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Increased Medicaid Financing and Equalization of African Americans' and Whites' Outpatient and Emergency Treatment Expenditures

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Abstract

Objective: We investigated whether a new funding opportunity to finance mental health treatment, provided to autonomous county-level mental health systems without customary cost sharing requirements, equalized African American and White children's outpatient and emergency treatment expenditure inequalities. Using Whites as a benchmark, we considered expenditure patterns favoring Whites over African Americans (''disparities'') and favoring African Americans over Whites (''reverse disparities'').
Methods: Settlement-mandated Early Periodic Screening Diagnosis and Treatment (EPSDT) expenditure increases began in the third quarter of 1995. We analyzed Medi-Cal paid claims for mental health services delivered to youth (under 18 years of age) over 64 quarters for a study period covering July 1, 1991 through June 30, 2007 in controlled cross-sectional (systems), longitudinal (quarters) analyses.
Results: Settlement-mandated increases in EPSDT treatment funding was associated with relatively greater African American vs. White expenditures for outpatient care when systems initially spent more on Whites. When systems initially spent more on African Americans, relative increases were greater for Whites for outpatient and emergency services.
Conclusions: With new funding that requires no matching funds from the county, county mental health systems did reduce outpatient treatment expenditure inequalities. This was found to be true in counties that initially favored African Americans and in counties that initially favored Whites. Adopting a systems level perspective and taking account of initial conditions and trends can be critical for understanding inequalities.

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Introduction

African American children are less likely than White children to receive needed non-urgent outpatient mental health treatment,[1-5] and they are more likely to require psychiatric emergency treatment.[6,7] After children enter mental health treatment, however, African American-White disparities diminish. Studies of community-based samples demonstrate few statistically significant African American-White expenditure differences in outpatient care.[8] However, when examining samples of youth in foster care, disparities can be observed – particularly in psychotropic medication expenditures.[9-11]

Differences between treatment systems and expenditures can play a large but overlooked role in explaining disparities in children's use of care. Substantial state-level differences have been highlighted, reflecting differences in supportive policy and financing decisions,[12] particularly in regard to Medicaid policy.[13] Studying four state's Medicaid programs, researchers found that mental health services use rates for African American children on Medicaid varied between 52 and 106 per thousand Medicaid enrollees, while those of Whites varied between 81 and 105 per thousand. This results in African American-White inequality ratios between .60 and 1.00.[14]

California's decentralized state system comprises 58 highly diverse systems, serving counties of contrasting size, urban dominance, economic base, and political leanings and with mental health treatment systems of corresponding diversity. Before and after1991's official decentralization of the state system (''realignment''), county systems' per-capita expenditures for child mental health services varied widely.[15] Further, the county's ethnic minority representation was linked to polarized system expenditures: systems initially spending most on children's treatment were more ethnically diverse, as were systems spending least.[16]

Contrasts in county mental health system expenditure levels may reflect differential willingness to devote additional resources to meeting ethnic minority person's specialty treatment needs. One study found that there were far lower Medicaid charges for Asian and Latino populations because immigrants with special cultural and language assistance needs use fewer services. Meeting such needs exposed providers to uncompensated costs.[17]

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Extra measures are often also necessary to serve mentally ill African American children: cultural competence training[18] and other activities are required to support special treatment plan development, to combat errors in diagnosis that are prevalent among African Americans,[19,20] and to address African American's culturally-based mistrust.[21] More collateral contacts are needed to engage community-based organizations and other resources due to African Americans being embedded in networks and communities,[22] and more coordination efforts are required to manage African American children's greater involvement with child protective services, homelessness, and criminal justice systems.[19,20] Without these investments, African American and other ethnic minority clients will engage less with treatment,[22] and thus consume fewer mental health expenditures.

In California, an infusion of treatment funds in 1995 affords an opportunity to study county system responses to the addition of new funds for children's mental health care. The new funding was provided to settle a lawsuit over Medicaid's Early Periodic Screening, Diagnosis and Treatment (EPSDT) program's mental health care provision, which California implemented partially and reluctantly. Settlement of the lawsuit (T.L. vs. Belshe, 1995) removed restrictions on case-finding and treatment, and the settlement's financial provisions required that, after July 1, 1995, the California state government pay each county's 50% match for federally funded Medicaid-covered mental health services.

