

Impact

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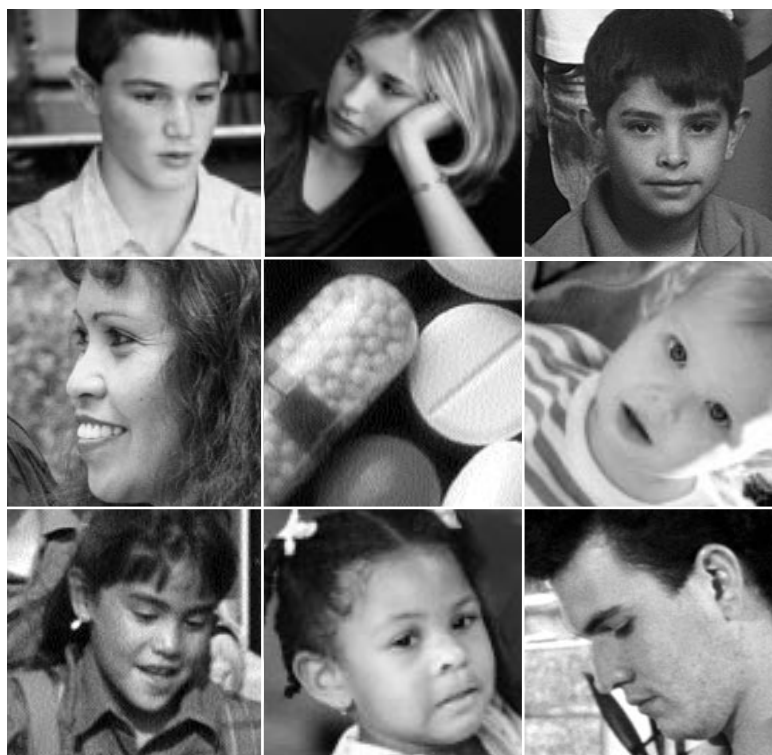
Impact will highlight research findings and relevant information for policymakers, practitioners, and others who are committed to the health and well-being of Connecticut's children.

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Psychotropic Medication Use Among Children in Connecticut

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Psychotropic Medication Use Among Children Enrolled in Connecticut's Medicaid Managed Care ('HUSKY A') Program

INTRODUCTION

Questions about the growing use of psychotropic medications for children increased last year following the publication of an article in the *Journal of the American Medical Association*.¹ The study reported a dramatic increase between 1991 and 1995 in the prescription of psychotropic medications to pre-school aged children, prompting widespread coverage in the popular press. This trend, which has been observed in older children as well, has been a source of concern among parents, practitioners, and public policy makers.²

This report summarizes key findings from a study of psychotropic drug use among children enrolled in Connecticut's Medicaid Managed Care (HUSKY A) Program. The study was financed under an agreement with the Connecticut Department of Social Services (DSS). Qualidigm conducted this work, in partnership with the Yale Child Study Center, DSS, and the Child Health and Development Institute of Connecticut.

At the same time this issue was receiving national attention, the Child Health and Development Institute of Connecticut (CHDI) was completing a study for the Connecticut Department of Social Services (DSS) on the delivery and financing of behavioral health services for children enrolled in Connecticut's Medicaid and SCHIP Managed Care Programs

(HUSKY A and B). In that study, expenditures for psychotropic drugs accounted for \$5.8 million (or 48%) of the total \$12 million spent directly by the HUSKY program for behavioral health outpatient and community-based services and pharmaceuticals.³ This figure includes use of pharmaceuticals by chil-

dren living at home, in foster care, group homes, and residential treatment facilities, but does not include use in acute inpatient psychiatric care. This finding, in light of the national attention to the issue, prompted an interest in further understanding the extent and pattern of use of psychotropic medications among children in Connecticut. The study was undertaken to inform discussion on a complex medical issue, not to dictate what the practice regarding use of psychotropic medications should be.

