# Alcohol and Substance Abuse Treatment Patterns and Payment Sources for Vulnerable Populations in New York State

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# Overview of Alcohol and Substance Abuse (ASA) Field

- 6% of U.S. population are current illicit drug users
- 20% are heavy or binge drinkers
- *$246 billion* was spent on direct and indirect costs of ASA in 1992
- 4% of this national expenditure is related to ASA treatment ($9.8 billion)

# Two major policies that could significantly affect ASA treatment in New York State

1. Partnership Plan (1997)

   Allows mandatory enrollment into managed care for eligible Medicaid enrollees.

2. Welfare Reform Act (1997)

   Implemented AOD (Alcohol and Other Drug) screening for recipients.

Both changes have the potential to affect the utilization patterns and primary payment sources of ASA treatment, especially for women & adolescents.

# Data & Analyses

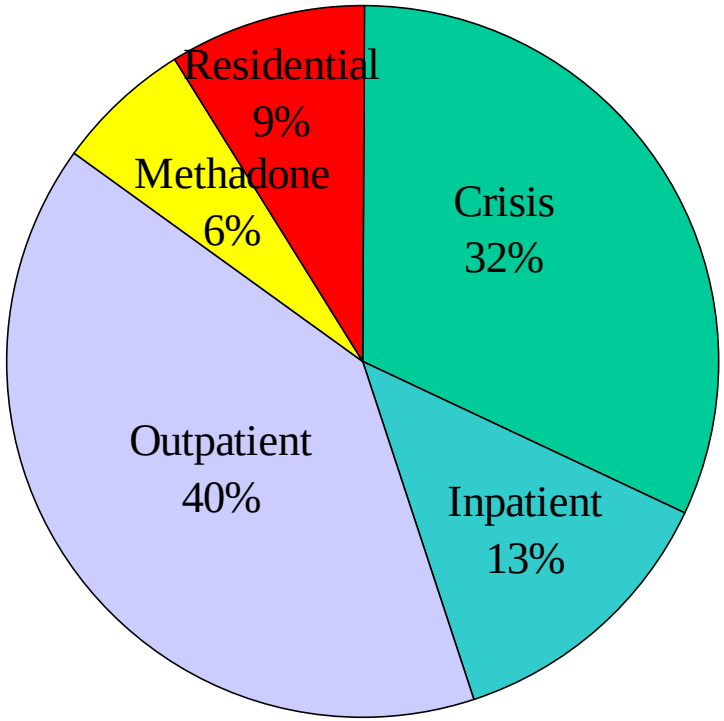
- The OASAS Client Data System (CDS)

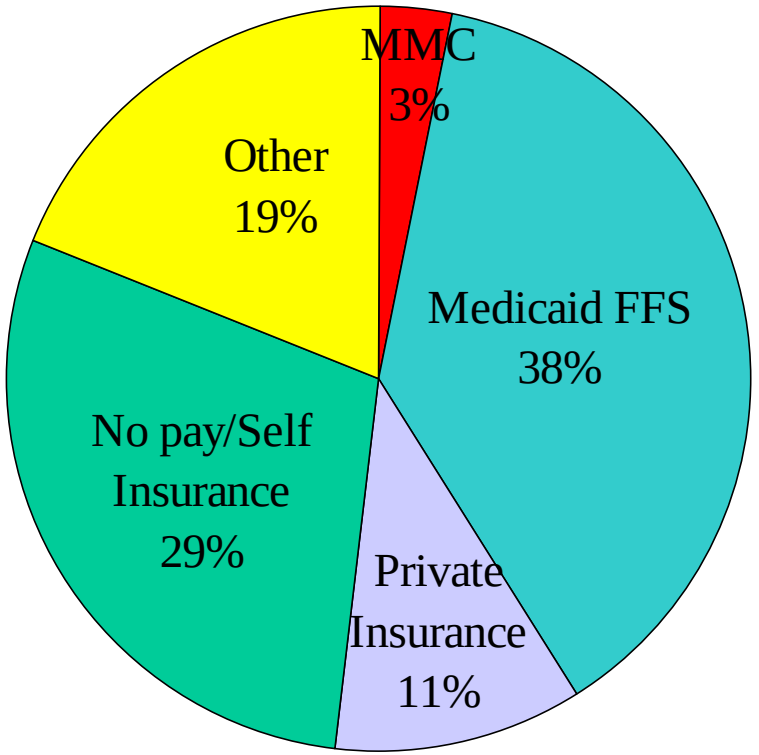
- contains admission and discharge data for clients in OASAS licensed facilities.

