Addressing Sentencing-related Changes in Correctional Health Care: Building a Practitioner-Researcher Partnership

Final Project Report

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The purpose of our project, 'Addressing Sentencing-related Changes in Correctional Health Care: Building a Practitioner-Researcher Partnership' was to: 1) develop a system-wide data repository and health care review process; 2) examine disease prevalence and health care delivery patterns in the Texas Department of Criminal Justice (TDCJ) prison system; 3) develop correctional health care delivery and policy recommendations based on our findings. The following summarizes the major findings and accomplishments of our study.

Establishment of a System-wide Data Repository

The TDCJ data repository was constructed by linking clinical, demographic, health services, and pharmacologic information from a number of TDCJ databases. Establishment of this database was integral to development of the subsequent epidemiologic and pharmacoepidemiolgic studies. Prior to analyses, all data were validated using descriptive statistical techniques. The first series of analyses focused on a cohort of inmates who were incarcerated for any duration during 1998. Table 1 shows that the vast majority of inmates were male and between 30-49 years old. Blacks constituted 44 percent of the total inmate population; whites represented 30 percent; and Hispanics represented 26 percent. The distribution of sociodemographic factors was similar in our analyses of two subsequent cohorts.

Disease Prevalence in the TDCJ

Using International Classification of Disease (ICD-10) codes, we estimated the prevalence of all medical conditions (physical and psychiatric) for all inmates who were incarcerated during 1998. Infectious diseases (29.6%) constituted the most prevalent major disease category among inmates. This was followed by diseases of musculoskeletal systems and connective tissue (15.3%), diseases of the circulatroy system (14.0%), mental disorder (10.8%), and diseases of the respiratory system (6.3%). Among the specific conditions examined, evidence of tuberculosis infection without active pulmonary disease (20.1%) was found to be the most prevalent condition, followed hypertension (9.8%), asthma (5.2%), low pain (5.1%), and viral hepatitis (5.0%). We conducted additional analyses (see manuscript 1) which included examination of these conditions according to race, age, and gender. Moreover, we replicated these analyses for calendar years 1999 and 2000, and found similar distributions.

Table 3 presents the 15 most prevalent conditions of the 1998 cohort of inmates. Of the specific diseases examined, evidence of TB infection (as defined by a positive tuberculin skin test) was the most common condition in the TDCJ, occuring in 20.1 percent of inmates. Hypertension was ranked second, followed by low back pain, viral hepatitis, an affective disorders. Once again, we conducted additional analyses that included how these conditions varied according to age, race, and gender (manuscript 1, page 13). Analyses of subsequent cohorts showed similar distributions of disease.

Health Care Delivery and Pharmacotherapy Patterns

Based on our findings of the overall disease profile the TDCJ population, the advisory board identified a number of specific conditions upon which to focus our analyses of pharmacotherapy and health care delivery patterns. The following summarizes some of the major findings of our study.

HIV/AIDS: Antiretroviral Prescribing Patterns

To assess antiretroviral prescribing patterns among HIV-infected inmates, we examined a cohort of 2,360 prison inmates who were incarcerated in the Texas Department of Criminal Justice (TDCJ) system for any duration during 1998 and who were diagnosed as HIV-infected. We examined use of three classes of antiretroviral medication: nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitor (NNRTIs), and protease inhibitors (PIs). HAART was defined as two NRTIs prescribed with either a PI or a NNRTI.

Of all HIV-infected TDCJ inmates, 48.8 percent were prescribed HAART during 1998 (table 4). Blacks, males, and older inmates all exhibited slightly elevated proportions of patients on HAART, although none of these associations reached statistical significance. Inmates with CD4 counts below 500/mm^3 exhibited a substantially higher percentage receiving HAART (66.8 percent) compared to inmates with CD4 counts at or above 500/mm^3 (38.0 percent). We found that the proportion of inmates receiving HAART increased steadily with each drop in CD4 count category, with the exception of a slight decrease in the lowest CD4 count category. Assessment of the 95 percent confidence intervals indicates that patients with CD4 counts at or above 500 cells/mm^3 and those with missing CD4 information exhibited substantially lower proportions of inmates on HAART than any of the other subgroups.