EPSDT treatment expansion was thus cost-free to counties and county systems from the settlement's implementation date forward. Mental health officials statewide followed the suit closely because they bore direct responsibility for implementing some of the settlement's terms, and Quarter 3 of 1995 was advertised in advance as the start date for expanded funding and other settlement provisions. Researchers have shown that, both immediately after the EPSDT expansion and over time following it, treatment rates increased statewide. They rose especially in rural systems and systems initially spending less than others on children's mental health care.[23] Further, outpatient treatment rates rose and emergency treatment rates declined.[24]

The present study investigated whether access to newly available EPSDT mental health treatment resources, available after the third quarter of 1995 and provided without customary cost-sharing requirements to county mental health systems, reduced African American-White treatment expenditure inequalities. The study focused on systems level expenditure inequalities through a controlled assessment which captured fluctuating expenditure inequalities over time. It addressed immediate effects from EPSDT expansion on long-term expenditure trends.

To address what are usually considered as disparities, as well as overlooked ''reverse'' disparities, we observed two types of systems: (i) systems initially favoring Whites over African Americans in pre-EPSDT expansion expenditures, and (ii) systems initially favoring African American's expenditures over White's. Systems favoring Whites expenditures are consistent with findings in much disparities research literature which documents that treatment access, continuation, and quality of care is better for Whites than for African Americans.[20] However, if systems prioritize engaging and retaining African American children, expenditures can be greater for African Americans than for Whites.

California's polarization with respect to minority representation and expenditures[16] suggests that, whereas most systems spend more on treatment for Whites, in order to address minority children's treatment barriers, some systems might spend more on ethnic minority children's treatment than on White's. We investigated both types of systems to determine whether new funding reduced financing inequalities – either by providing for African American children's special treatment needs or, having already spent more on African American children's care, by now spending more on Whites.

Methods

Examining the percent difference in expenditures for African Americans versus Whites, the study's unit of analysis was the county mental health treatment system as observed over quarters (county system-by-quarter). The study began before the settlement's terms were implemented and continued for 12 years after reflecting a pre-post settlement, long-term time series. The study's methods were also sensitive to quarterly fluctuations in inequalities. We observed systems initially showing, in the pre-EPSDT expansion era, more favorable White to African American expenditures (higher per capita outpatient expenditures for Whites and lower psychiatric emergency treatment expenditures). And, unlike other studies, we also examined systems where African American expenditures were more favorable than those of Whites (higher per capita outpatient treatment expenditures for African Americans and lower psychiatric emergency treatment expenditures). We assessed the extent to which inequalities of both kinds were reduced.

Our research design is an interrupted time series, ''the strongest, quasi-experimental design to evaluate the longitudinal effects of such time-delimited interventions''.[25] We employed regression analysis of interrupted times series data which ''allows us to assess, in statistical terms, how much an intervention changed an outcome of interest, immediately and over time''.[25]

We included controls for rates of foster care placement, children's Supplemental Social Security (SSI) disability, and Serious Emotional Disability (SED) observed in each county and at each quarter with methods that adjusted for changing rates across systems and over time. We included a variable which captured underlying linear trends in inequality reduction, in order to control for any heightening of awareness leading to targeting of expenditure inequalities that might occur for reasons apart from EPSDT funding expansion, and other confounding influences increasing in a linear fashion with the passage of time.

Data Sources

We obtained Medi-Cal paid claims for mental health services delivered to children under age 18, between July 1, 1991 and June 30, 2007, from the California Department of Mental Health (CDMH). CDMH provided data measuring specialty mental health service use and characteristics of Medi-Cal children who use specialty mental health services. These files include paid claims for services received, as well as client characteristics: age, gender, ethnicity, diagnosis, aid codes, and service use. Files were transmitted after replacement of case numbers with randomly generated case identification numbers to permit linking of records while protecting client's confidentiality. The research protocol was approved by the Committee for the Protection of Human Subjects for the University of California, Berkeley.