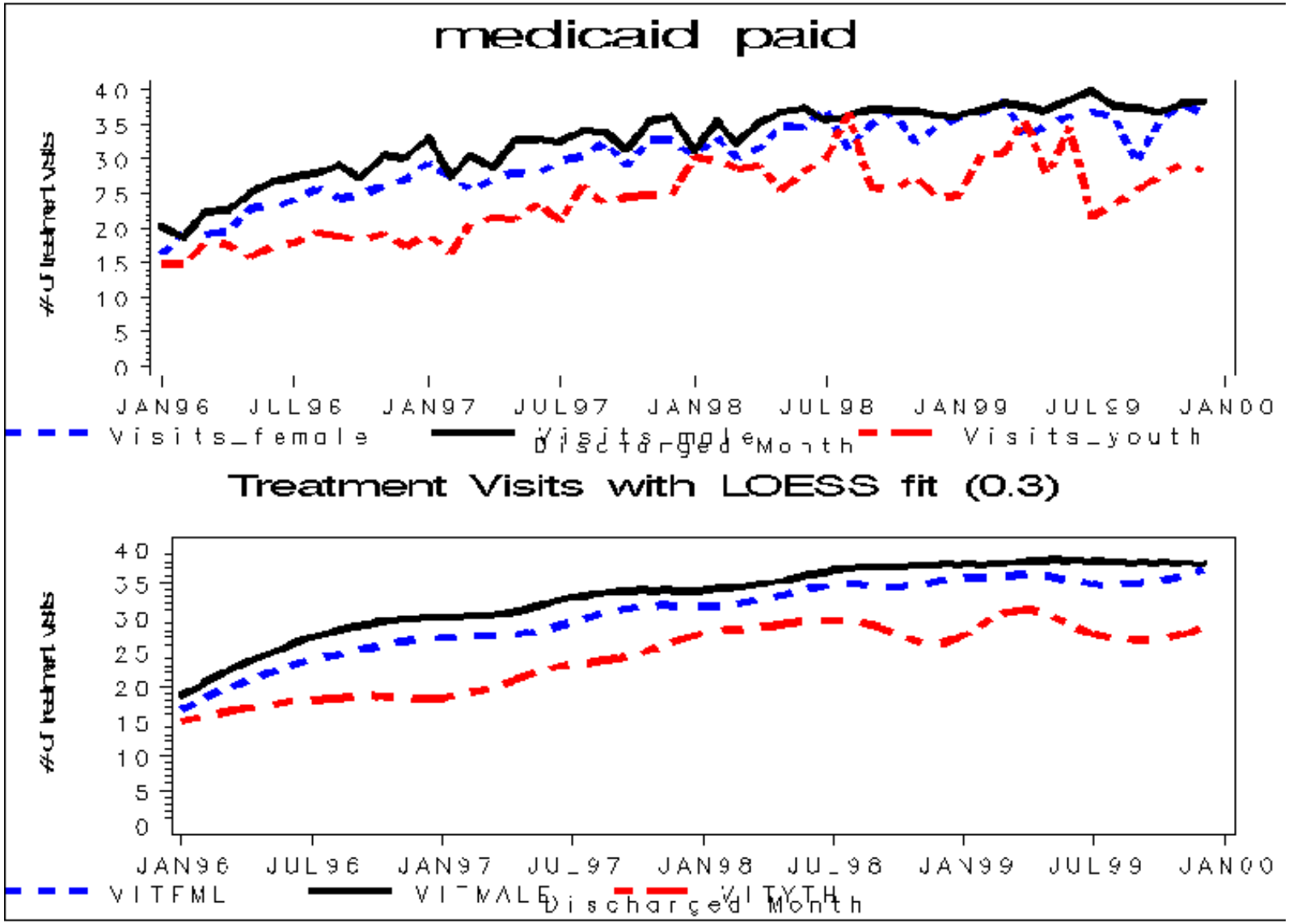
- includes Client characteristics, payor source and type of service received.

- All discharge records in 1996 - 1999 were examined for evidence of changes in utilization for Medicaid Fee-For-Service and Medicaid Managed Care payment sources.
  (N > 260,000/FFY)

# Type of ASA Service Episodes and Payor Sources (NYS FFY 97-99)




medicaid paid
#Of treatment visits
0
5
10
15
20
25
30
35
40
JAN96
JUL96
JAN97
JUL97
JAN98
JUL98
JAN99
JUL99
JAN00
Visits_female
Visits_male
Visits_youth
Discharged Month
Treatment Visits with LOESS fit (0.3)
#Of treatment visits
0
5
10
15
20
25
30
35
40
JAN96
JUL96
JAN97
JU_97
JAN98
JU_98
JAN99
JUL99
JAN00
VITFML
VITMALE
VITYTH
Discharged Month

# Methodologies

- **LOESS**

  **(Locally Weighted regression scatter plot smoothing):**

  Uses a neighborhood around each X value to obtain a smoothed Y value corresponding to that X value.

  Data points in a given local neighborhood are weighted by a smooth decreasing function of their distance from the center of the neighborhood.

