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**Impacts of Pharmaceutical Marketing on Healthcare
Services in the District of Columbia**

Focus on Use of Antipsychotics in Seniors

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Executive Summary

Background

This report addresses the health of the District's senior population, with a focus on the use of antipsychotics, and investigates the ways that pharmaceutical marketing may affect the cost, utilization, and delivery of healthcare services in the District of Columbia. A 2012 report focused specifically on the use of antipsychotics in children, particularly those enrolled in the District's Medicaid program; a 2009 report addressed pharmaceutical marketing and healthcare services more broadly.

The issue of excessive antipsychotic prescribing has been receiving national attention. Most recently, the Office of the Inspector General for the US Department of Health and Human Services launched an examination of antipsychotics prescribed to Medicaid-enrolled children in California, Florida, Illinois, New York, and Texas (Silverman, 2013). The nonprofit news organization ProPublica analyzed Medicare's records of Part D pharmaceutical claims and found some physicians prescribing large amounts of antipsychotics to elderly patients without triggering oversight efforts from the Centers for Medicare and Medicaid Services (Weber et al, 2013).

The District of Columbia AccessRx Act requires pharmaceutical companies that market products in the District to file annual reports on marketing expenditures. More recently, the SafeRx Act requires the licensure of detailers (pharmaceutical sales representatives) and establishes an academic detailing program that provides unbiased drug information to prescribers.

Data collected pursuant to the AccessRx Act have been entered into a database and analyzed by the George Washington University School of Public Health and Health Services for the District of Columbia Department of Health, most recently in the report "Pharmaceutical Marketing Expenditures in the District of Columbia, 2011." In 2011, 158 pharmaceutical companies reported spending a total of \$83.7 million on marketing activities in the District of Columbia, including \$57.9 million on employee and contractor expenses, \$18.9 million on gifts and payments, and \$6.9 million on advertising. Physicians received 81 percent of the gifts given by pharmaceutical companies, and these gifts accounted for 46 percent of the total value of all gifts.

Pharmaceutical marketing can influence providers' decisions about which patients need drug therapies and which drugs to prescribe. This can be problematic when it results in patients taking drugs whose risks of adverse events and costs are too high relative to the benefits the patients receive. The use of drugs that are less effective, less safe, or

unnecessary can result in adverse health outcomes, increased utilization of care, and higher healthcare costs (Borkowski et al, 2012).

Health of Seniors in the District

The District's leadership in improving residents' access to healthcare has allowed the city to fare better than the US as a whole on several metrics, including health insurance coverage and self-reported health status. Disparities by race, household income, and location persist, however. Recent assessments of the needs of District residents and the city's senior population have identified inadequate access to mental and behavioral health services as a top concern (DC Office on Aging, 2012; Chandra, Blanchard & Ruder, 2013).

In 2011, 11.4% of the District's residents were age 65 and older (US Census Bureau, 2013). Fewer than five percent of the District's seniors are uninsured (DC Department of Health, 2013), and 29% of District Medicare beneficiaries are "dual eligible," with coverage from both Medicare and Medicaid (DC Office on Aging, 2012). Between 2000 and 2011, ambulatory care-sensitive hospital discharges – a measure of hospital admissions for conditions that can be prevented with appropriate primary and specialty care – declined sharply for District seniors, while holding steady for other age groups (Chandra, Blanchard & Ruder, 2013).

For payers and for individuals, high prescription-drug spending may crowd out spending on other important health priorities. The Affordable Care Act's gradual closure of the Medicare Part D "doughnut hole," which left many seniors struggling to afford prescriptions, has helped reduce some of the financial pressures on individuals. In 2012, District of Columbia Part D beneficiaries in the "doughnut hole" received discounts that averaged \$670 per beneficiary (Centers for Medicare and Medicaid Services, 2013).

Nursing Homes and Part D Prescribers in the District

For the District's elderly, use of antipsychotics puts seniors at increased risk of serious adverse events, including extrapyramidal symptoms, cognitive decline, neuroleptic malignant syndrome, weight gain, hypothermia, hip fractures, and death. While the risk-benefit ratio may be acceptable for patients with schizophrenia or bipolar disorder, elderly patients suffering from dementia, agitation, anxiety, or insomnia may be dosed with antipsychotics for their sedative qualities, bringing the patients few overall benefits while putting them at risk for serious adverse events. The US Department of Justice (DOJ) has taken action against drug companies for inappropriate promotion of antipsychotics to nursing homes (US DOJ, 2009; US DOJ, 2010). In 2009, Eli Lilly reached a \$1.4 billion settlement with the DOJ for its "5 at 5" campaign suggesting that 5 mg of Zyprexa at 5pm

would help patients sleep (US DOJ, 2009). Research suggests that alternative treatments for dementia and agitation may improve symptoms with fewer risks.