Of the 48.8 percent prescribed HAART, 43.2 percent received NRTI with PI therapy, and 11.2 percent received NRTI and non-NRTI therapy. 64.2 percent of HIV-

infected inmates were prescribed NRTI only therapy in 1998 (table 4). Inclusion in the NRTI only category did not preclude having been prescribed HAART in 1998. Overall, 31.1 percent of the HIV-infected inmates were prescribed no antiretroviral therapy during 1998 (table 4). Females, Hispanics and young inmates (18-29 years) all exhibited elevated percentages of no antiretroviral therapy.

Logistic regression models were used to examine the influence of the study factors on the dichotomous response variable, HAART prescription during 1998 (table 5). Of the variables included in the model, only CD4 count was predictive of being prescribed HAART. More specifically, relative to the reference category (patients with CD4 counts at or above 500/mm^3), the other four CD4 categories, patients with CD4 counts of (0-99, 100-199, 200-299, 300-499 /mm^3) all exhibited a significantly increased likelihood of being prescribed HAART. Alternatively, inmates with missing CD4 counts had a significant decreased likelihood of receiving HAART. Additional analyses and discussion. These analyses also served as the basis for a presentation given at the American College of Epidemiology Annual Meeting in Atlanta, Georgia.

Management of Active Pulmonary Tuberculosis (TB) in the prison system:

The incidence of active pulmonary TB in the prison population during a 12-month period (March, 1999 through March, 2000) was 27 cases per 100,000 inmates. Diagnosis with TB was defined as either having a positive culture for *Mycobacterium tuberculosis*, or having met the CDC clinical surveillance case definition for TB including: positive tuberculin skin test, clinical evidence of disease, and treatment with at least two antituberculosis drugs. Overall, 59 percent of the sample were prescribed antitubercular therapy for at least the defined standard duration; 45 percent were prescribed anti-TB therapy for longer

than the standard duration; ethambutal was included in the initial therapy among 95 percent of inmates treated with anti-TB therapy; and approximately 33 percent were prescribed pyrazinamide for a period of less than 56 days. Approximately 36 percent of the study sample began anti-tubercular pharmacotherapy prior to incarceration, while 7 percent were released from prison prior to completion of their therapy.

Antidepressant Prescribing Patterns among inmates with Depressive Disorders

To assess anti-depressant prescribing patterns in TDCJ, we focused on a cohort of 5,305 TDCJ prison inmates who were incarcerated for any duration during 1999 and who were diagnosed with one of three depressive disorders: major depression, dysthymia, and bipolar disorder. Because anti-depressant medication is generally not prescribed for treatment of manic episodes, we excluded from analysis all inmates with bipolar disorder who presented with manic episodes during the aforementioned period.

Table 6 shows that 78.2 percent of inmates with depressive disorder were prescribed antidepressants in 1998. Of these, 30.9 percent were prescribed SSRIs, and 47.3 percent were TCAs only. Only 21.8 percent were prescribed no antidepressant medication. Across all diagnostic categories: females, whites, and young inmates (18-29 years) were prescribed SSRIs more frequently than their counterparts; males and Hispanics exhibited elevated proportions of non-treatment; and blacks were more frequently prescribed TCA only therapy than other inmates.

Our logistic regression models (table 7) predicting anti-depressant medication prescribing patterns show that females were more likely than males to be prescribed

SSRIs, but were less likely than males to be prescribed no pharmacotherapy. Relative to whites (the referent), both blacks and Hispanics were less likely to be placed on SSRIs, but were more likely to have been prescribed no anti-depressant treatment. Blacks, however, were more likely to be prescribed tricyclic anti-depressants than either whites or Hispanics. Prison inmates who were between the ages of 30-49 exhibited a reduced number of SSRI prescriptions but an elevated percentage of tricyclic anti-depressant prescriptions. Additional analyses of this topic were conducted and are presented in manuscript number 5.

Compliance with Antidepressant Medication

We also examined antidepressant medication compliance scores among inmates with depressive disorders (table 8). Univariate analysis indicated that antidepressant medication compliance scores did not fall into a normal distribution. We decided, therefore, to use a nonparametric one-way analysis of variance procedure, the Kruskal-Wallis test, to assess differences across the independent variables. When the Kruskal-Wallis test was significant at the .05 level, pairwise comparisons were made using the Wilcoxon rank-sum test. The overall median compliance score was .79. Inmates treated with tricyclic antidepressants had a higher median score than inmates treated with SSRIs ($p<.05$); men had a higher median score than women ($p<.05$); Hispanics had a lower median score than blacks ($p<.05$); and compliance scores increased with age ($p<.05$). Except for comparison of scores for Hispanics versus blacks, all of these associations were also found in each of the depressive disorder subgroups.