**Smoothing Parameter:**

The fraction of the data in each local neighborhood that controls the smoothness of the estimated surface.

**Smoothing Parameter Selection:**

1. Residual plots.
2. The bias corrected Akaike information criteria (AICC1).

**1. Residual plots**.

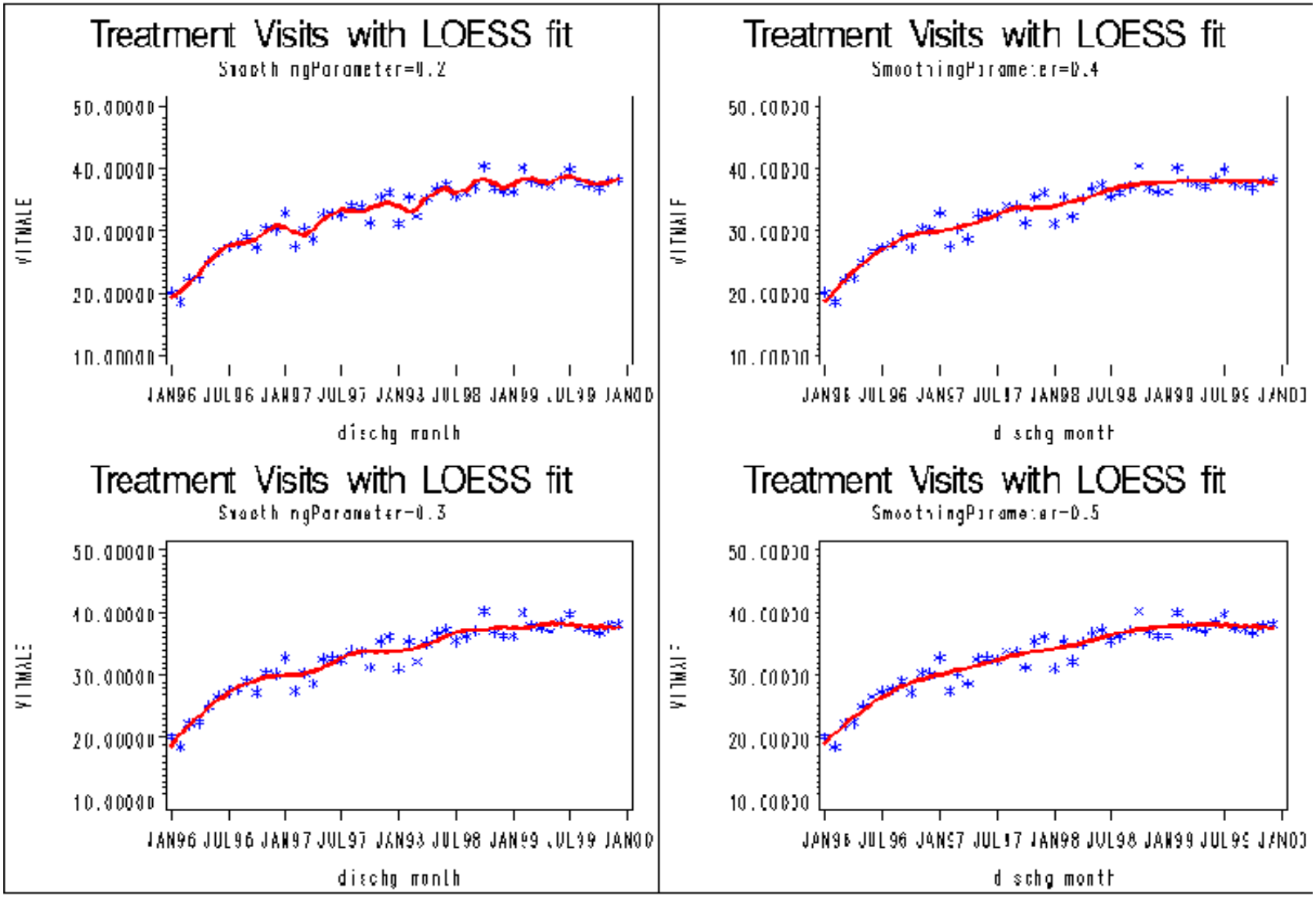
examine plots of the fit residuals versus the predictor variable and choose the largest smoothing parameter that yields no clearly discernible trends in the fit residuals.