The majority of District nursing homes have antipsychotic prescribing rates below the national average. Additionally, thirteen of the District's 19 nursing homes receive above-average ratings for overall quality from the Centers for Medicare and Medicaid Services' Nursing Home Compare website.

After searching the AccessRx database (which covers 2007 through 2011) for records of pharmaceutical-company gifts to physicians who currently serve as nursing home medical directors, we found:

- About half (nine of 19) of these physicians received no gifts from pharmaceutical companies between 2007 and 2011.
- Seven of the physicians received single-year gift totals of less than \$100, all in the form of food.
- Six of the physicians received gifts totaling \$100 - \$800 in at least one year. Most of these gifts were in the form of food; some took the form of books.
- Only four physicians received pharmaceutical-company gifts totaling more than \$1,000 in at least one of the years studied. Three received cash or checks for speaking or consulting, which totaled \$34,639 over five years. All four of these physicians received food from pharmaceutical companies.

The total value of reported pharmaceutical-company gifts to District nursing home medical directors during these years is relatively low compared to the total value of gifts to physicians who received the greatest total amounts during that time period. No statistically significant differences in overall ratings or antipsychotic prescription rates were found between nursing homes whose medical directors received gifts between 2007 and 2011 and those who did not receive gifts.

We also used ProPublica's online Prescriber Checkup database to examine prescription patterns by District psychiatrists to Medicare Part D beneficiaries, the majority of whom are seniors. A search of Prescriber Checkup found 41 psychiatrists in the District of Columbia (specialties are self-reported by prescribers) who prescribe antipsychotics to Medicare patients. The 44,828 claims for Part D prescriptions written by these psychiatrists had a total cost of \$7.5 million and an average cost of \$162.

Using the AccessRx database, we found that 31 of 41 District prescribing psychiatrists appearing in the Prescriber Checkup database received gifts from six manufacturers of commonly prescribed antipsychotics in 2010; together, their gifts totaled \$70,556. While that is a large sum, it is far lower than the \$446,530 these antipsychotic manufacturers gave to the ten District psychiatrists who received the largest gift amounts in 2010. The average cost per Part D prescription for the 31 psychiatrists receiving antipsychotic-manufacturer gifts was \$166, compared to \$149 for the ten psychiatrists not receiving gifts, but the difference was not statistically significant.

Most of the top prescribers of six commonly used antipsychotics in the Prescriber Checkup database were psychiatrists, including nine of ten prescribers with the highest Part D antipsychotic claims totals. The percentage of these prescribers' Part D patients receiving antipsychotics ranges from 7% to 92%.

Our analysis found no indication that pharmaceutical companies are heavily targeting their marketing efforts at District nursing home medical directors, or that those receiving drug-company gifts have higher average costs for their Part D prescriptions as a whole. Further research with a larger sample size could explore the relationship between gifts and antipsychotic prescribing in more depth.

I. Health and Healthcare Services in the District of Columbia

The District has long been a leader in ensuring residents have access to health insurance, and recent investments in primary care have further improved residents' access to key healthcare services (Meyer et al, 2010). As a result, the District fares better than the US as a whole on several health and healthcare metrics. In 2011, only 6.9 percent of the District's residents were uninsured, compared to 15.1 percent of the US population (US Census Bureau, 2013). In 2010 Behavioral Risk Factors Surveillance System (BRFSS) surveys, only 14 percent of District residents report being in fair or poor health, compared to 18 percent of US residents, and 75% of District residents, versus 67% of US residents, reported having a routine checkup in the past year (Chandra, Blanchard & Ruder, 2013).

Despite improvements in District healthcare services, disparities persist. Residents who were African-American, had less than a high school education, had a household income of less than \$15,000, or lived in Ward 8 were more likely to rate their health as fair or poor (as opposed to good, very good, or excellent) (DC Department of Health, 2013). Residents of Ward 1 were least likely to report having had a routine medical healthcare visit over the past year; residents of Ward 5 were least likely to have a regular healthcare provider; and residents of Ward 8 were most likely to experience difficulty in seeing a provider due to cost (Chandra, Blanchard & Ruder, 2013). Adult residents of Wards 7 and 8 reported the highest rates of key chronic diseases and health-related limitations (see Table 1).