Independent Variables

Measuring EPSDT Settlement Funding Onset

The longitudinal variable ''EPSDT'' marked quarters falling before and after the EPSDT lawsuit's settlement and denoted the availability of additional funding for county systems to provide mental health treatment. EPSDT was assigned ''0'' for the quarters (Q) before EPSDT legal settlement (Q3 in 1995) and ''1'' for the quarters after. EPSDT assessed how much the onset of EPSDT funding was associated with an immediate post-EPSDT response in outpatient and emergency expenditures and disparities. The settlement and timing of onset were widely publicized as several new obligations and opportunities became available July1, 1995. Interested counties immediately began to tap into newly available resources, which permitted spending without co-payment obligations (California Department of Mental Health, 2002). Previous research on the EPSDT settlement has detected immediate, short-term effects, as well as longer-term effects.[24]

We also assessed interactions between EPSDT and Time-Trends (described later) to address whether EPSDT settlement expenditure trends were steeper than underlying trends, indicating a greater than expected rise in EPSDT-initiated spending. Previous studies demonstrated a good fit for models including EPSDT, TIME, and EPSDT $\times$ Time and EPSDT-initiated penetration rates[23] and treatment rates[24] and we considered the approach suitable under present circumstances.

Control Variables

We controlled for several characteristics describing treatment intensive populations where African Americans are overrepresented using CDMH data files to measure variables reflecting higher levels of treatment need. We aggregated indicators for each plan at each quarter. These furnished time-varying measures of caseload illness-severity that we entered in regression equations as controls.

Disability Status

We controlled for whether children qualified for Supplemental Social Security (SSI) payments due to mental illness-related conditions that prevented them from participating in children's usual activities due to functional impairment. This variable controlled for the severity of the clients' functional impairments.

Serious Emotional Disturbance

Children with the most serious diagnoses, including schizophrenia, bipolar disorder, and depression, meet criteria established by California officials to be classified as having Serious Emotional Disturbance (SED). SED children qualify for special programming under state-, federal, and foundation-sponsored initiatives.

Foster Care Placement

Foster care-placed children have been abused or neglected and child protective services personnel have removed them from their homes. Due to adverse experiences, they are diagnosed with and treated for mental illness at high rates. For each county mental health system at each quarter, we calculated the county systems' proportion of treated children who were placed in foster care.

Time-Trend Control

We controlled for secular linear trends moving toward inequality reduction from non-settlement related sources such as increasing mental health officials' and clinicians' concern about disparities and California's state requirement to monitor and address them (T.L. vs. Belshe,1995). The ''TREND'' variable was scored as ''0'' for the first quarter of EPSDT funding expansion, with quarters assigned negative numbers counting backward from 0 to the first quarter observed during the study and positive numbers counting forward to the final quarter.

Dependent Variables

For each county-quarter, we calculated approved per client expenditures for the delivery of services listed below for African American clients and we divided this by approved expenditures for Whites clients. We then subtracted this ratio from 1 and multiplied it by 100. For example, if \$93 was spent for African Americans vs. \$100 for Whites, then 7% less was spent on African Americans (-7%). And if \$107 was spent for African Americans as compared to \$100 for Whites, then African Americans expenditures were 7% higher than Whites ($+7\%$).

EPSDT-Funded Mental Health Services

EPSDT-eligible services for children and adolescents (California Department of Health Care Services, 2008) are: outpatient mental health services (defined below), therapeutic behavioral services (specialized hospital prevention services), medication support, case management, day treatment intensive services (half-day and full-day), day rehabilitation services (half day and full day), and crisis stabilization and crisis intervention (defined below). We refer to expenditures for any of these as treatment expenditures.

Outpatient Mental Health Services
These are mental health visits for assessment, plan development, individual or group therapy, collateral contact, and other treatment related activities. The treatment's goal is to reduce mental illness's symptoms and to improve or to maintain successful social functioning.

Crisis Services
California recognizes two forms of urgent care for treatment and billing purposes. We combined them to form a comprehensive indicator. *Crisis Intervention Services* take place in community based settings: telephone hotlines, walk-in crisis intervention services, mobile crisis teams, and urgent, unscheduled clinical care. The target is crises of lesser severity which can be managed outside of a hospital, and crisis intervention services account for almost 90% of crisis care provided to children in California's system. *Crisis Stabilization Services* address the most serious crises, often with overwhelming loss of emotional control and threatened harm to the child or others. These services are provided in a hospital or in another 24-hour health care facility where institutional confinement opportunities are readily at hand.