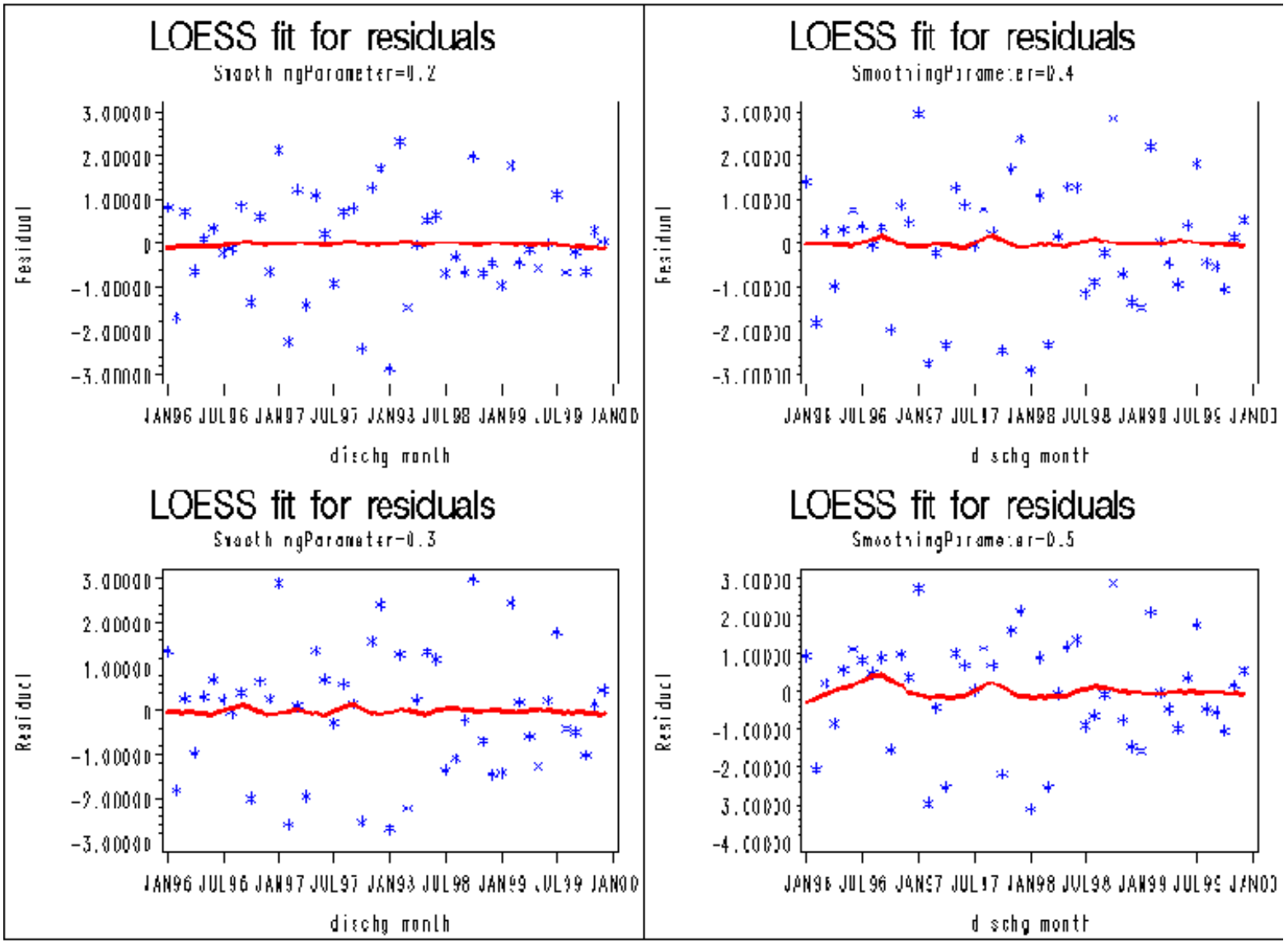
**2. The bias corrected Akaike information criteria**