To determine whether these associations persisted when all of the variables under study were controlled for, we used a logistic regression model assessing medication

compliance scores above 50 percent (table 9). The model showed that for each depressive disorder, inmates for whom tricyclic antidepressants were prescribed were more likely to have compliance scores above 50 percent than those for whom SSRIs were prescribed. However, the higher likelihood was statistically significant in only two of the disease categories: bipolar disorder (RR=2.04, 95% CI=1.21, 3.42) and all depressive disorders combined (RR=1.52, 95% CI=1.17, 1.97).

Likewise, men were significantly more likely than women to have compliance scores above 50 percent, for all depressive disorders (RR=2.01 , 95% CI=1.51, 2.66); major depression (RR=2.15, 95% CI=1.42, 3.26); dysthymia (RR=1.77, 95% CI=1.07, 2.92); and bipolar disorder (RR=2.04, 95% CI=1.21, 3.42). Moreover, for each disease subgroup, age was positively associated with the likelihood of having a compliance score above 50 percent, although this finding was not statistically significant. Only minor differences in this outcome were associated with race.

Anti-psychotic Medication Prescribing Patterns in Inmates

To examine anti-psychotic prescribing patterns in the TDCJ, we assessed a cohort of 3,750 prison inmates who were: 1) incarcerated for any during 1998; 2) diagnosed with either a schizophrenic or nonschizophrenic psychotic disorder; and 3) prescribed antipsychotic medication during 1998. Additional analyses and discussion of this topic are presented in manuscript number 6. Diagnoses of all psychotic disorders were made by physicians or mid-level practitioners at the time of each inmate's initial evaluation and/or subsequent medical encounters. We examined two broad classes of antipsychotic agents, typical and atypical. Typical

antipsychotics consisted of any of the following: chlorpromazine, fluphenazine, haloperidol, mesoridazine, molindone, perphenazine, thioridazine, thiothixene, and trifluoperazine. Atypical antipsychotics consisted of: clozapine, olanzapine, risperidone, and quetiapine.

Table 10 shows that among inmates diagnosed with schizophrenic disorders who were treated with antipsychotic agents, 85.4 percent were treated with typical agents only, and 14.6 percent were treated with atypical antipsychotic agents. Likewise, among those with non-schizophrenic psychotic disorders who were treated with antipsychotic medication, 89.3 percent were treated with typical agents only, and 10.7 percent were prescribed atypical agents. Among both subgroups: females, blacks, and non-violent criminals, were prescribed atypical antipsychotic agents less frequently than their counterparts. Among the schizophrenic inmates, the youngest age group (18-29) has the lowest proportion of inmates prescribed atypical antipsychotic agents. Among non-schizophrenic psychotic inmates, however, the age 30-49 year-old subgroup had the lowest proportion of patients prescribed the atypical agents. Finally, among inmates with both schizophrenic and non-schizophrenic psychotic disorders, those incarcerated for violent offenses were prescribed atypical antipsychotics slightly more frequently than those incarcerated for nonviolent crimes. Examination of the ninety-five percent confidence intervals associated with all of the aforementioned estimates indicates that only females exhibited a decrease in antipsychotic use that reached statistical significance.

Our logistic regression analysis (table 11) shows that among those diagnosed with schizophrenic disorders, only female gender and black race were both positively predictive of standard antipsychotic agent prescription. Conversely, both of these factors were negatively predictive of the outcome, novel anti-psychotic prescription. Among inmates diagnosed with non-schizophrenic psychotic disorders, black race and female

gender were again both positively predictive of typical anti-psychotic prescription; and negatively predictive of atypical anti-psychotic prescription.

Medication Adherence and Prescribing Patterns among Inmates with Diabetes Mellitus

Our study of antidiabetic agent prescribing practices and adherence among diabetic prison inmates indicates that 33 percent of the study sample was prescribed insulin only, 38 percent was prescribed oral hypoglycemic agents (OHA) only, 13 percent were prescribed both insulin and OHA, and 13 perecnt received no medication. The median adherence rate with drug therapy were 61 percent for insulin only, and 66 percent for OHA only. For combination therapy, the median adherence rate was 56 percent for insulin and 66 percent for OHA.