Analysis

Sample Preparation and Sample Size
To ensure stable results, and to allow for enough pre-settlement observations for effective analysis, we restricted our analysis to counties averaging at least 10 users per quarter during the pre-EPSDT and post-EPSDT funding expansion period. We also eliminated a few outlier county-quarters which presented sudden and extreme shifting values indicating invalid reporting.

We focused on inequality reduction – how African Americans' lesser outpatient treatment and greater psychiatric emergency treatment expenditures came closer to those of Whites, and how much Whites' lesser outpatient treatment and greater emergency treatment came closer to African Americans. To measure inequalities, we identified two groups of systems: (i) systems with more quarters before EPSDT expansion, on average, where Whites' outpatient expenditures exceeded African Americans' and where African Americans' psychiatric emergency treatment expenditures exceeded Whites'; and (ii) systems with more quarters before EPSDT expansion, on average, where African Americans' outpatient expenditures exceeded Whites' and where Whites' psychiatric emergency treatment expenditures exceeded African Americans'.

Before EPSDT expansion, the direction and magnitude of inequalities was as follows: There were more county-quarters in the pre-EPSDT expansion era where African Americans' outpatient expenditures were lower than Whites': 216 vs. 108 county-quarters. In the same regard, there were more county quarters where African Americans' psychiatric emergency treatment expenditures were higher than Whites': 168 vs. 156.

Regression Analysis
We regressed African American-White outpatient treatment and emergency treatment expenditure inequality indicators on EPSDT and TREND as previously defined, and on an EPSDT × TREND interaction term. EPSDT assessed immediate, short-term changes controlling for secular trends (captured in TREND) and covariates. This interaction provided a controlled assessment of shifting trends in inequalities associated with the availability of more EPSDT mental health funding. In previous research (Snowdon *et al.*[19]), our modeling approach captured EPSDT-related shifts in patterns of outpatient and psychiatric emergency treatment. This suggested that it might prove equally sensitive to shifting expenditure patterns and inequalities for such care. Empirical results increased our confidence that increasing complexity (by modeling lags, for example) were indeed unwarranted. We estimated equations using random-effects procedures with robust standard errors to further guard against heteroscedasticity.

Results

Table 1 displays outpatient and psychiatric emergency treatment per-capita expenditures for the 15 study years aggregated into three-year intervals for display. Outpatient treatment expenditures almost tripled, and the African American-White expenditure inequality first declined and then rose in the final years of the study. Crisis care expenditures more than doubled and the African American-White inequality initially rose after the EPSDT settlement and then declined.

Table 2 displays pre-post results for systems which, pre-EPSDT expansion, demonstrated higher outpatient expenditures and lower emergency treatment expenditures for Whites. For outpatient treatment, positive coefficients indicated rising expenditures for African Americans relative to Whites. For psychiatric emergency treatment expenditures, negative coefficients indicated declining African Americans' expenditures relative to Whites, although not reaching significance.

African Americans' immediate post-EPSDT expansion outpatient expenditures increased relative to Whites' at a level approaching significance ($\beta = 0.080$, SE = 0.046, p = .09). After EPSDT expansion, ongoing trends shifting toward closing African American-White ouptatient expenditure inequalities reached statistical significance ($\beta = 0.010$*, SE = 0.005) as indicated by the EPSDT × Trend interaction term. For African American vs. White psychiatric emergency treatment expenditures, there were neither immediately nor trend shifts in inequality reduction.

Table 3 lists pre-post results for systems which, pre-EPSDT expansion, demonstrated higher outpatient expenditures for African Americans and lower emergency treatment expenditures. For outpatient treatment, negative coefficients for post-EPSDT terms indicate rising expenditures for Whites relative to African Americans. Whites' post EPSDT expansion outpatient expenditures

Table 1: Outpatient and Emergency Treatment Expenditures for African American and White Children: Three Year Means and Standard Deviations (SD).