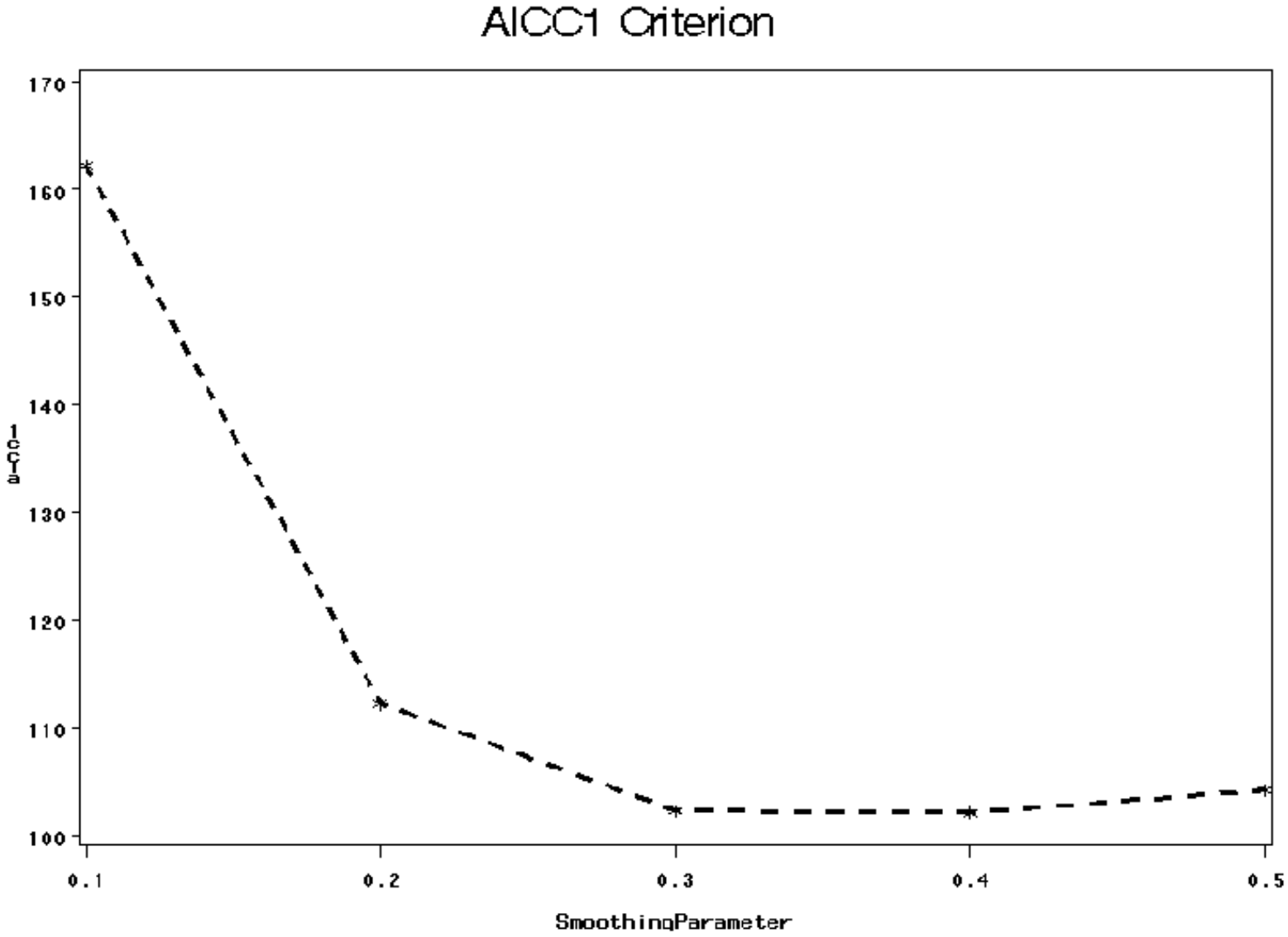
Hurvich and Simonoff (1998) show that the bias corrected Akaike information criteria avoid the tendency to undersmooth that often occurs when using the classical