Ward	Currently have asthma (%)	Ever told they had cardiovascular disease (%)	Ever told they have diabetes (%)	Limitations due to physical or mental health (%)
Ward 1	6.8	1.5	7.1	19.5
Ward 2	9.0	1.2	6.1	12.8
Ward 3	8.5	2.0	2.2	17.4
Ward 4	10.5	2.2	10.2	15.8
Ward 5	15.7	2.4	12.5	18.6
Ward 6	11.4	2.9	6.7	15.8
Ward 7	17.5	4.8	11.6	21.7
Ward 8	10.7	3.6	15.2	21.2

Source: RAND analysis of data from 2010 BRFSS Annual Report and 2012 DC Department of Health (Chandra, Blanchard & Ruder, 2013)

Although the District has lower rates of coronary heart disease, arthritis, and chronic obstructive pulmonary disorder (COPD) than the US as a whole, the District's African-American residents have higher rates of heart disease, arthritis, COPD, and asthma (Chandra, Blanchard & Ruder, 2013).

A community health needs assessment (CHNA) conducted by the RAND Corporation for the District of Columbia Healthy Communities Collaborative identified six priority areas for improving health in the District: asthma, obesity, mental health, sexual health, stress-related disorders (e.g., headache, back pain), and general access to health services (Chandra, Blanchard & Ruder, 2013). An earlier RAND report noted that community and provider focus groups expressed “resounding concerns” about access to behavioral health services, including substance-abuse treatment. Primary-care providers reported that they find it especially hard to find behavioral-health providers to whom they can refer Medicaid patients (Gresenz et al, 2010). In particular, all of Ward 8 and most of Ward 7 meet the criteria for mental health professional shortage areas. Patient advocates speaking in focus groups for the CHNA noted a particular shortage of services targeted toward Spanish speakers and individuals with limited English proficiency (Chandra, Blanchard & Ruder, 2013).

A 2012 report to the District’s Department of Health Care Finance (DHCF) from the Medical Care Advisory Committee’s Behavioral Health Subcommittee states, “Mental health disorders are the fourth and fifth most common diseases among the District of Columbia’s nearly 150,000 [Medicaid] managed care beneficiaries, but fewer than 4,000 managed care beneficiaries received an outpatient mental health service in FY2010” (Medical Care Advisory Committee, 2012). The report notes that approximately 34,000 residents previously covered by the District’s DC HealthCare Alliance and shifted to Medicaid under the Affordable Care Act (ACA) Medicaid expansion have gained mental-health benefits, but the overwhelming majority of residents with diagnosable mental-health conditions who moved from the Alliance to Medicaid managed care did not receive outpatient mental-health treatment in 2010 (Medical Care Advisory Committee, 2012).

II. Healthcare and Pharmaceutical Marketing in the District of Columbia

Prescription drugs play an important role in improving District residents' quality of life. Used appropriately, they can allow patients to prevent, cure, and manage health problems that could otherwise be disabling or fatal, from hypertension to HIV to mental illness.

Nationwide, prescription drugs account for 10% of healthcare spending and 6.6% of Medicaid spending. In recent years, US prescription-drug spending slowed due to increased use of generic drugs, and fewer new branded drugs being introduced; nonetheless, this spending is projected to double over the next decade (KaiserEDU.org, 2012). Among individuals with prescription-drug expenses in 2010, the median expense was \$319 and the mean \$1,423. Low-income individuals with prescription-drug expenses spent a median of \$300 and a mean of \$1,717 (AHRQ, 2013).

In 2008, the most recent year for which data are available, the District's Medicaid program spent \$91.5 million on pharmaceuticals. The drug groups accounting for the largest expenditures were antivirals (\$31 million), antipsychotics (\$16 million), and anticonvulsants (\$6 million) (CMS, 2012).

For payers and for individuals, high prescription-drug expenditures may crowd out spending on other important health priorities. In the Medicaid program, for instance, high drug spending could exert downward pressure on provider reimbursement rates. Higher Medicaid payment rates are correlated with greater physician acceptance of new Medicaid patients (Decker, 2012). In 2012, the District's Medicaid-to-Medicare fee ratio for physicians was 80%; this is higher than the national average Medicaid-to-Medicare fee ratio of 66% (The Henry J. Kaiser Family Foundation, n.d.). In 2011, 75% of the District's office-based physician practices would accept new Medicaid patients, compared to 69% nationwide (Decker, 2012).

The "doughnut hole" gap in Medicare Part D coverage has left many seniors with high prescription-drug needs struggling to cover the costs of their medications. Once Part D beneficiaries' drug costs exceed a coverage limit (which varies by plan), they are responsible for 100% of their prescription-drug costs until they reach the catastrophic coverage amount and the Part D program begins covering their drug costs again (The Henry J. Kaiser Family Foundation, 2010). The Affordable Care Act's gradual closure of the Medicare Part D doughnut hole is helping to reduce financial pressures on seniors who hit these coverage ceilings. In 2012, District of Columbia Part D beneficiaries in the doughnut hole received discounts that averaged \$670 per beneficiary. Enrollee savings will continue to increase through 2020, at which point the doughnut hole will be closed (Centers for Medicare and Medicaid Services, 2013).