CHDI, whose purpose includes bringing the findings of research and best practices to policy makers and practitioners, convened a team to design a study of the prevalence and patterns of use of psychotropic drugs among Connecticut's children enrolled in Medicaid Managed Care (MMC). The team included: Andrés Martin, M.D. and Lawrence Scahill, M.S.N., Ph.D from the Yale Child Study Center – home of one of eight federally funded research units in pediatric psychopharmacology; James Linnane and Hilary Silver from DSS, the state agency that administers the HUSKY program; Judith Meyers, Ph.D. from CHDI; and staff from Qualidigm – the organization that provides external quality review for Connecticut's MMC Program. Qualidigm carried out the study with financial support from DSS. This report summarizes the key findings and implications of the study completed in January of 2001.⁴

The study examined the following:

- ▲ the prevalence of psychotropic medication use for children, from birth through age 18;
- ▲ the characteristics of children who are prescribed psychotropic medications;
- ▲ the patterns of care (such as the types of practitioners prescribing psychotropic agents and concurrent use of mental health services);
- ▲ the extent of the use of more than one psychotropic agent at a time (hereafter referred to as *combined pharmacotherapy*).

Scope of the Problem

Recent surveys indicate that as many as 20% of children under the age of 18 experience a psychiatric disorder with approximately half of them having a disorder that can be classified as serious.² This estimate translates into some eight million children in the United States who suffer the effects of one or more psychiatric disorders. Despite the magnitude of this public health problem, there is compelling evidence that many children with serious psychiatric disorders do not receive adequate mental health care. Serious emotional and behavioral problems go undetected and/or untreated, or are treated inappropriately.² The rise in psychotropic drug use raises the question of whether these substances contribute to improved mental health treatment for children or may represent inappropriate exposure to poorly understood medications.

Psychotropic drugs are medications that act primarily in the central nervous system and are given to alter thoughts, feelings and/or behavior. Among many factors that may be contributing to the increased pediatric use of psychotropic drugs, three are prominent:

- ▲ *The dramatic increase in the number of new psychotropic drugs available.*
For example, ten new antidepressants have been introduced in the United States over the past decade. Because these compounds are perceived to be safer and more effective than older medications, practitioners appear to be more willing to prescribe them for less severe symptoms.
- ▲ *Steady advances in the understanding of childhood psychiatric disorders, and of targeted interventions for their treatment*
Genetic studies and investigations using sophisticated neuroimaging and neurochemical techniques support the notion that biological factors underlie specific psychiatric disorders. As a result, clinicians are now more likely to try to match specific disorders with targeted interventions – including pharmacotherapy.
- ▲ *Reimbursement pressures on providers from third-party payers and the shortage of childhood mental health specialists*
Changes in reimbursement for mental health services through managed care have pushed the field toward briefer courses of treatment and towards the use of medication. Moreover, the scarcity of child mental health specialists, as well as administrative restrictions on referrals, has contributed to an increase in the prescription of psychotropics by primary care providers.

An important caveat:

Not all psychotropic medication use is excessive.

Although over-medication and the over-reliance on psychotropic agents are very real concerns, under-utilization of potentially effective treatments is a parallel concern. In some areas, the rise in psychotropic drug treatment in pediatric populations may represent improved recognition and appropriate care.

STUDY METHODOLOGY

The primary source of information for this study was a database maintained by Qualidigm for DSS that included pharmacy claims and the patient encounters submitted by the MMC Plans on a monthly basis. Thus, the database included claims for inpatient and outpatient visits, pharmacy prescriptions, and aggregate information about providers and children who received services. A comprehensive listing of psychotropic agents was compiled from the National Drug Code (NDC) registry and several other sources, and all prescriptions filled for these drugs were included in the review. The study population included children ages newborn through 18 years of age as of December 31, 1998 who were enrolled at any point during the study period (July 1, 1998 to June 30, 1999) and received any prescription for a psychotropic drug during that time.

KEY FINDINGS

Prevalence

Approximately 23% of Connecticut's 866,500 children from birth through 18 are enrolled in HUSKY A. Overall, 4.8% of enrolled youngsters (9,447 out of a total 196,505) were prescribed a psychotropic medication during the observation period. This rate is virtually identical to the 4.84% reported in 1995 for Kansas Medicaid recipients, which is the most recent study for which comparable data are available.⁵

Age-Related Differences

There were clear age-related differences, with children ages 10-14 having the highest likelihood of being prescribed a medication. Children within this

age group comprised 24% of the enrolled population, but they accounted for 41% of children receiving a psychotropic medication.

There were 396 children in the 2 to 4 year old age bracket prescribed a psychotropic medication, rendering a prevalence rate of 11.2 per 1,000 (slightly over 1%). In the previously cited study of preschool children¹, the rate of stimulant use ranged from 5.1 to 12.3 per 1,000 depending on the database examined. Our study included all psychotropics, not only stimulants, rendering direct comparisons across studies difficult. However, this figure of 1.1% of young children is still striking given the limited scientific evidence supporting the use of any psychotropic medication among preschoolers.