Akaike information criterion or generalized cross validation.

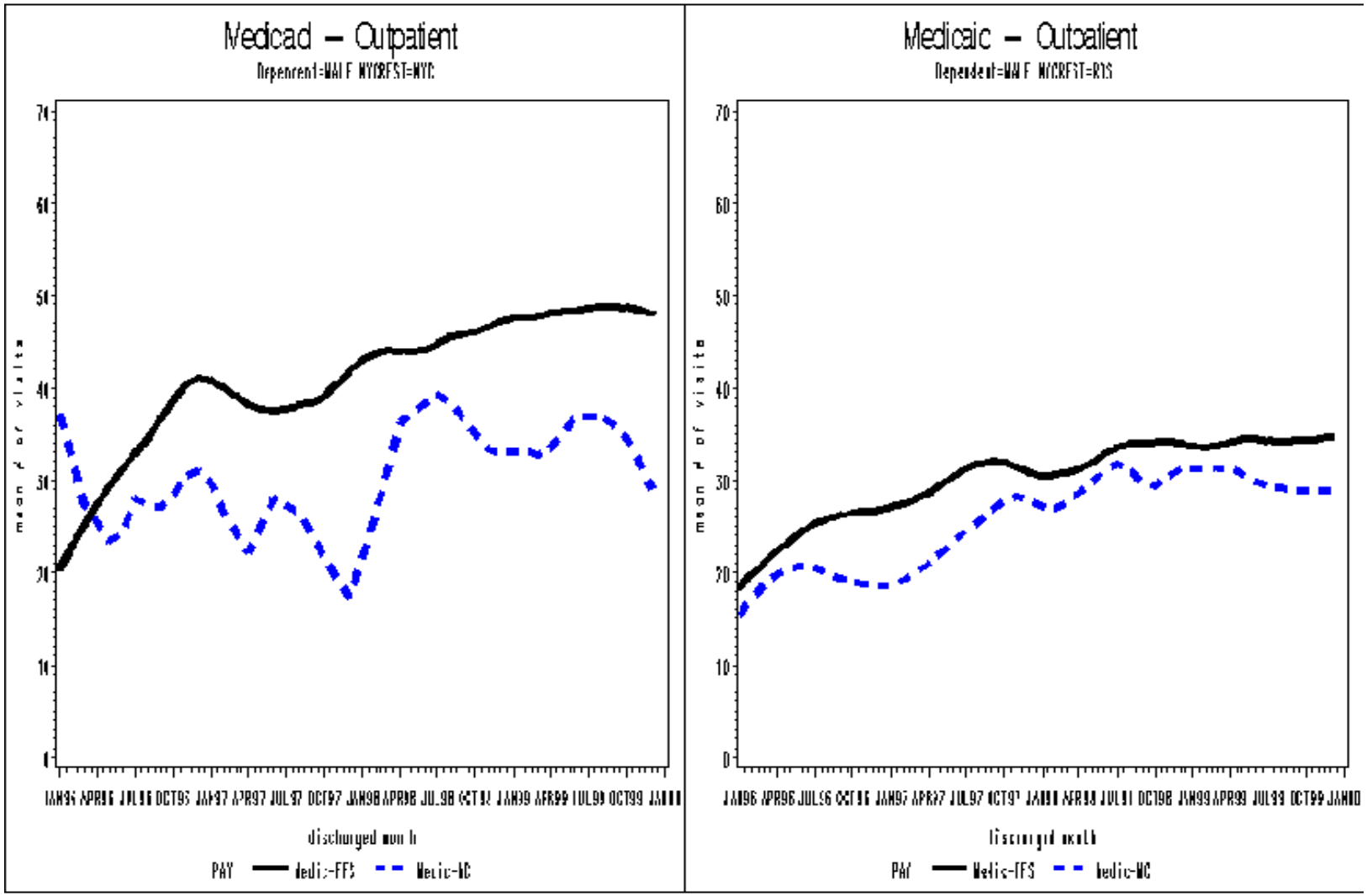
$$AIC_{C_1} = n \log(\hat{\sigma}^2) + n \frac{\delta_1/\delta_2(n+\nu_1)}{\delta_1^2/\delta_2 - 2}$$

