

# Advancing Health Equity in Health Care

## Physician Billings for Mental Illness\*

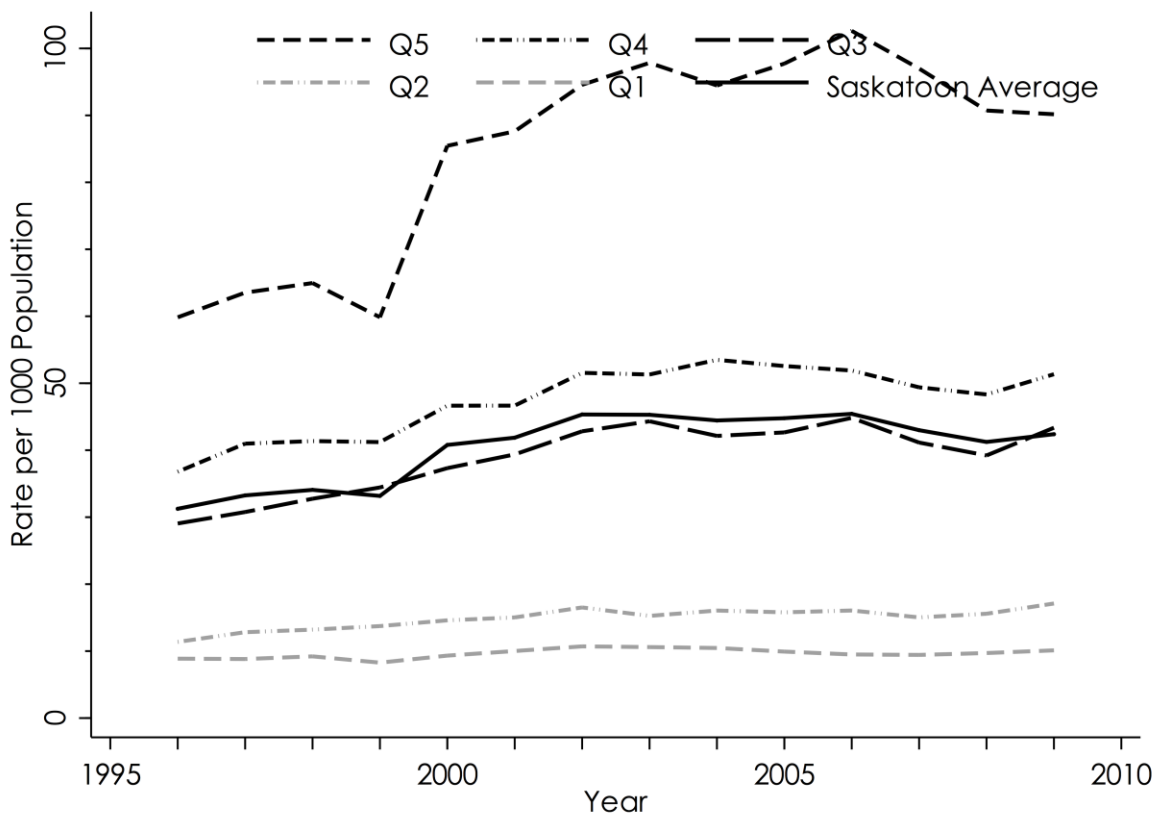
### Highlights

- Physician billings for mental illness are increasing over time for the general population.
- The inequality gap is high and showing signs of increasing over time for the general population.
- The Disparity Rate Ratio is significantly increasing over time.
- The gap between those living in areas of highest and lowest deprivation is widening.
- From 1996 to 2009, 49% of physician billings for mental illness occurred for people living in the highest areas of deprivation, compared to 6% in the areas of lowest deprivation.
- Click [here](#) to learn more about data sources and methods.