Gender Differences

Although the population studied was evenly divided between males and females, boys accounted for almost 70% of those to whom the psychotropics were prescribed. This observation is consistent with other studies and not surprising given the higher prevalence of disruptive behavior problems in boys.

Racial Disparities

Minority children were substantially less likely to be prescribed a psychotropic agent than their Caucasian peers. Although Caucasians represented 35% of enrolled children, they accounted for slightly more than half of the prescribed psychotropics. By contrast, African-American children accounted for 29% of the population enrolled, but for only 20% of the prescriptions dispensed. A similar though less marked difference was also seen among Hispanic children. This group represented nearly 35% of the population, but received only 29% of the psychotropic agents. Taken together, Caucasian children were twice as likely to be treated with

psychotropic drugs as minority children. These differences, which have been reported in previous studies,^{2, 6} suggest that racial and ethnic minorities are less likely to make use of mental health services due to limits on access and/or less comfort in making use of such services or in using medications.

Children in the Care of the Department of Children and Families (DCF)

Children in the custody of DCF accounted for only 4.7% of the Medicaid population. Of these 8,151 children, 17.8% were prescribed at least one psychotropic drug during the study period. This reflects a six-fold increase over those who are receiving Medicaid benefits, but are not connected to DCF. Similar findings have been reported in other studies.⁷

Most Common Diagnoses

A psychiatric diagnosis was documented in 57% of all children treated with a psychotropic medication. The three most common diagnoses among these children were:

- ▲ disruptive behavioral disorders (such as attention deficit/hyperactivity disorder (ADHD), oppositional defiant disorder, or conduct disorder), representing almost 60% of the primary diagnoses;
- ▲ affective disorders (such as major depression, or bipolar disorder), representing 17% of diagnoses;
- ▲ anxiety disorders (such as generalized anxiety, post-traumatic stress, or obsessive-compulsive disorders), representing 9% of diagnoses.

The prominence of the disruptive disorder diagnoses among the population studied is consistent with available data and with patterns of referral to child guidance clinics throughout the country. For example, even though the prevalence of ADHD is estimated at 3-10%, the disorder accounts for as many as 30-50% of outpatient referrals.⁸ On the other hand, so-called ‘internalizing’ disorders, such as depression and anxiety, account for a much smaller percentage of diagnoses made and are more likely to go undetected.

Most Commonly Dispensed Psychotropic Medications

The three most commonly dispensed psychotropic medications were:

- ▲ Stimulants (such as methylphenidate /Ritalin® or dextroamphetamine/ Dexedrine®), accounted for almost half of the psychotropics dispensed, with 2.3% of all children enrolled in HUSKY A during the year studied prescribed a stimulant.*
- ▲ Antidepressants (such as fluoxetine /Prozac® or sertraline /Zoloft®, as well as older agents, such as imipramine /Tofranil® or nortriptyline /Pamelor®), accounted for close to one fourth of the drugs dispensed. This translates to 1.2% of children in HUSKY A.
- ▲ Mood stabilizers (such as lithium or valproate/Depakote®), represented almost 10% of prescriptions, or approximately 0.5% of children in the MMC Program.

* Both generic and commercial (brand) names are provided for all drugs discussed.

The prevalence rate of 2.3% for stimulant use is consistent with available studies.⁹ A number of carefully controlled studies have demonstrated the effectiveness of stimulants for the treatment of ADHD,¹⁰ and guidelines for the appropriate use of medication and behavioral interventions have been empirically derived for the disorder.^{8, 11} Antidepressants of the selective serotonin reuptake inhibitor (SSRI) family, such as fluoxetine/Prozac® and sertraline /Zoloft®, have been proven effective in the treatment of common child and adolescent psychiatric disorders: major depression,¹² obsessive-compulsive disorder,¹³ and generalized anxiety disorder.¹⁴ Thus, the two most commonly prescribed medication classes are those for which there is the best available empirical support. On the other hand, the use of mood stabilizers is at odds with the scant evidence on the effectiveness and safety of these agents in children and adolescents.¹⁵

Who is Prescribing?