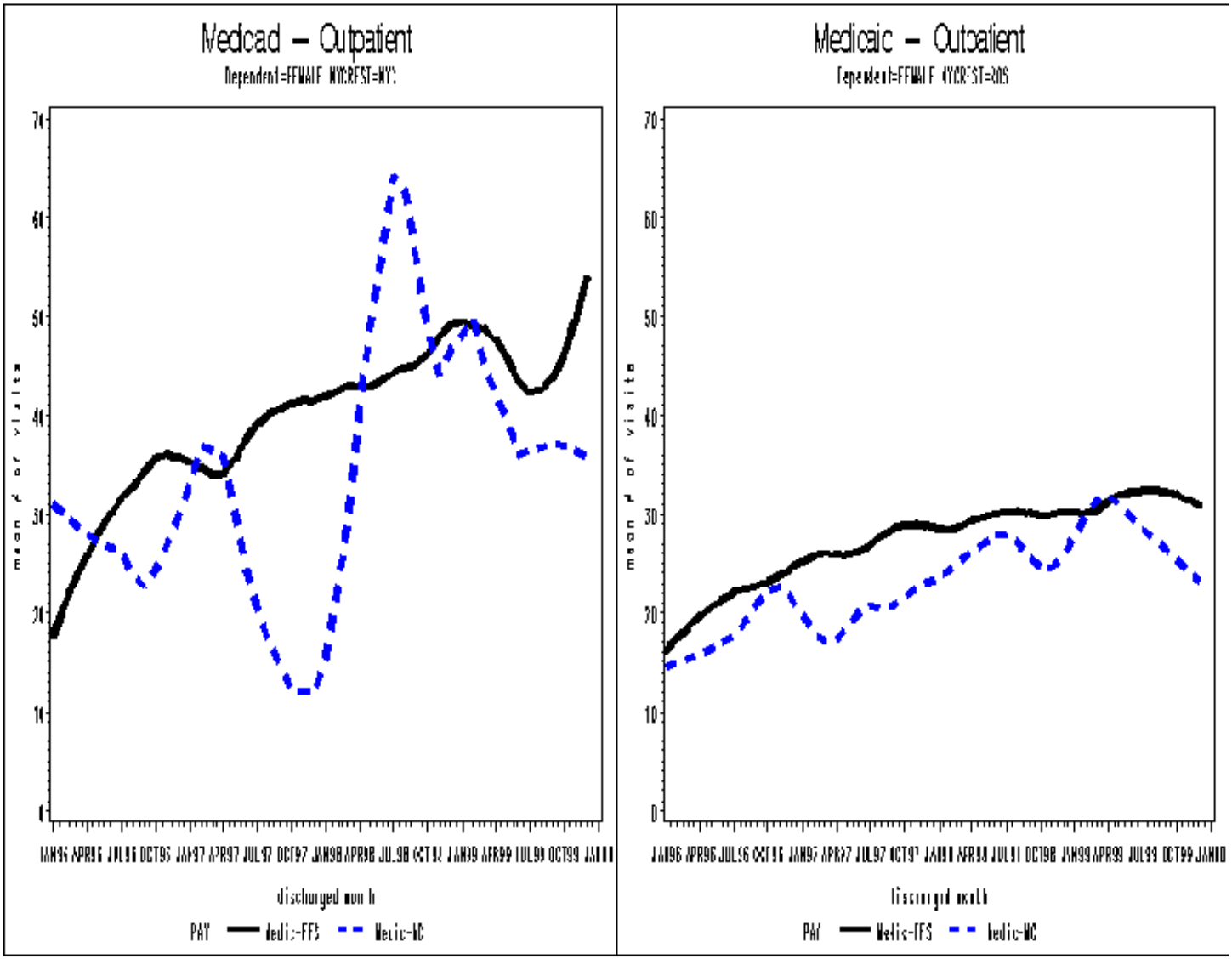
$$\begin{aligned}
n &\equiv \textbf{Number of observations} \\
\delta_1 &\equiv \textbf{Trace}(\boldsymbol{I}-\boldsymbol{L})^T(\boldsymbol{I}-\boldsymbol{L}) \\
\delta_2 &\equiv \textbf{Trace}\left((\boldsymbol{I}-\boldsymbol{L})^T(\boldsymbol{I}-\boldsymbol{L})\right)^2 \\
\nu_1 &\equiv \textbf{Equivalent number of parameters} \\
&\equiv \textbf{Trace}(\boldsymbol{L}^T\boldsymbol{L})
\end{aligned}$$