We used a logistic regression to assess prescribing patterns among adult diabetic inmates. Compared to whites, black inmates exhibited exhibited elevated odds of insulin only prescriptions, while Hispanics exhibited lower odds. Compared to the youngest age group, the two older groups of diabetic inmates exhibited significantly lower odds of insulin only prescriptions. Compared to whites, Latinos had lower odds of OHA only prescriptions, and compared to the youngest age category, the two older groups had elevated odds of OHA only prescriptions. No differences were apparent for combined therapy, however, both African American and Latinos had lower odds of no medication prescription, in comparison to whites. Inmates aged fifty and over had lower odds of no prescription medication than either of the younger age groups.

Health Care Management and Policy Recommendations

The aforementioned findings hold a number of important implications for correctional administrators and clinicians. The implications listed below are representative but not exhaustive of the those generated by the study.

HIV

Our findings that more than 30 percent of inmates with CD4 counts below 500 mm^3 were not prescribed highly active antiretroviral therapy in 1998 prompts a number of questions that should be investigated. First, now that HAART treatment has become more widely used in the general medical community, do the current treatment patterns among prison inmates reflect this trend. Our findings indicate that there were no variations in prescribing patterns according to race, age, or gender indicate that it will not be important to focus on one demographic group in particular. However, it will be important to examine the number of HIV-infected inmates who refuse therapy and their reasons for doing so.

Diabetes

Our findings that compliance scores with both insulin and oral hypoglycemic agents were lowest among inmates in the youngest age group (18-29) indicates that it may be important to target these young inmates with educational interventions. It is possible that such rates may be driven, in part, by lack of knowledge, denial of the seriousness of diabetes, and/or fatalistic attitudes on the part of younger inmates.

Depression

We found that inmates age 50 and over with a diagnosis of major depression were less frequently prescribed pharmacotherapy than their younger aged counterparts. In view of their elevated rates of depression, it will be important to determine what factors contribute to the low medication rate in older inmates.

Psychotic Disorders

Our findings indicate that blacks were prescribed atypical antipsychotic medication less frequently than whites and Hispanics. In view of previous reports that blacks are at increased risk for tardive dyskinesia, a side effect associated with many typical antipsychotic agents, it will be important to understand the driving forces behind these prescribing differences.

Published Manuscripts

1) Baillargeon J, Black S, Pulvino J, Dunn K. (2000). The Disease Profile of Texas Prison Inmates. Annals of Epidemiology, 10: 74-80.

   Note: The above manuscript was the lead article and featured a guest editorial in Annals of Epidemiology (considered one of the top journals in the field of Epidemiolgy)

2) Baillargeon J, Borucki M, Zepeda S, Jenson H, Leach C. Antiretroviral prescribing patterns in the Texas prison system. Clinical Infectious Disease, 31.

3) Baillargeon J, Borucki M, Williamson J, Dunn K. (1999). Determinents of HIV-related survival among Texas prison inmates. AIDS Patient Care and STDs, 13: 355-361.

4) Baillargeon J, Borucki M, Grady J. (1999). Immunologic predictors of HIV-related survival among Texas prison inmates. AIDS Patient Care and STDs, 14: 183-188.

5) Baillargeon J, Black S, Contreras S, Grady J, Pulvino J. (2000) Antidepressant prescribing patterns for prison inmates with depressive disorders. Journal of Affective Disorders (in press)

6) Baillargeon J, Contreras S, Grady J, Black S, Murray O. (2000). Compliance with antidepressant medication among prison inmates with depressive disorders. Psychiatric Services, 51, 1444-1446.

Manuscripts in Press

1) Baillargeon J, Contreras S. Antipsychotic prescribing patterns in the Texas Prison system. Journal of the American Academy of Psychiatry and the Law (in press, to be published March 2001).
2) Baillargeon J, Linton A, Black S, Zepeda S, Grady J. Medication prescribing and adherence patterns among prison inmates with diabetes mellitus. Journal of Correctional Health Care

Manuscripts Under Review

1) Baillargeon J, Kelley M, Lichtenstein M, Jenson H. Prevalence of tuberculosis in the Texas prison system (submitted to Clinical Infectious Disease).
2) Black S, Baillargeon J, Dunn K. Disease prevalence in older prison inmates. American Journal of Public Health (submitted July 1999).

Conference Presentations

1) Baillargeon J, Linton A, Black S, Zepeda S, Grady J. Medication prescribing and adherence patterns among prison inmates with diabetes mellitus. Presented at the Society for Epidemiolgic Research, Annual Conference, Seattle WA, June 2000.
2) Baillargeon J, Borucki M, Zepeda S, Jenson H, Leach C. Antiretroviral prescribing patterns in the Texas prison system. Presented at the American College of Epidemiology, Atlanta GA, August 2000.