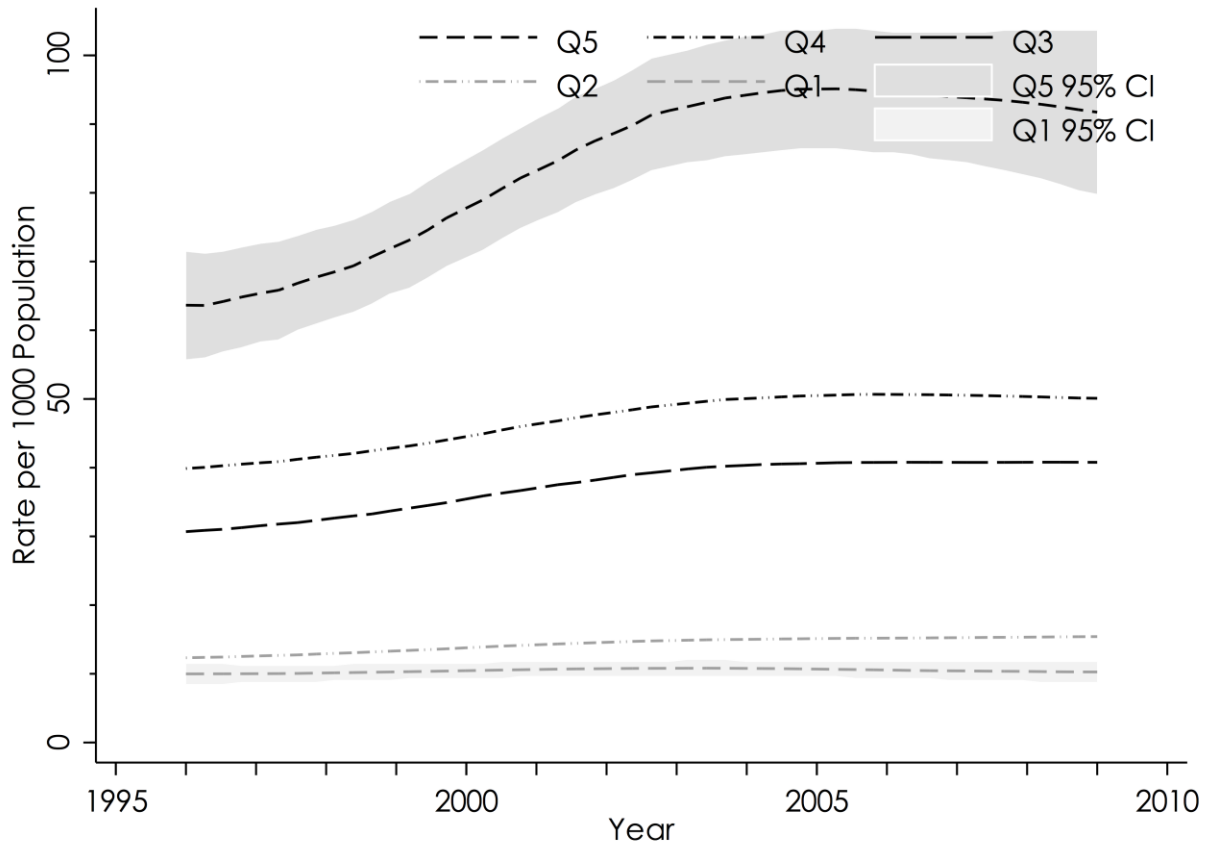
\*For the purposes of this analysis, mental illness is the term used to describe ICD-9 Chapter: Mental Disorders. This analysis does not include substance use and addictions.

Between January 1, 1996 and December 31, 2009 there were 113,349 mental illness physician billings in Saskatoon. There were 49,326 mental illness physician billings among men and 64,023 cases among women. In the city as a whole mental illness rates increased by 32% from 31.9 to 42.0 cases per 1000 people between 1996 and 2009 (Figure 1 and Figure 2). Figure 3 shows the disparity rate ratio and disparity rate difference for age and sex standardized mental illness rates. The disparity rate ratio increased by 33% from 6.8 in 1996 to 9.1 in 2009. The disparity rate difference increase by 57% from 51.9 in 1996 to 81.4 in 2009.