The data set did not contain direct information about who actually prescribed the medications. In order to determine the source of the prescription, the database was searched for a visit with a prescribing practitioner up to 90 days prior to the pharmacy claim. Based on this approach, we inferred that 45% of initial prescriptions were likely associated to visits with a primary care physician (PCP), and 37% with visits to a mental health specialist. No information was available for the remaining 18%. In contrast to these findings prior to the prescription, the great majority of follow-up visits (80%) appeared to be with PCPs. In fact, only 16.5% of children had a visit with a mental health specialist during the three months after filling a prescription for a psychotropic medication.

The study suggests that psychotropic medication management is undertaken largely by PCPs, an inference consistent with other studies. For example, a population-based study in Michigan found that 84% of stimulant prescriptions were written by PCPs.⁹

Use of Combinations of Psychotropics

Between a third and half of those children who were dispensed psychotropic medications (41.7%), received two or more different medications within three consecutive months. The current study cannot answer essential questions regarding combination treatments, such as whether medications were used simultaneously or sequentially or purposefully as part of a treatment plan. However, these data can provide some insight into current practices.

Combination pharmacotherapy is of considerable interest, as reflected by recent literature on the use of complementary psychotropic agents.¹⁶ However, there are also growing concerns about overly aggressive and perhaps unjustified use of medication combinations.¹⁷ Whether fully justified or not, the use of multiple medications probably reflects the concerted effort of clinicians to treat children with serious problems. It may well be, as some investigators have shown, that combined psychotropic therapy is in the hands of those mental health specialists who are treating the most impaired children.¹⁸ It is clear that more research on combined pharmacotherapy is needed.

SUMMARY AND IMPLICATIONS

Psychotropic medications in children: over-used, under-used or appropriately-used?

This study found that nearly five percent of children enrolled in HUSKY A received prescriptions for one or more psychotropic medications over the course of one year, with half of those prescriptions being for stimulants. Although this prevalence is not alarming, and is in line with data from other studies, the absolute percentage does not provide any information about the quality or appropriateness of care. We do not know whether some children are being prescribed medications inappropriately, while others who could benefit are not being prescribed medications at all.

We learned that stimulants and antidepressants account for about 72% of all psychotropic prescriptions, roughly paralleling the finding that disruptive behavioral disorders and affective disorders accounted for 76% of the diagnoses. To go deeper than such general associations, however, further study will be required. For example, a future study could evaluate whether medication therapy is part of a comprehensive assessment and treatment, or used as a ‘quick fix’ in lieu of more appropriate care. Chart reviews of children under five years of age, or of those treated with combined pharmacotherapy, might be useful next steps to evaluate the clinical decision-making in these cases and to check the accuracy of the claims data. Prospective analysis could provide information regarding changes in clinical practice over time and administrative forces affecting care. Administrative data could be augmented with more information about medication dose, repeat prescriptions, and clinical outcomes. Comparison of Connecticut data with data from other states could also be informative. Indeed,

developing an interstate Medicaid *collaborative oversight network* could provide a powerful future approach.

Disparities across racial lines, and concerns about high-risk populations

The under-representation of minorities warrants further study as it may reflect differences in access to care and/or attitudes about the use of medications. Likewise, the surprising prevalence of prescriptions for very young children, as well as the high rate of medication use among children involved with DCF warrants further investigation. This report exemplifies how the use of administrative databases such as this one can inform not only clinical decision-making, but policy makers and program administrators alike, in their joint mission of improving the health conditions of all children, especially the most vulnerable ones. Improving the access and availability to high quality mental health care remains a priority area of need.

Primary care physicians at the frontline of care, and rethinking the structure of care.

The observation that primary care physicians play a major role in prescribing psychotropic medications raises fundamental questions about the organization of mental health services for children.² For example, it may be difficult to manage complex emotional and behavioral problems in busy pediatric settings where visits are short. The scarcity of child psychiatrists and other well-trained child mental health clinicians may hinder referrals from primary care providers to specialists, while administrative barriers may further constrain collaboration between primary care providers and mental health specialists. At a minimum, primary care providers should be better trained in the recognition of mental health problems in children. Structural changes, such as placement of child mental health specialists in

primary care settings, may reduce barriers associated with referrals.

Limitations of research based on claims databases.

This study, relying solely on administrative data filed by clinicians and pharmacies, has significant limitations. First, the derived data are only as good as the claims information submitted. At best, these data are incomplete – the prescription may be filled, but the medication may not be taken. At worst, claims data

may be missing altogether. Secondly, diagnostic information may not be reliable. For example, diagnoses may be assigned because of administrative demands that require a psychiatric diagnosis for payment without the benefit of a full clinical assessment. Despite its limitations, this study provides baseline information for the use of psychotropics among children in Connecticut, allowing comparisons to other states using similar data, as well as comparisons with future assessments in our state.