Pharmaceutical Marketing in the District of Columbia

In 2011, 158 pharmaceutical manufacturers and labelers spent a reported total of \$83.7 million marketing their products in the District. Of this, \$6.9 million were reported for advertising expenses (8.2%), \$18.9 million were gift expenses (22.5%), and \$57.9 million were expenses associated with employees and contractors (69.2%). Hospitals, medical societies, and other non-individual recipients received a total of \$9.7 million in gifts from these companies; gifts to individuals totaled \$9.2 million. Physicians received 81% of all gifts, for a total gift value of \$8.6 million (46% of the value of all reported gifts) (George Washington University, 2012).

Pharmaceutical marketing can influence providers' decisions about which patients need drug therapies and which drugs to prescribe. The use of drugs that are less effective, less safe, or unnecessary can result in adverse health outcomes, increased utilization of care, and higher healthcare costs (Borkowski et al, 2012).

Many healthcare providers lack the time to keep up on medical literature for a growing list of prescription drugs, and so rely on information from pharmaceutical companies. This information may downplay or fail to disclose adverse effects or drug interactions while exaggerating the effectiveness of the company's newer products. Marketing efforts may also encourage off-label use of drugs, whether or not such uses are supported by strong evidence of safety and efficacy (Borkowski et al, 2012).

Pharmaceutical representatives provide free food to physicians and their staffs; distribute free samples; compensate providers for travel and lodging expenses; and hire providers as consultants and speakers. Such efforts can build relationships between prescribers and pharmaceutical-company representatives, which may create a sense of obligation in prescribers. Surveys of physicians and medical students often find that these individuals think themselves less likely to be inappropriately influenced by drug marketing efforts, but research suggests prescribers may not be as skillful as they believe in absorbing companies' educational content without being unduly influenced by marketing messages (Borkowski et al, 2012).

Some of the newest evidence on pharmaceutical marketing's relationship to prescribing behavior comes from an analysis by Joseph Engelberg and colleagues that combines data on Medicare Part D prescription claims from ProPublica's Prescriber Checkup database with data on 12 pharmaceutical companies' gifts to physicians from ProPublica's Dollars for Docs database. From a sample of 334,086 Part D prescribers, 58% of whom received at least one payment from the 12 companies, researchers found that the industry-paid physicians generated 14.7 claims per patient, compared to 13.7 claims per patient for the average doctor in the sample. Doctors in the top 20% of those who received the payments

from pharmaceutical companies prescribed twice as many branded drugs as those in the bottom 20%. And physicians who were paid by a particular firm were twice as likely to prescribe drugs made by that firm, compared with doctors who received no money from that firm. (Engelberg, Parsons & Teff, 2013).

Seniors in the District of Columbia

A 2012 report analyzing the District's pharmaceutical marketing data highlighted the increase in antipsychotic prescriptions to children as a cause for concern and reported that the manufacturers of six commonly prescribed atypical antipsychotics spent nearly \$26 million marketing their products (which include a range of drugs, not only antipsychotics) in the District in 2010. The analysis found that antipsychotic manufacturers were marketing heavily to District psychiatrists, and appeared to be targeting Medicaid psychiatrists in particular (Borkowski et al, 2013). This report expands on that investigation by addressing the use of antipsychotic drugs in seniors, another group for which inappropriate use of antipsychotics can result in adverse events and poor health outcomes.

In 2011, 11.4% of the District's residents were age 65 and older (US Census Bureau, 2013). Among the District's senior population (age 65 and up) in 2010, the senior population was 78% US citizens, 58% women, and 61% African-American. Fifty-six percent of District seniors lived alone, and 8% lived in group quarters such as nursing homes. District seniors' median income was estimated to be \$41,128. Twenty-nine percent of District Medicare beneficiaries are dual eligibles – that is, they have coverage from both Medicare and Medicaid – compared to 21% of all US Medicare beneficiaries (DC Office on Aging, 2012).

The District performs well and shows improvement in some key measures of seniors' access to care. Among District residents age 65 and older, 96.5% have health insurance coverage. In the BRFSS survey, 89% of seniors reported having had a routine checkup within the past year, and only 5.7% – compared to 10.5% of all District residents – said that at some point in the past year they had needed to see a doctor but did not do so because of cost (District of Columbia Department of Health, 2013). Between 2000 and 2011, ambulatory care-sensitive hospital discharges – a measure of hospital admissions for conditions that can be prevented with appropriate primary and specialty care – declined sharply for District seniors, while holding steady for other age groups (Chandra, Blanchard & Ruder, 2013).