	Outpatient Care Costs					Psychiatric Emergency Treatment Costs				
	African American		White		Disparity	African American		White		Disparity
Years	mean	(SD)	mean	(SD)	Ratio	mean	(SD)	mean	(SD)	Ratio
FY92/93 - FY94/95	$ 662	(116)	$696	(116)	0.95	$377	(64)	$365	(63)	1.03
FY95/96 - FY97/98	$948	(111)	$1,027	(96)	0.92	$548	(44)	$520	(22)	1.05
FY98/99 - FY00/01	$1,166	(138)	$1,220	(111)	0.96	$588	(47)	$597	(52)	0.98
FY01/02 - FY03/04	$1,489	(82)	$1,514	(81)	0.98	$699	(84)	$657	(38)	1.06
FY04/05 - FY06/07	$1,539	(118)	$1,609	(127)	0.96	$807	(65)	$806	(58)	1.00

Table 2: Outpatient and Psychiatric Emergency Treatment Expenditures in Counties with Pre-EPSDT Inequalities: More Outpatient and Less Psychiatric Emergency Treatment Expenditures on Whites.

	Outpatient Care Expenditures (n = 1224)				Psychiatric Emergency Treatment Expenditures (n = 907)			
	β	SE	95% CI		β	SE	95% CI	
Intercept	.688**	.174	.348	1.029	1.24**	.301	.653	1.83
TREND	−.007	.005	−.016	.001	.012	.017	−.022	.047
EPSDT	.080	.046	−.011	.017	−.227	.207	−.632	.178
EPSDT × TREND	.010*	.005	.001	.020	−.012	.017	−.046	.021
SED	.056	.124	−1.87	.300	.101	.251	−.390	.593
Disability Status	.027	.023	−.018	.072	−.011	.036	−.084	.060
Foster Care	.027	.034	−.039	.0.93	−.024	.036	−.094	.046

* $p < 0.05$
** $p < 0.01$

Table 3: Outpatient and Psychiatric Emergency Treatment Expenditures in Counties with Pre-EPSDT Inequalities: More Outpatient and Less Psychiatric Emergency Treatment Expenditures on African Americans.

	Outpatient Care Expenditures (n = 612)				Psychiatric Emergency Treatment Expenditures (n = 819)			
	β	SE	95% CI		β	SE	95% CI	
Intercept	−.047	.270	−.577	.482	.506	.719	−.904	1.92
TREND	.017**	.005	.007	.026	−.008	.011	−.030	.014
EPSDT	−.213**	.038	−.287	−.139	.286*	.124	.043	.530
EPSDT × TREND	−.018**	.006	−.029	−.007	.007	.011	−.014	.028
SED	1.39**	.321	.762	2.02	.146	.663	−1.15	1.45
Disability Status	−.064	.039	−.139	.012	.001	.037	−.071	.074
Foster Care	−.015	.037	−.087	.0.57	.127**	.038	.053	.201

* $p < 0.05$
** $p < 0.01$

increased relative to African Americans both immediately ($\beta = -0.213$**, SE = 0.038) and from ongoing shifts in trends ($\beta = -0.018$**, SE = 0.038). For psychiatric emergency treatment expenditures, positive coefficients indicate declining expenditures for Whites relative to African Americans during the post-EPSDT phase. Whites' expenditures declined relative to African Americans' immediately following EPSDT expansion ($\beta = 0.286$**, SE = 0.007), but there was no evidence of a shifted trend.

Discussion

To settle a lawsuit brought by mental health advocates challenging the State's implementation of the EPSDT program, the State of California provided new, unrestricted treatment financing opportunities at no charge to counties and county mental health systems. The funding opportunity was introduced into systems with a polarized history of response to mental health expenditures, divided in relation to a system's ethnic minority representation. We focused

directly on expenditure inequalities implied in this polarization, asking whether new funding served to reduce inequalities for African American and White children.

For outpatient care, the new funds led to a closing of inequalities. Where average expenditures were greater for Whites during pre-EPSDT expansion – representing the majority of system-quarters – the African American-White gap closed following EPSDT expansion. There was no immediate effect, but trends were shifted toward steadily closing the gap. This gradual inequality reduction may reflect the time required to assemble resources necessary to overcome special barriers to engage African Americans and retain them in treatment. At the outset, systems with lesser histories of serving ethnic minority clients are less likely to understand how they might address special needs of African American clients. Conceivably, shifting trends reflect a kind of learning curve for assembling and putting necessary resources into place. Only with passing time are they able to create opportunities for additional spending on African American children.