REFERENCES

1. Zito JM, Safer DJ, dosReis S, Gardner JF, Boles M, Lynch F: Trends in the prescribing of psychotropic medications to preschoolers [see comments]. *JAMA* 2000; 283(8):1025-30
2. Mental Health: A Report of the Surgeon General. Available online at <http://www.surgeongeneral.gov/library/mental-health/> 2000
3. Child Health and Development Institute of Connecticut, Inc.: Delivering and Financing Children's Behavioral Health Services in Connecticut. 2000; February
4. Connecticut Department of Social Services: The use of psychotropic medications in children enrolled in Medicaid Managed Care. 2001; January
5. Fox MH, Foster CH, Zito JM: Building pharmacoepidemiological capacity to monitor psychotropic drug use among children enrolled in Medicaid. *Am J Med Qual* 2000; 15(4):126-36.
6. Zito JM, Safer DJ, dosReis S, Riddle MA: Racial disparity in psychotropic medications prescribed for youths with Medicaid insurance in Maryland [see comments]. *J Am Acad Child Adolesc Psychiatry* 1998; 37(2):179-84
7. Zima BT, Bussing R, Crecelius GM, Kaufman A, Belin TR: Psychotropic medication use among children in foster care: relationship to severe psychiatric disorders. *Am J Public Health* 1999; 89(11):1732-5.
8. A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. The MTA Cooperative Group. Multimodal Treatment Study of Children with ADHD. *Arch Gen Psychiatry* 1999; 56(12):1073-86.
9. Rappley MD, Gardiner JC, Jetton JR, Houang RT: The use of methylphenidate in Michigan. *Arch Pediatr Adolesc Med* 1995; 149(6):675-9.
10. Spencer T, Biederman J, Wilens T, Harding M, O'Donnell D, Griffin S: Pharmacotherapy of attention-deficit hyperactivity disorder across the life cycle [see comments]. *J Am Acad Child Adolesc Psychiatry* 1996; 35(4):409-32
11. Pliszka SR, Greenhill LL, Crismon ML, Sedillo A, Carlson C, Conners CK, McCracken JT, Swanson JM, Hughes CW, Llana ME, Lopez M, Toprac MG: The Texas Children's Medication Algorithm Project: Report of the Texas Consensus Conference Panel on Medication Treatment of Childhood Attention-Deficit/Hyperactivity Disorder. Part I. Attention-Deficit/Hyperactivity Disorder. *J Am Acad Child Adolesc Psychiatry* 2000; 39(7):908-19.
12. Emslie GJ, Rush AJ, Weinberg WA, Kowatch RA, Hughes CW, Carmody T, Rintelmann J: A double-blind, randomized, placebo-controlled trial of fluoxetine in children and adolescents with depression. *Arch Gen Psychiatry* 1997; 54(11):1031-7
13. March JS, Biederman J, Wolkow R, Safferman A, Mardekian J, Cook EH, Cutler NR, Dominguez R, Ferguson J, Muller B, Riesenber R, Rosenthal M, Sallee FR, Wagner KD: Sertraline in children and adolescents with obsessive-compulsive disorder: a multicenter randomized controlled trial [see comments]. *JAMA* 1998; 280(20):1752-6
14. RUPP Anxiety Group: Fluvoxamine in the treatment of childhood anxiety disorders. *New England Journal of Medicine* 2001; in press
15. Davanzo PA, McCracken JT: Mood stabilizers in the treatment of juvenile bipolar disorder: Advances and controversies. *Child Adolesc Psychiatr Clin N Am* 2000; 9(1):159-82
16. Wilens TE, Spencer T, Biederman J, Wozniak J, Connor D: Combined pharmacotherapy: an emerging trend in pediatric psychopharmacology [see comments]. *J Am Acad Child Adolesc Psychiatry* 1995; 34(1):110-2
17. Woolston JL: Combined pharmacotherapy: pitfalls of treatment. *J Am Acad Child Adolesc Psychiatry* 1999; 38(11):1455-7
18. Zarin DA, Suarez AP, Pincus HA, Kupersanin E, Zito JM: Clinical and treatment characteristics of children with attention-deficit/hyperactivity disorder in psychiatric practice. *J Am Acad Child Adolesc Psychiatry* 1998; 37(12):1262-70

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