More improvement is still needed to meet seniors' health needs. A recent Senior Needs Assessment conducted for the District of Columbia Office on Aging (DCOA) examined the needs of the city's senior population, which for the DCOA's purposes includes residents age 60 and above. In a series of surveys and focus-group meetings with senior residents and

community stakeholders that serve seniors, participants reported difficulties in finding necessary doctors who accept Medicare and expressed concerns about the inadequacy of District systems to address seniors’ mental health needs (DC Office on Aging, 2012). In the recent Community Health Needs Assessment for the District, focus-group participants noted a lack of mental-health services targeted to seniors and a limited number of beds in skilled nursing facilities for elderly residents with mental-health needs (Chandra, Blanchard & Ruder, 2013).

Nineteen nursing homes are listing on the CMS Nursing Home Compare website as operating in the District of Columbia. Their distribution across wards is as follows:

- Ward 1 has one nursing home;
- Wards 2, 6, and 8 have two nursing homes each; and
- Wards 3, 4, 5, and 7 have three nursing homes each.

The 19 nursing homes in the District vary by overall quality, as assessed by CMS’s Nursing Home Compare, with 13 receiving “above average” or “much above average” ratings. The overall rating metric is derived from a combination of health inspection, staffing, and quality measures. Only two District nursing homes receive Nursing Home Compare’s “below average” rating, and both are located in Ward 7. Table 2 illustrates the distribution of ratings:

Table 2: District of Columbia Nursing Home Ratings by Ward									
Rating (by Nursing Home Compare, 2013)	Number of Nursing Homes Earning Each Rating								
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Total
Much above average (5 stars)	1	1	2	2	2	1			9
Above average (4 stars)		1		1			1	1	4
Average (3 stars)			1		1	1		1	4
Below average (2 stars)							2		2
Much below average (1 star)									

III. Antipsychotics and Seniors

Antipsychotic use has risen dramatically, especially in the elderly. In 2011, 57 million prescriptions for antipsychotics were filled in the United States (Lindsley, 2012). Doctors' visits that resulted in an antipsychotic prescription more than doubled, from 6.2 million to 14.3 million, between 1995 and 2008. The use of antipsychotics among the elderly went up 23% during that time (Alexander et al, 2011).

Antipsychotic use is particularly common in institutional settings. In 2004, the National Nursing Home Survey NNHA found that almost a quarter (308,990, 23.5 %) of elderly nursing home residents received at least one atypical antipsychotic (Kamble et al, 2010). A national cross-sectional study found that 29% (4,818) of 16,586 newly admitted nursing home residents received one or more antipsychotics in 2006; 32% (1,545) of these had no identified indication for this medication. Patients who entered a nursing home with high prescribing rates were much more likely (RR 1.37, 95% CI 1.24-1.51) to receive an antipsychotic prescription than those entering a low-prescribing nursing home (Chen et al, 2010).

History

Antipsychotics are used to treat psychiatric disorders and are approved by the Food and Drug Administration (FDA) for schizophrenia, which affects 1.1 percent of the U.S. adult population (NIMH, n.d.2); some are also approved for bipolar disorder, which affects 2.6 percent of the population (NIMH, n.d.1). They are also prescribed for other conditions for which they may or may not be specifically approved. An initial wave of antipsychotics was developed in the 1950s, and a second wave began in the 1980s; these are often referred to as first-generation (or typical) and second-generation (or atypical) antipsychotics, respectively, although the distinction may be more a matter of marketing than science. Second-generation antipsychotics (SGAs) have been marketed as being less likely than their first-generation counterparts (FGAs) to cause extrapyramidal motor control symptoms, including body rigidity and tremors and tardive dyskinesia (involuntary writhing movements of the tongue, lips and mouth), which is sometimes irreversible (Peluso et al, 2012). SGAs have also been associated with their own set of adverse events (Borkowski et al, 2012).

