outpatient services, and (b) detoxification with either inpatient services or outpatient services or both types of care. However, most multiple modality usage has encompassed two or more treatment modalities within an annual period inclusive of both inpatient and outpatient services. This multiple utilization could depend upon prescribed treatment regimens by providers as part of a continuum of care for clients, and/or it could be more random due to clientele behavior especially because for the need to use detoxification. At least two types of modality activities should be investigated. One is a connection between client participation in detoxification and treatment modalities. A second involves the issue of treatment location, i.e., client enrollment in inpatient or outpatient modalities.
3. A number of questions can be asked about the connection of detoxification and treatment modalities.
 - 3.1. Is detoxification a mechanism that facilitates a transition to treatment?
 - a. After being discharge, do clients who have a detoxification episode enter treatment?
 - b. What is the time period between clients’ entrance into treatment services after their discharge from detoxification facilities?
 - c. Do clients experience a number of detoxification episodes before they enter treatment?

- d. What clientele characteristics, types of substance abuse, and/or program design factors explain why clients enrolled in treatment services after detoxification utilization?
 - e. Do clients who had past detoxification episodes and then enter treatment have different outcomes than those who not have any detoxification?
- 3.2 Is detoxification modality a supplement (complement) to treatment?
- a. Do clientele in the treatment utilize detoxification services during the treatment episode i.e., are they enrolled at the same time in both types of modalities?
 - b. What clientele characteristics, types of substance abuse, and/or treatment factors that explain detoxification usage while clients are enrolled in treatment services?
 - c. Do clients who had detoxification episodes while enrolled in treatment services have different outcomes than clients who were enrolled in treatment but did not utilize detoxification services?
- 3.3 Considering detoxification as a recidivism outcome measure, what has been the impact of treatment on detoxification utilization?
- a. Do clients who have been enrolled in treatment services utilize detoxification after leaving treatment?
 - b. What clientele characteristics, types of substance abuse, and/or treatment factors explain detoxification usage after clients have completed or left treatment services?

An important policy issue is the types of modality clients are assigned for substance abuse services when their enrollment occurs. After their diagnosis, clients are assigned to providers for treatment through a specific modality. This assignment is referred to as the treatment location. In this respect, clients could be provided a treatment regimen in the form of a continuum (or sequence) of care. Traditionally, the most common sequence of care has been an assignment to (long term and/or short-term) residential care, and after discharge, an assignment to at least one outpatient service, depending upon the severity and type of substance abuse. However, there have been institutional and economic forces that may have influenced treatment location decisions. Cost containment in health, care, which has been manifested mostly in the form of Managed Care, has been implemented within the last six years. Consequently, since outpatient is considered to be less costly than inpatient treatment, a change in treatment location from inpatient care to outpatient services by providers has been hypothesized, -- i.e., the substitution of outpatient for inpatient modalities --, to have been undertaken by providers and/or funding agencies. Also, a few recent studies indicate that outpatient services may equally effective in producing outcomes as inpatient care. There are several important considerations that arise from the above arguments and views:

- Has there been inpatient-outpatient substitution in treatment location since 1992 in the State program?
- If so, has it been influenced by Managed Care revolution in health care?

- Have there been differences in treatment location between the Medicaid and State programs especially since the introduction of Managed Care and MCOs in the former program?
- Correlatively, has the payment mechanism used to compensate providers affected whether outpatient services are substituted for inpatient services?

The following statistical analysis addresses the above questions of whether the State program has undergone a shift from inpatient to outpatient services. The focus is upon whether treatment providers have been more likely to use outpatient care for clientele episodes than inpatient episodes. Even if affirmed, the results would not indicate after an initial inpatient admission whether (a) such care is being shortened and then the patient is shifted to outpatient service, (b) the type of outpatient service has been changed, and (c) outpatient service has been extended to “compensate” for shorter inpatient stays.

Statistical Analysis

- Research question: What factors influence the treatment location for clients, and have there been a shift from inpatient to outpatient services between 1992 and 1999?
- Dependent variable: Categorical variable of two classes of episodes: (a) short-term and long-term inpatient care, and (b) outpatient services excluding methadone maintenance. Clients with episodes of detoxification only are excluded.
- Unit of analysis: Client episodes.
- Binary Logistic Equation with variables listed on Table II.1 with a trend variable included to capture the shift over time from inpatient to outpatient service. The trend variable is measured by a count of the months in the data set beginning with July 1991 as number one).
- Results of Estimated Equation:
 1. Neither a client’s **age or gender** influence their treatment location, **i.e., males and females** and **younger and older** clients are just as likely to be assigned to inpatient as to outpatient services.
 2. **White, Black, and Asian** clients are equally likely to be assigned to inpatient as well as outpatient services. However, **Hispanic** clients are more likely to be placed in outpatient care than inpatient services compared to other racial/ethnic groups.
 3. **Married** clients are more likely to use outpatient services than **divorced, widow or separated** clients, and **single** clients are more likely to participate in inpatient services than all other clients are.
 4. Clients with **Heroin, Coke, and Crack** problems are more likely to be enrolled in inpatient services than clients abusing **Marijuana** and **other drugs**

- (**hallucinogens, sedatives, stimulants, and inhalants**). Yet those clients with **Marijuana** problems are more likely to be participants in outpatient care.
5. Clients with residency in **Kent** and **Sussex Counties** are more likely to have outpatient care than clients of **New Castle County** who are likely to be greater users of inpatient services.
 6. There is greater likelihood of a client to be enrolled in outpatient care rather than inpatient as their **household income** rises.
 7. Outpatient care is more likely to be the assigned modality for those clients who are older when their **first usage** of drugs occurred.
 8. Outpatient care is the more likely choice of modality assignment for those clients with **first time** usage of drugs.
 9. The more **episodes** a client experiences in the treatment system, the more likely he/she is to have their treatment location to be in inpatient services.
 10. The **Trend** variable reveals an expected finding. It was expected that due to the thrust of Managed Care and cost containment, that there would be a general shift to outpatient service away from inpatient care. The statistical results provide a positive relationship between trend and outpatient care, indicating that, as the State program has matured, clients are more likely to be assigned to outpatient care than to inpatient care.