Seminar Presentations

1) Baillargeon J, Kelley M, Lichtenstein M, Jenson H. Management of Tuberculosis in the Texas Prison System. Research Seminar, Department of Pediatrics, University of Texas Health Science Center at San Antonio, May 2001.

Table 1: Sociodemographic Characteristics of the TDCJ Inmate Population

Variable	Overall (n=170,215)		Males (n=155,949)		Females (n=14,268)	
	n	%	n	%	n	%
Race						
White	50,322	30	45,375	29	4,949	35
Hispanic	44,202	26	42,200	27	2,002	14
Black	75,691	44	68,374	44	7,317	51
Age						
18-29	54,995	32	51,486	33	3,508	25
30-49	102,194	60	92,074	59	10,117	71
50+	13,027	8	12,384	8	64	4

Table 2: Prevalence of major disease categories in the TDCJ Prison system[a]

Disease	Overall (n=170,215) Prevalence	Males (n=155,947) Prevalence	Females (n=14,268) Prevalence
Infective and Parasitic Disease	29.6	28.9	37.0
Neoplasms	0.7	0.7	0.9
Endocrine, Metabolic, Allergic	3.3	3.2	4.0
Blood and Blood-forming Organs	0.5	0.5	0.8
Mental Disorders	10.8	10.0	19.8
Nervous System and Sense Organs	4.2	4.1	5.1
Circulatory System	14.0	14.2	12.4
Respiratory System	6.3	6.2	8.0
Digestive System	5.9	5.8	6.9
Genitourinary System	0.7	0.6	2.2
Skin and Subcutaenous Tissue	2.4	2.4	2.6
Musculoskl. System, Connect. Tissue	15.3	15.3	15.2
Congenital Anomalies	0.4	0.4	0.3

Table 3: 15 Most Prevalent Conditions among Texas Prison Inmates

	All	Males	Females
1. Tuberculosis (class 2)[b]	20.1	20.4	16.2
2. Hypertension	9.8	9.8	10.1
3. Asthma	5.2	5.0	7.4
4. Low Back Pain	5.1	5.3	2.6
5. Viral Hepatitis	5.0	4.6	8.5
6. Affective Disorders	3.9	3.3	10.2
7. Arthritis	3.5	3.3	4.7
8. Fractures	2.9	3.0	1.3
9. Cirrhosis	2.8	2.6	5.2
10. Diabetes Mellitus	2.6	2.6	2.8
11. Hernia	2.0	2.1	0.6
12. Schizophrenic Disorders	2.0	1.9	2.7
13. Epilepsy	1.9	1.9	2.1
14. Heart Disease	1.7	1.5	2.0
15. HIV/AIDS	1.6	1.5	2.4

a= prevalence estimates represent the percentage of inmates with a given disease during the study period

b= TB (class 2) was defined as a presentation of 10 mm or more induration from a tuberculin skin test or documented history of a positive tuberculin skin test, followed by a negative chest x-ray.

Table 4: Proportion of HIV infected inmates prescribed antiretroviral medication, by clinical, sociodemographic factors and medication types [a]

Variable	HAART Therapy	NRTI only	No Anti-retroviral Therapy
	All HAART Therapy		
Overall	48.8 (46.8-50.8)	64.2 (62.2-66.1)	31.1 (29.3-33.0)
Gender			
Male	49.3 (46.6-51.9)	64.7 (62.2-67.3)	30.4 (28.0-32.9)
Female	44.7 (36.8-52.7)	59.1 (51.4-66.7)	37.6 (30.2-44.9)
Race			
White	46.6 (40.7-52.4)	64.1 (58.5-69.7)	30.5 (25.0-35.9)
Hispanic	46.6 (36.7-56.4)	62.3 (52.9-71.7)	34.3 (25.3-43.4)
Black	49.9 (46.4-53.4)	64.4 (61.0-67.8)	30.9 (27.7-34.2)
Age (years)			
18-29	44.4 (36.7-52.1)	56.2 (48.8-63.6)	38.1 (31.0-45.2)
30-49	49.3 (46.1-52.5)	65.4 (62.3-68.5)	30.2 (27.2-33.1)
50+	52.3 (40.1-64.4)	65.9 (54.3-77.6)	28.0 (16.8-39.2)
CD4 Count			
>/=500	38.0 (30.2-45.7)	57.9 (50.7-65.3)	38.2 (31.2-45.2)
< 500	66.8 (64.0-69.4)	83.3 (81.1-85.3)	11.9 (10.2-13.9)
300-499	56.7 (49.3-64.2)	79.1 (72.2-91.5)	16.1 (09.4-22.8)
200-299	69.2 (58.9-79.4)	81.8 (72.2-91.5)	12.3 (03.0-21.5)
100-199	78.8 (67.9-89.8)	88.3 (78.0-98.5)	06.8 (00.3-16.6)
0-99	73.8 (63.1-84.5)	88.8 (78.8-98.9)	07.7 (00.1-17.3)
Missing	25.8 (19.7-31.9)	36.5 (30.8-42.2)	58.4 (52.9-63.9)