**Figure 1: Crude Mental Illness Physician Billings Rate per 1000 Population by Quintile of Deprivation, Saskatoon, 1996 to 2009.**

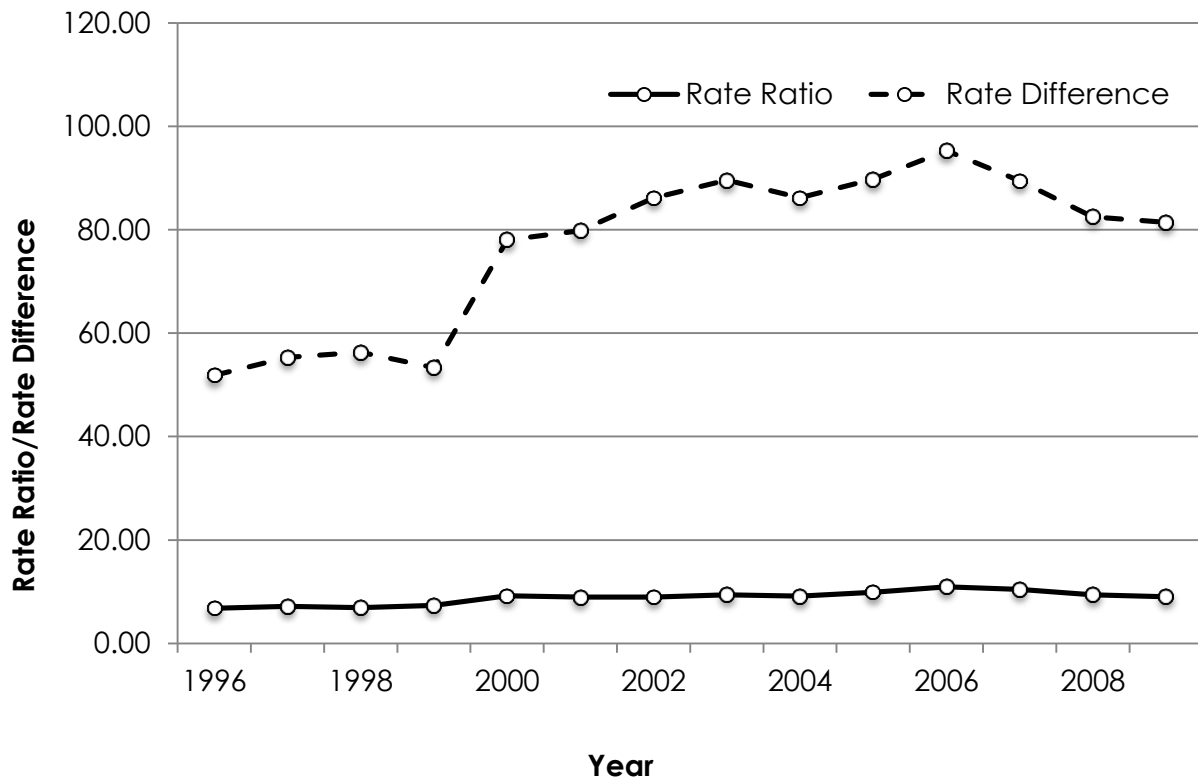


**Figure 2: Adjusted Mental Illness Physician Billing Rate per 1000 Population by Deprivation Area, Saskatoon, 1996 to 2009.**



Note: Model is a negative binomial regression and includes age, sex, year, quintile of deprivation and a year\*quintile of deprivation interaction term as dependent variables. The model is offset by the log of population size and robust standard errors were estimated.

**Figure 3: Age and Sex Standardized Mental Illness Physician Billings Rate Ratio and Rate Differences between the Highest and Lowest Quintiles of Deprivation, Saskatoon, 1996 to 2009.**



The Lorenz curve for all years combined shows that 49% of mental illness physician billings occurs among residents in areas of highest deprivation, representing 24% of the total population of Saskatoon (Figure 4). In contrast, 6% of mental illness physician billings occurs among those residing in areas of least deprivation, representing 23% of the population.