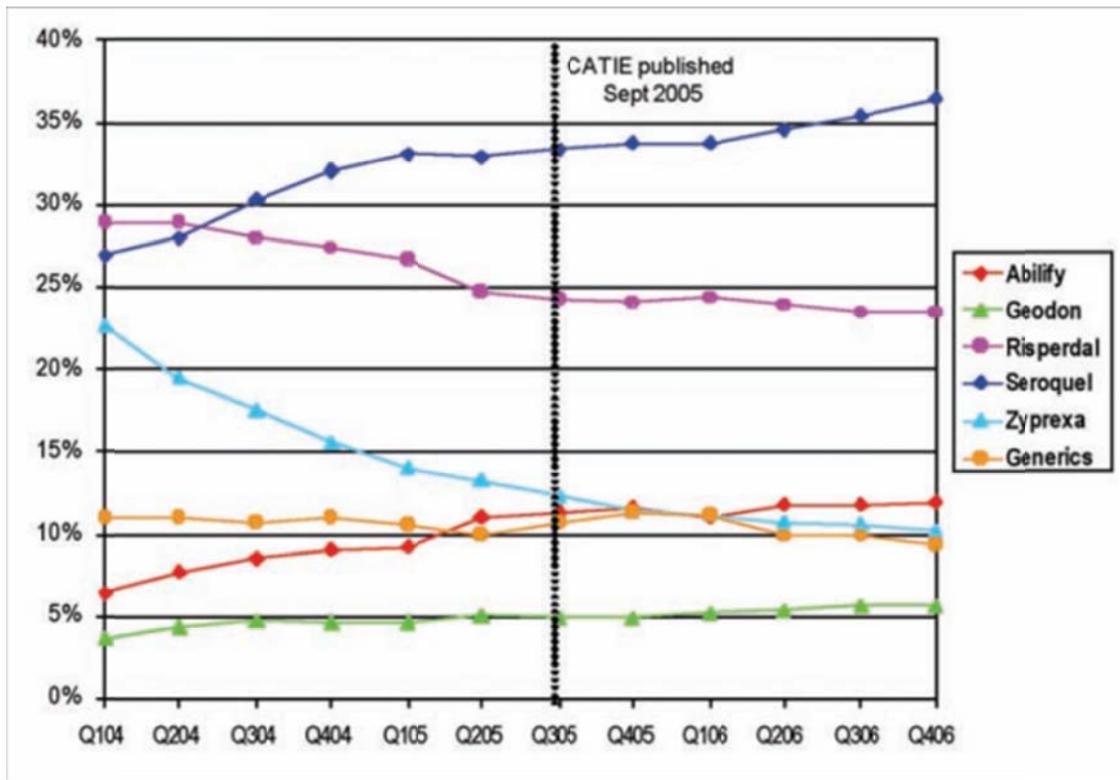
The first of nine FGAs was approved by the FDA in 1957, and the last one was approved in 1975 (Alexander, 2011). SGAs emerged in 1989 (Alexander, 2011); currently, ten have been FDA approved (FDA, 2013), the most recent, Lurasidone (Latuda), in October 2010 (FDA, 2010).

Cost and Market Share

Sales of antipsychotics have skyrocketed, with almost all of the increase among SGAs. In 2011, antipsychotics were a top-selling drug class, racking up \$12.6 billion in sales (Leonhauser, 2012). FGAs are now all available in generic forms, and cost an average of \$13 per prescription. In 2008, FGAs accounted for a total of 5.5 million antipsychotic prescriptions, about a tenth of the total market. Seven SGAs accounted for an overwhelming share of the market: 46.8 million antipsychotic prescriptions in 2008 (Alexander et al, 2011). Three additional SGAs have been approved by the FDA since then (FDA, 2013). Four are available as generics (Albright, 2011), so six out of ten SGAs are still on patent. The mean prescription cost of SGAs has risen 43% between 2004 and 2008, from \$226 to \$323 (Alexander et al, 2011). (The mean cost for typical, or first-generation, antipsychotics rose eight percent in that time period). In 2008, an estimated \$6.0 billion was spent on off-label antipsychotic prescriptions, \$5.4 billion of which was for uses with uncertain evidence (Alexander et al, 2011).

The National Institute of Mental Health initiated the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) study to compare the effectiveness of antipsychotic drugs, and researchers conducted the study from 2001 to 2004. Despite the fact that CATIE found that older FGAs were just as effective as SGA, these findings made no difference in the sales of SGAs (Cascade et al, 2007).

Figure 1: New Patient Share for Branded vs. Generic Antipsychotics, 2004 - 2006



Source: Verispan VONA, New patient share, antipsychotic market Q1/2004–Q4/2006. Cited in Cascade et al, 2007.

Off-Label Use

Why have antipsychotic prescriptions shot up without a similar surge in schizophrenia diagnoses? Diagnoses of bipolar disorder have risen, largely because of redefinition of the disorder (Mitchell, 2012), but the primary reason for soaring rates of antipsychotic use is off-label prescriptions for conditions other than those for which FDA has approved these medications. Antipsychotics were prescribed off-label in 9 million visits in 2008, compared to 4.4 million visits in 1995 (Alexander et al, 2011). In 2007, 83 percent of antipsychotic prescriptions for the elderly were written off-label (Smith, 2012). Some off-label uses are supported by scientific evidence, but in 2008, 91 percent of prescriptions for off-label use were backed by “uncertain evidence” (Alexander et al, 2011).