[a]= 95 percent confidence intervals are presented in parentheses

Table 5: Estimated odds ratios from logistic regression predicting antiretroviral medication prescribing patterns[a]

Treatment	All HAART Therapy	NRTI only	No Antiretroviral Therapy
Gender[a]			
Female	0.95 (0.71-1.27)	0.89 (0.66-1.21)	1.22 (0.89-1.66)
Race[b]			
Hispan.	0.97 (0.68-1.38)	0.89 (0.61-1.28)	1.28 (0.91-1.45)
Black	1.09 (0.88-1.34)	0.91 (0.73-1.14)	1.15 (0.91-1.46)
Age (years) [c]			
30-49	1.06 (0.82-1.37)	1.38 (1.06-1.80)	0.76 (0.58-1.00)
50 +	1.08 (0.70-1.70)	1.31 (0.82-2.10)	0.73 (0.44-1.20)
CD4 count[d]			
300-499	2.14 (1.65-2.78)	2.73 (2.04-3.64)	0.31 (0.23-0.43)
200-299	3.66 (2.63-5.09)	3.23 (2.23-4.70)	0.23 (0.15-0.35)
100-199	6.06 (4.16-8.83)	5.30 (3.37-8.32)	0.12 (0.07-0.21)
0-99	4.56 (3.21-6.47)	5.64 (3.60-8.85)	0.14 (0.08-0.23)
Missing	0.57 (0.44-0.73)	0.41 (0.32-0.52)	2.30 (1.81-2.94)

*95 percent confidence interval does not include 1.00

[a] Reference category= males, [b] Reference category= whites, [c] Reference category= age group 18-29, [d] Reference category= 500+

Table 6: Anti-depressant prescribing patterns by sociodemographic factors

	All Depressive Disorders		
Treatment	**SSRI**	**TCA Only**	**None**
Overall	30.9	47.3	21.8
Gender			
Male	29.9	47.6	22.5
Female	35.6	46.0	18.3
Race			
White	*36.0	43.4	20.6
Hisp.	27.1	45.1	27.7
Black	24.3	54.0	21.7
Age			
18-29	35.2	43.1	21.7
30-49	28.8	49.5	21.7
50 +	33.0	43.1	23.9

*95 percent confidence interval indicates that estimate is significantly elevated compared to comparison groups of the same variable.

Table 7: Estimated odds ratios from logistic regression predicting anti-depressant medication prescribing patterns[a]

	All Depressive Disorders		
Treatment	SSRI	TCA Only	None
Gender[a]			
Female	*1.40	0.88	*0.78
Race[b]			
Hispan.	*0.66	1.08	*1.48
Black	*0.56	*1.53	1.09
Age[c]			
30-49	*0.73	*1.30	1.02
50 +	0.83	1.06	1.16

*95 percent confidence interval does not include 1.00
[a] Reference category= males, [b] Reference category= whites
[c] Reference category= age group 18-29

Table 8: Median medication compliance estimates for inmates with depressive disorders, by anti-depressant medication class and sociodemographic factors