**Figure 4: Age and Sex Adjusted Lorenz Curve for Mental Illness Physician Billings, Saskatoon, 1996 to 2009.**

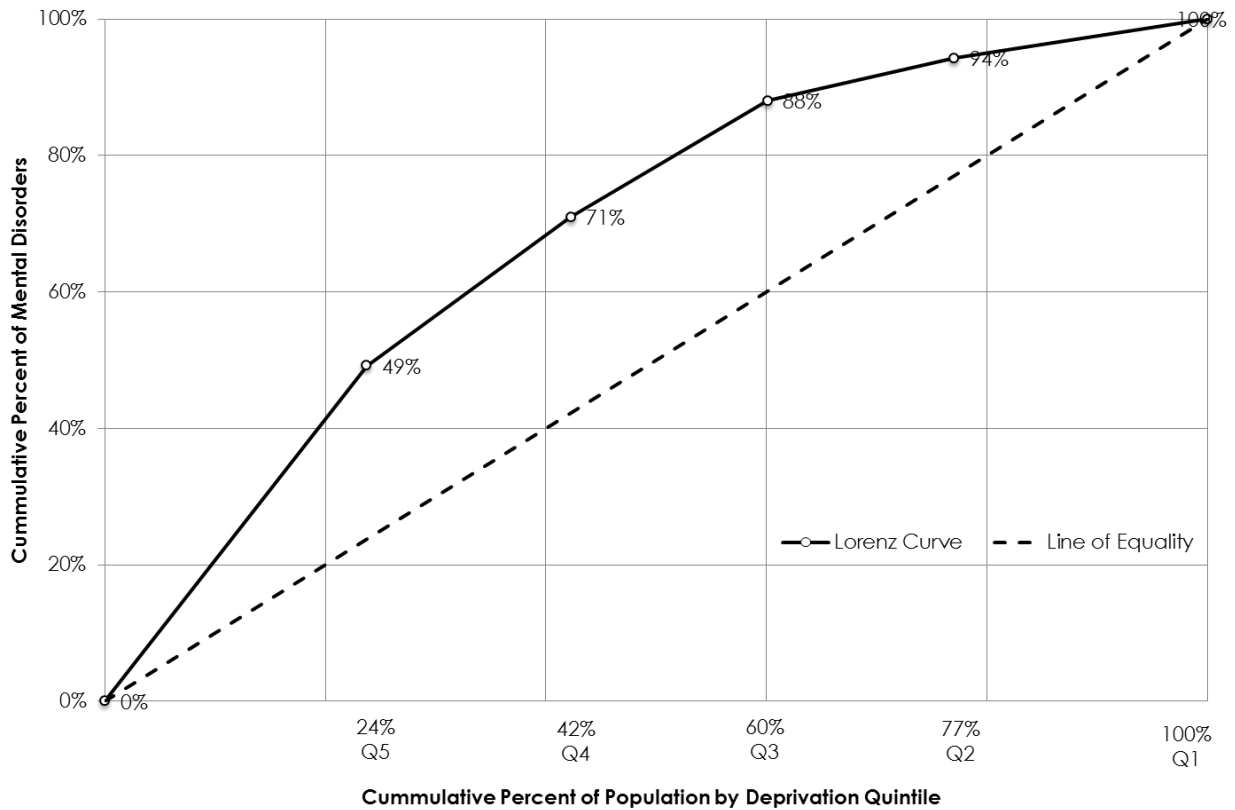
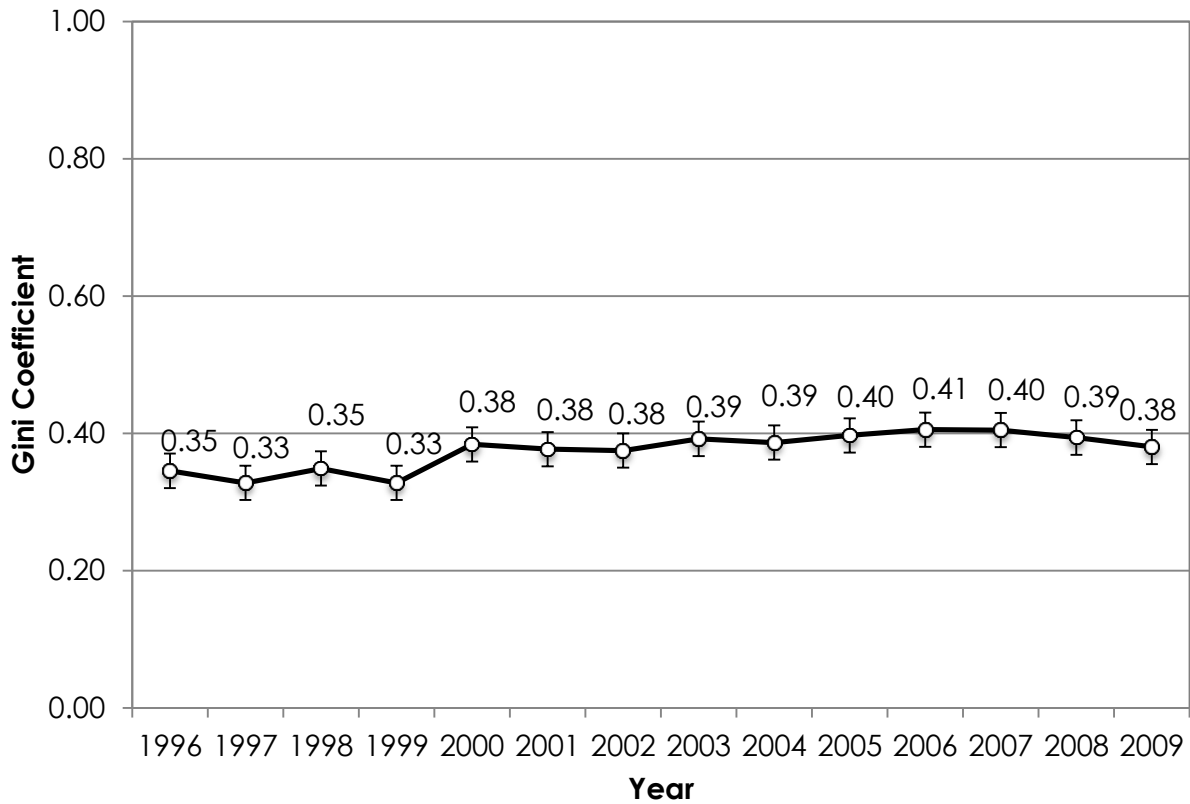