Off-label antipsychotic use is particularly troubling in the elderly population, as SGAs carry serious risks for this group. Very few elderly who take antipsychotics are actually being treated for schizophrenia or bipolar disorder; common off-label uses in older patients include treatment for dementia, agitation, anxiety, and insomnia. The efficacy of SGAs to

treat these ailments is questionable; any positive effects of the drugs on agitation, anxiety, and insomnia may be attributed to the sedative effects of these drugs.

A systematic review and meta-analysis of 162 studies looked at the effect of SGAs on various psychiatric disorders. Among 38 placebo-controlled trials of antipsychotics on global symptoms of dementia (psychosis, aggression, and agitation), statistically significant but small improvements in agitation were observed for varied lower-level doses of aripiprazole (Abilify), olanzapine (Zyprexa), and risperidone (Risperdal); quetiapine (Seroquel) was not effective (Maher et al, 2010).

The extensive use of antipsychotics in nursing homes and other long-term-care facilities is a major contributor to the high rate of antipsychotic prescribing in the elderly. Of 54 million antipsychotic prescriptions filled in the twelve months ending October 2011, nearly one-third (29 percent) were dispensed at long-term-care facility pharmacies (Leonhauser, 2012). Concerns have been raised that antipsychotics are being misused in some settings to sedate residents of long-term care facilities, because sedated residents reduce caretaker burden and staffing needs in these environments.

Treating a patient to benefit a third party, such as a caretaker, raises serious ethical concerns. An analysis of the federally funded CATIE trial of antipsychotics for schizophrenia found that antipsychotics reduced caretaker burden when patients were psychotic, agitated, or aggressive (Mohamed et al, 2012). A systematic review of trials involving patients with dementia taking psychotropic medication examined caregiver-related outcome measures, and found that this treatment plan seemed to lower burden (mean difference 0.27) and time caregivers spent (41.65 minutes) on patients (Schoenmakers, Buntinx & De Lepeleire, 2009). These findings may encourage nursing homes to administer antipsychotic medications in order to reduce their staffing requirements, a possible benefit for the bottom line but potentially harmful to their residents.

In fact, nursing homes and pharmaceutical companies have colluded on sedating elderly institutionalized patients. For example, in 2009, Johnson & Johnson was revealed to have paid kickbacks to Omnicare, the largest nursing home pharmacy serving 1.4 million elderly residents, to increase the number of patients taking Risperdal. Johnson & Johnson paid tens of millions of dollars to encourage Omnicare pharmacists to buy and recommend Risperdal for their patients between 1999 and 2004. While this arrangement occurred, the company's Risperdal profits tripled. Johnson & Johnson eventually paid a \$2.2 billion settlement in the case to the federal government; Omnicare paid a \$50 million settlement (Goldstein, 2010).

Eli Lilly has also pled guilty to inappropriate off-label marketing of Zyprexa, for the treatment of elderly patients with dementia. Lilly allegedly used a “5 at 5” slogan to “promote the drug’s side effect of sedation to nursing-home doctors: 5 milligrams of the drug at 5 p.m. would help patients sleep” (Rubenstein, 2009).

Promotion

Perhaps unsurprisingly, the surge in antipsychotics usage has been accompanied by a surge in promotional spending for the drugs. In 2010, \$2.4 billion was spent on advertising atypical antipsychotics, over a billion dollars more than the \$1.3 billion spent in 2007 (Friedman, 2012). This investment was followed by payers spending a total of \$18.2 billion on antipsychotics in 2011, a 12.7 percent absolute spending growth gain from the previous year, and the highest pharmaceutical absolute spending growth gain in 2011 (IMS Institute for Healthcare Informatics, April 2012). We can expect marketing expenditures to rise along with predicted spending by payers: based on trends since 2007, when payers spent \$12.8 billion on antipsychotics, IMS expects spending to reach \$22-25 billion in 2016 (IMS Institute for Healthcare Informatics, July 2012).

An analysis of internal marketing documents on Zyprexa revealed in litigation provides a glimpse into marketing strategy for antipsychotics. Kalman Applbaum cites an Eli Lilly document on managed care that illustrates the plan to sell a drug by expanding the definition of a disease:

“Zyprexa PCP Vision: Expand our market by redefining how primary care physicians identify, diagnose and treat complicated mood disorders (i.e., Bipolar Disorder)” (Applbaum, 2009).

To identify influential parties that could help or hurt Zyprexa sales, Eli Lilly created a map of “key players in the U.S. antipsychotic marketplace” that influence the marketing channel for the drug; the map included trade associations, schools, social workers, support groups, Scientology, and health food stores (Applbaum, 2009).