Variable	All Depressive Disorders (n=2,554)	Major Depression (n=1,385)	Bipolar Disorder (n=467)
Overall	0.79 (0.63-0.89)	0.79 (0.63-0.89)	0.79 (0.59-0.90)
Treatment			
SSRI	*0.75 (0.56-0.87)	*0.75 (0.58-0.89)	*0.71 (0.45-0.85)
TCA	0.80 (0.65-0.89)	0.80 (0.66-0.86)	0.81 (0.64-0.90)
Gender			
Male	*0.80 (0.64-0.90)	*0.80 (0.64-0.90)	*0.81 (0.62-0.90)
Female	0.74 (0.53-0.84)	0.74 (0.56-0.85)	0.73 (0.44-0.84)
Race			
White	0.79 (0.62-0.89)	0.79 (0.63-0.89)	0.79 (0.61-0.89)
Hispanic	[a]0.77 (0.60-0.88)	0.76 (0.59-0.89)	0.80 (0.58-0.87)
Black	0.79 (0.65-0.89)	0.80 (0.66-0.89)	0.79 (0.55-0.91)
Age			
18-29	[b,c] 0.74 (0.54-0.86)	[b,c] 0.74 (0.56-0.87)	[b,c] 0.71 (0.43-0.85)
30-49	[d] 0.80 (0.65-0.89)	[d] 0.80 (0.66-0.89)	[d] 0.81 (0.63-0.90)
50+	0.86 (0.74-0.93)	0.86 (0.74-0.93)	0.90 (0.79-0.96)

*Pairwise comparisons, based on the Wilcoxon rank sum test, are significant at </=.05.
a=Hispanics vs. blacks, b= 18-29 vs. 30-49, c= 18-29 vs. 50+, d= 30-49 vs. 50+

Table 9: Estimated odds ratios from logistic regression predicting medication compliance scores below 50 percent

	All Depressive Disorders	Major Depression	Bipolar Disorder
Pharmacotherapy [a]			
SSRI	*1.52 (1.17-1.97)	1.26 (0.86-1.83)	*2.04 (1.21-3.42)
Gender [b]			
Female	*2.01 (1.51-2.66)	*2.15 (1.42-3.26)	*2.23 (1.30-3.82)
Race [c]			
Black	*0.73 (0.57-0.94)	0.76 (0.54-1.07)	1.35 (0.75-2.42)
Hispanic	1.05 (0.75-1.48)	1.16 (0.74-1.83)	0.84 (0.30-2.36)
Age [d]			
30-49	*0.50 (0.39-0.63)	*0.49 (0.35-0.68)	*0.43 (0.26-0.73)
50 +	*0.24 (0.13-0.44)	*0.22 (0.10-0.50)	0.26 (0.05-1.19)

* 95 percent confidence interval does not include one.
[a]Reference category= TCA, [b] Reference category= males, [c] Reference category= whites, [d] Reference category= age group 18-29

Table 10: Proportion of TDCJ inmates prescribed anti-psychotic agents in 1998, by medical condition, medication type and sociodemographic factors

	Schizophrenic Disorders (n=2,258)		Non-Schizophrenic Psychotic Disorders (n=2,058)	
Treatment	**Typical Only**	**Atypical**	**Typical Only**	**Atypical**
Overall	85.4 (83.8-86.8)	14.6 (13.2-16.1)	89.3 (87.8-90.5)	10.7 (9.4-12.1)
Gender				
Male	84.7 (82.8-86.6)	15.3 (13.4-17.2)	88.4 (86.7-90.2)	11.6 (09.8-13.3)
Female	95.1 (88.4-101.8)	04.9 (01.9-11.6)	98.3 (92.5-103.9)	01.7 (00.0-07.4)
Race				
White	81.5 (77.0-86.0)	18.5 (14.0-23.0)	84.8 (81.3-88.3)	15.2 (11.6-18.6)
Hispanic	82.4 (76.9-87.9)	17.6 (12.1-23.1)	86.9 (82.2-91.7)	13.1 (08.3-17.8)
Black	87.4 (84.8-90.0)	12.6 (10.0-15.2)	92.3 (89.8-94.9)	07.7 (05.1-10.2)
Age				
18-29	87.0 (81.6-92.3)	13.0 (07.7-18.4)	88.0 (83.9-92.1)	11.9 (07.8-16.1)
30-49	85.2 (82.8-87.6)	14.8 (12.4-17.2)	89.7 (87.4-91.9)	10.3 (08.1-12.6)
50+	84.8 (77.4-92.2)	15.2 (07.8-22.6)	88.9 (81.4-96.4)	11.1 (03.7-18.6)
Offense				
Violent	84.6 (82.0-87.2)	15.4 (12.8-18.0)	88.5 (86.1-90.8)	11.5 (09.1-13.9)
Non	86.2 (83.7-88.8)	13.8 (11.2-16.3)	90.0 (87.7-92.4)	10.0 (07.6-12.3)

Table 11: Estimated odds ratios from logistic regression predicting anti-depressant medication prescribing patterns[a]