Figure 5 shows that the Gini coefficient for mental illness physician billings was 0.35 (95% CI: 0.32 to 0.37) in 1996 and increased to 0.38 (95% CI: 0.41 to 0.35) in 2009. A Gini coefficient ranging from 0.33 to 0.41 represents a high degree of inequality for mental illness physician billings in Saskatoon.

**Figure 5: Age and Sex Adjusted Gini Coefficients for Mental Illness Physician Billings, Saskatoon, 1996 to 2009.**



**Table 1: Mental Illness Physician Billings Rate Ratios for Sex, Age, Quintile of Deprivation, Saskatoon, 1996 and 2009.**

Mental illness	Robust					
	Rates	RR	Std. Err.	z	P>z	[95% Conf. Interval]
<b>Sex</b>						
Male	1.00	-	-	-	-	-
Female	1.06	0.03	2.46	0.01	1.01	1.11
<b>Age Category</b>						
0 to 14	1.00	-	-	-	-	-
15 to 29	2.07	0.09	17.60	0.00	1.91	2.24
30 to 44	2.92	0.12	25.15	0.00	2.69	3.18
45 to 64	3.20	0.13	28.18	0.00	2.95	3.47
65+	3.45	0.19	22.23	0.00	3.09	3.84
<b>Deprivation Quintiles</b>						
Q5	1.00	-	-	-	-	-
Q4	0.75	0.10	-2.07	0.04	0.57	0.98
Q3	0.65	0.09	-2.99	0.00	0.49	0.86
Q2	0.28	0.04	-9.86	0.00	0.22	0.36
Q1	0.20	0.04	-8.49	0.00	0.14	0.29
<b>Year</b>						
1996	1.00	-	-	-	-	-
1997	1.08	0.14	0.62	0.53	0.84	1.40
1998	1.09	0.14	0.68	0.49	0.85	1.41
1999	0.94	0.13	-0.47	0.64	0.72	1.23
2000	1.39	0.18	2.50	0.01	1.07	1.79
2001	1.38	0.18	2.46	0.01	1.07	1.78
2002	1.48	0.19	3.02	0.00	1.15	1.91
2003	1.60	0.21	3.67	0.00	1.25	2.06
2004	1.53	0.19	3.39	0.00	1.19	1.95
2005	1.57	0.20	3.53	0.00	1.22	2.02
2006	1.70	0.22	4.21	0.00	1.33	2.18
2007	1.57	0.21	3.41	0.00	1.21	2.03
2008	1.45	0.19	2.88	0.00	1.13	1.88
2009	1.43	0.18	2.80	0.01	1.11	1.83

Note: Model is a negative binomial regression and includes age, sex, year, quintile of deprivation and a year\*quintile of deprivation interaction term as dependent variables. The model is offset by the log of population size and robust standard errors were estimated.