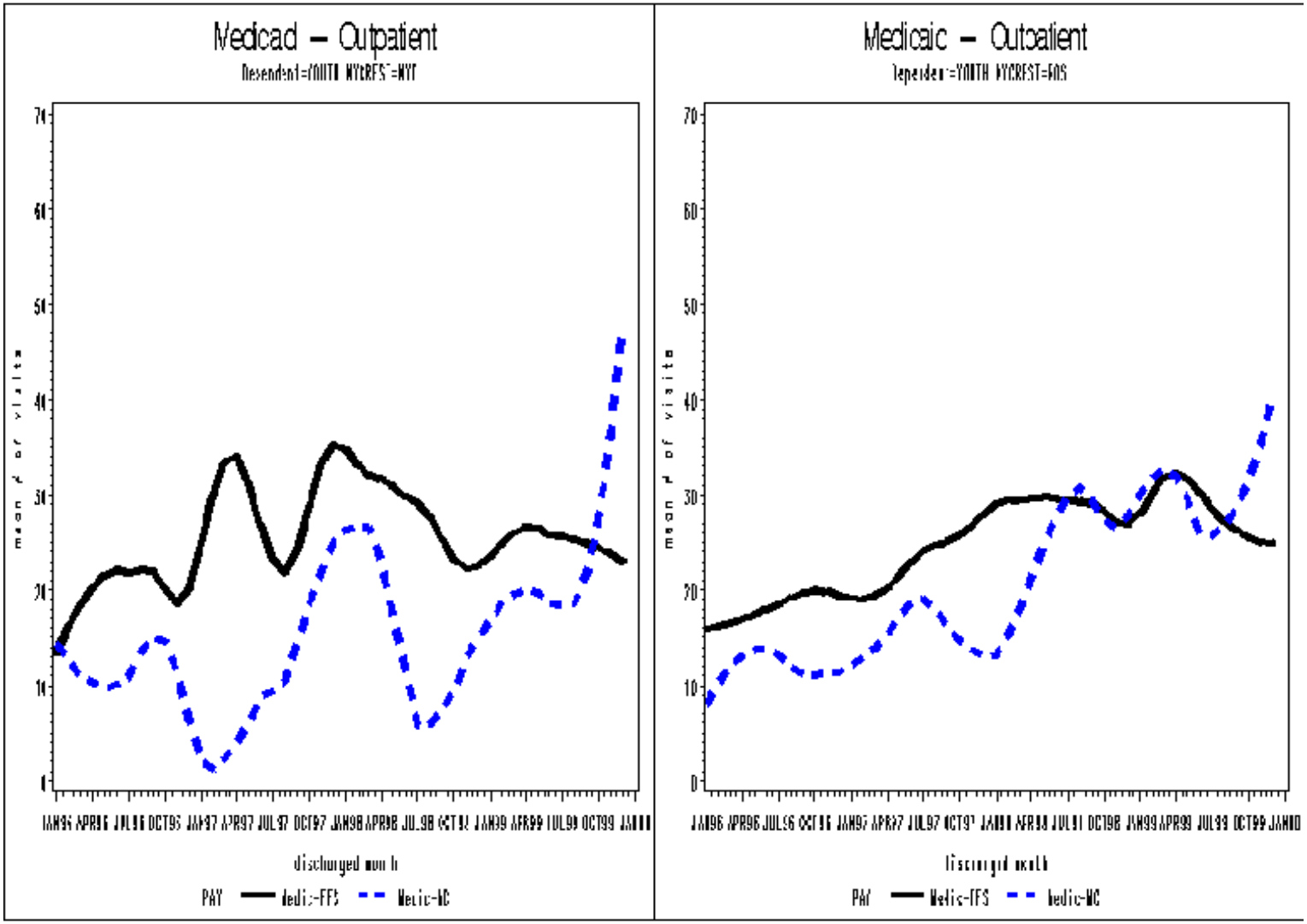

Treatment Visits with LOESS fit
Smoothing Parameter=0.2
VITMALE
50.00000
40.00000
30.00000
20.00000
10.00000
JAN96 JUL96 JAN97 JUL97 JAN98 JUL98 JAN99 JUL99 JAN00
dischg month
Treatment Visits with LOESS fit
Smoothing Parameter=0.4
VITMALE
50.00000
40.00000
30.00000
20.00000
10.00000
JAN96 JUL96 JAN97 JUL97 JAN98 JUL98 JAN99 JUL99 JAN00
dischg month
Treatment Visits with LOESS fit
Smoothing Parameter=0.3
VITMALE
50.00000
40.00000
30.00000
20.00000
10.00000
JAN96 JUL96 JAN97 JUL97 JAN98 JUL98 JAN99 JUL99 JAN00
dischg month
Treatment Visits with LOESS fit
Smoothing Parameter=0.5
VITMALE
50.00000
40.00000
30.00000
20.00000
10.00000
JAN96 JUL96 JAN97 JUL97 JAN98 JUL98 JAN99 JUL99 JAN00
dischg month


LOESS fit for residuals
Smooth ngParameter=0.2
Residual
3.00000
2.00000
1.00000
0
-1.00000
-2.00000
-3.00000
JAN96 JUL96 JAN97 JUL97 JAN98 JUL98 JAN99 JUL99 JAN00
dischg month
LOESS fit for residuals
SmoothingParameter=0.4
Residual
3.00000
2.00000
1.00000
0
-1.00000
-2.00000
-3.00000
JAN96 JUL96 JAN97 JUL97 JAN98 JUL98 JAN99 JUL99 JAN00
dischg month
LOESS fit for residuals
Smooth ngParameter=0.3
Residual
3.00000
2.00000
1.00000
0
-1.00000
-2.00000
-3.00000
JAN96 JUL96 JAN97 JUL97 JAN98 JUL98 JAN99 JUL99 JAN00
dischg month
LOESS fit for residuals
SmoothingParameter=0.5
Residual
3.00000
2.00000
1.00000
0
-1.00000
-2.00000
-3.00000
-4.00000
JAN96 JUL96 JAN97 JUL97 JAN98 JUL98 JAN99 JUL99 JAN00
dischg month


AICC1 Criterion
170
160
150
140
130
120
110
100
aicc1
0.1
0.2
0.3
0.4
0.5
SmoothingParameter


Medicad – Outpatient
Dependent=MAIF MYCRFST=MYC
mean # of visits
discharged month
PAY
Medic-FFS
Medic-MC
Medicaic – Outpatient
Dependent=MAIF MYCRFST=RYS
mean # of visits
discharged month
PAY
Medic-FFS
Medic-MC


Medicaid – Outpatient
Dependent=FFWAIF MYC:REST=MYC
mean # of visits
discharged month
PAY
Medic-FFS
Medic-MC
Medicaic – Outpatient
Dependent=FFWAIF MYCR:ST=MOS
mean # of visits
discharged month
PAY
Medic-FFS
Medic-MC


Medicad – Outpatient
Dependent=YOUTH MYCREFS=MYT
mean # of visits
discharged month
PAY
Medic-FFS
Medic-MC
Medicaic – Outpatient
Dependent=YOUTH MYCREFST=60S
mean # of visits
discharged month
PAY
Medic-FFS
Medic-MC

# Conclusion

- While the adolescent AOD treatment utilization is somewhat similar to adults' in ROS, it differs a great deal from adults in NYC.
- Although the difference may not be statistically significant , females in ROS consistently had fewer treatment visits than males regardless of their Medicaid payment sources.
- Adults in NYC generally had more treatment visits than in ROS regardless of their gender and Medicaid payment sources.

# Conclusion

- On the average, the number of treatment visits for **adults** under Medicaid managed care is smaller than under Medicaid fee-for-service across gender and regions.

- For adolescents, the treatment visits for MMC increased significantly and exceeded the number for Medicaid fee-for-service in late 1999 for both NYC and ROS.

- The big fluctuation for NYC MMC is likely to the result of small sample size and needs further study as MMC continues to be implemented.