	Schizophrenic Disorders		Non-Schizophrenic Psychotic Disorders	
Treatment	**Typical Only**	**Atypical**	**Typical Only**	**Atypcial**
Gender[a]				
Female	3.33 (1.62-6.86)	0.30 (0.15-0.62)	6.74 (2.13-21.34)	0.15 (0.05-0.47)
Race[b]				
Hispanic	1.07 (0.74-1.55)	0.93 (0.64-1.35)	1.21 (0.82-1.79)	0.83 (0.56-1.22)
Black	1.52 (1.15-2.02)	0.66 (0.50-0.87)	2.04 (1.49-2.80)	0.49 (0.36-0.67)
Age[c]				
30-49	0.83 (0.59-1.17)	1.20 (0.85-1.69)	1.09 (0.77-1.52)	0.92 (0.66-1.29)
50+	0.85 (0.51-1.43)	1.17 (0.70-1.97)	1.09 (0.59-2.01)	0.92 (0.50-1.70)
Offense[d]				
Violent	0.91 (0.72-1.15)	1.10 (0.87-1.40)	0.91 (0.69-1.22)	1.09 (0.82-1.45)

* 95 percent confidence interval does not include 1.00

[a] Reference category= males, [b] Reference category= whites, [c] Reference category= age group 18-29, [d] Reference category= Non-violent

Table 12: Median medication adherence estimates among diabetic inmates according to sociodemographic factors*

	Insulin Adherence		Oral Hypoglycemic Adherence	
	Insulin Only [d, e]	**Insulin and Oral Hypogly.**	**Oral Hypogly. Only** [c, d]	**Insulin and Oral Hypogly.** [c, d]
Overall	.61 (.40- .76)	.56 (.29-.76)	.66 (.41-.83)	.66 (.41-.85)
Gender				
Male	.60 (.39-.76)	.55 (.26-.76)	.66 (.40-.83)	.65 (.38-.84)
Female	.65 (.52-.74)	.68 (.55-.76)	.62 (.39-.82)	.71 (.51-.86)
Race				
White	.59 (.39- 74)	.52 (.31-.70)	.64 (.40-.83)	.57 (.36-.79)
Black	.62 (.40-.76)	.60 (.32-.77)	.68 (.45-.83)	.69 (.50-.86)
Hispanic	.61 (.40-.77)	.53 (.31-.70)	.64 (.34-.83)	.67 (.33-.83)
Age				
18-29	.51 (.33-.69)	.21 (.08-.52)	.39 (.24-.66)	.39 (.33-.92)
30-49	.60 (.38-.75)	.30 (.07-.62)	.66 (.43-.84)	.66 (.41-.83)
50 +	.64 (.46-.78)	.22 (.05-.61)	.67 (.42-.83)	.64 (.43-.83)

*Pairwise comparisons, based on the Wilcoxon rank sum test, are significant at </=.05
a=gender, b=Hispanics vs. blacks, c=18-29 vs. 30-49 d=18-29 vs. 50+, e=30-49 vs. 50+

Table 13: Logistic regression predicting anti-diabetic medication prescribing patterns*

	Insulin Only	Oral Hyp. only	Oral Hyp./ Insulin	No medication
Gender				
Male (ref.)	1.00 (--)	1.00 (--)	1.00 (--)	1.00 (--)
Female	1.17 (0.91-1.50)	0.95 (0.74-1.22)	0.87 (0.60-1.26)	0.94 (0.68-1.30)
Race				
White (ref.)	1.00 (--)	1.00 (--)	1.00 (--)	1.00 (--)
Black	†1.19 (1.01-1.42)	1.03 (0.87-1.22)	1.17 (0.92-1.49)	†0.63 (0.52-0.78)
Hispanic	†0.70 (0.58-0.86)	†2.02 (1.68-2.42)	0.96 (0.73-1.26)	†0.50 (0.40-0.64)
Age				
18-29 (ref.)	1.00 (--)	1.00 (--)	1.00 (--)	1.00 (--)
30-49	†0.60 (0.45-0.80)	†1.70 (1.23-2.35)	0.95 (0.63-1.45)	1.10 (0.77-1.58)
50 +	†0.64 (0.48-0.87)	†2.28 (1.64-3.17)	†1.06 (0.69-1.62)	†0.49 (0.33-0.73)

*95 percent confidence intervals presented in parentheses
† Confidence interval does not include one