In systems where average outpatient expenditures were greater for African Americans during the pre-EPSDT expansion period, Whites' expenditures rose more quickly than those for African Americans post-EPSDT. There was immediate movement toward greater relative spending on White children as well as a shifted trend. Post-EPSDT expansion, conceivably, less specialized, culturally adapted programming is necessary and increased expenditures for provider and program resources result in immediate and lasting gains in treating White children.

Inequalities also closed for Whites in systems that spent more on Whites before EPSDT expansion. Even as psychiatric emergency treatment expenditures increased for everyone, they increased less for Whites than for African Americans in these counties as the expenditures for the two groups grew closer together. With greater funding from EPSDT expansion, more outpatient treatment was provided.[23] Conceivably, this promoted more or better treatment for Whites in systems previously concentrating especially on African Americans.

The study's results demonstrate that it is important to examine treatment systems wherever possible, especially longitudinally, along with studying individuals. For example, whereas individual African American children are especially likely to receive emergency treatment[26] when systems are observed over time, system-quarters where African Americans' emergency treatment expenditures are greater are almost balanced by system-quarters where Whites' emergency treatment expenditures are greater. Differences in programming array and in services organization should be investigated to furnish a comprehensive account.

The study observed treatment systems quarterly over a lengthy period, 12 years, and it includes caseload controls. It also included a linear trend variable to control for any movement toward decreasing inequalities for reasons extraneous to the study. Nevertheless, the study remained vulnerable to a challenge: events uncontrolled for and coinciding with EPSDT expansion might explain the observed findings.

We consider this prospect highly unlikely. A confounding event must arrive precisely during the third quarter of 1995, and not before, and it must shock the system to reduce inequalities with its effects occurring immediately. It is difficult to conceive of events meeting these stringent requirements, and neither informal discussion with key informants[27] nor in-depth interviews with policy makers and administrators concerning the system's development and long-term funding patterns[15] suggested any such possibility. We consider it unlikely that a shock arriving the third quarter of 1995, and not before, would abruptly shrink inequalities and produce aftershocks such as were observed, but we cannot entirely rule out this possibility. In our view, it is more plausible that attention to disparities grew more or less gradually with no abrupt change coinciding precisely with the third quarter of 1995. Accordingly, we believe that our linear time trend captures naturally occurring changes potentially confounding EPSDT expansion.

Equally important, growing attention to ''disparities'' targeted unfavorable utilization and quality for African Americans and other ethnic minority groups. We now document EPSDT-initiated inequality reduction both for African Americans (''disparities'') and Whites (''reverse disparities''). Our finding that there were ''reverse disparities'' is inconsistent with the thrust of calling attention to disparities, which was to document and close mental health treatment barriers where ethnic minority persons needing care were disadvantaged relative to comparable Whites.[20] For this reason too, we believe that general trends toward disparity reduction can explain our findings.

The study is restricted to treated children, ignoring those needing treatment that remain untreated—although African American children are overrepresented among these children with unmet need.[20] Previous research[23] demonstrated that California's EPSDT expansion increased treatment penetration rates, in keeping with enhanced outreach and case-finding enabled by EPSDT expansion, but that study did not consider a possible closing of treatment inequalities in penetration rates. The study of EPSDT-induced penetration inequalities remains an important area for future research.

More research is needed from a system's perspective on disparities. Along with other features of organization and financing of care, studies should consider systems' historical commitments to minority expenditures and treatment along with measuring and evaluating the role of minority treatment infrastructure for addressing inequalities. A system's perspective is particularly welcome due to implementation of the Affordable Care Act (ACA). The ACA finances mental health treatment for newly Medicaid eligible adults and children who can be treated at no cost to Medicaid expansion-accepting states. In the early years of the ACA, the federal government provides funds without requiring local matching funds—which is similar to the EPSDT expansion in California. This study demonstrates the extent to which EPSDT expansion is linked to reductions in African American and White mental health expenditure disparities, suggesting that new ACA Medicaid funding has the potential to similarly reduce such inequalities.

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