At the American Psychiatric Association in 2000, a presentation of four AstraZeneca clinical trials claimed that SGA quetiapine (Seroquel) was significantly better than the FGA haloperidol (Haldol) in treating schizophrenia. A press release quoted the author of the presentation as saying: “I hope that our findings help physicians better understand the dramatic benefits of newer medications like Seroquel, because, if they do, we may be able to help ensure patients receive these medications first” (Spielmans & Parry, 2010). However, internal documents revealed during litigation showed that an internal analysis done by AstraZeneca months before the conference concluded that the trials showed that

quetiapine was inferior to haloperidol and every other medication it was tested against. An email from an AstraZeneca employee noted, “The data don’t look good. In fact, I don’t know how we can get a paper out of this” (Spielmans & Parry, 2010).

Another AstraZeneca study assigned patients in partial to full remission of schizophrenia to haloperidol or quetiapine for a one-year trial, after which patients treated with haloperidol did better in terms of symptom ratings and psychotic relapses compared with those receiving quetiapine. Quetiapine was better than haloperidol on some measures of cognitive functioning. Only the positive results were published, with no mention of quetiapine’s increased risk of psychotic relapse and poorer symptom scores (Spielmans & Parry, 2010).

Risks

SGAs were marketed as superior to FGAs because of a purported reduction in extrapyramidal symptoms, a strong selling point with physicians. However, that claim has not been borne out; studies have shown that SGAs are just as likely to cause EPS symptoms as FGAs are (Peluso et al, 2012). At two points during a year-long assessment of 227 schizophrenic patients in two treatment groups, “the expected improvement in EPS profiles for participants randomized to SGAs was not found” (Peluso et al, 2012). Those on SGAs and FGAs showed “no statistically significant difference ... in terms of emergent Parkinsonism, akathisia or tardive dyskinesia,” and no relevant differences were present by the 52nd week of the trial. Contrary to popular physician belief and marketing messages, “second-generation drugs appeared to be no more successful than the older ones in providing relief from these side effects” (Peluso et al, 2012).

SGAs also have their own set of serious risks, including death, strokes, diabetes, cognitive decline, neuroleptic malignant syndrome, extrapyramidal effects, and hypothermia. A systematic review and meta-analysis of 162 studies of SGAs found that the risk of death was significantly increased in those taking SGAs, compared to placebo; deaths occurred in 3.5 percent of patients randomized to SGAs, compared to 2.3 percent of those randomized to placebo (OR 1.54, 95% CI 1.06-2.23). The number needed to harm (NNH) was 87, meaning that one in 87 treated patients would be expected to die from the treatment (Maher et al, 2011). Both FGAs and SGAs have been associated with abnormal heart rhythms and double the risk of sudden cardiac death (Vieweg et al, 2009).

In patients with Alzheimer’s, antipsychotics can improve symptoms of agitation. However, the disease itself appears to worsen. In the CATIE study, 421 Alzheimer’s patients on SGAs for 36 weeks experienced steady and significant declines by most cognitive measures, including the Mini-Mental State Examination (MMSE), the cognitive subscale of the Brief

Psychiatric Rating Scale, and a cognitive summary score summarizing change on 18 cognitive tests. Over the 36-week trial, patients on antipsychotics experienced a decline 2.46 points greater on the MMSE than placebo patients. This reduction is equivalent to one year's natural deterioration in an average Alzheimer's patient. (Vigen et al, 2011).

In another study, 823 nursing home patients were divided into two groups; one was taken off FGAs and the other was not. Two or more milligrams of haloperidol and 50 or more milligrams of thioridazine were administered to the experimental group. Both groups then took a memory (delayed-recognition-span) test; in the experimental group, 69 percent had maintained or improved scores since being on antipsychotics, and 31 percent deteriorated. In the control group, 46 percent of patients had maintained or improved scores and 54 percent had deteriorated. This amounts to the residents in the control group only being 60 percent as likely to maintain or improve their memory test performance than their peers who were taken off antipsychotics (Avorn et al, 1992).

A study on the effects of antipsychotics on the risk of stroke utilized Italy's Health Search Database to study patients 65 and older who had never had a stroke. The study compared 69,939 patients who had never taken an antipsychotic to 599 users of atypical antipsychotics, 749 users of butyrophenones, 907 phenothiazine users, and 1,968 users of substituted benzamides. All antipsychotics increased the risk of stroke; the odds ratio was 5.79 for phenothiazines, 3.55 for butyrophenones, and 2.46 for atypicals, compared to non-use (Sacchetti, Turrina & Valsecchi, 2010).

Neuroleptic malignant syndrome, a rare, drug-related syndrome characterized by fever, altered mental state, autonomic instability, and extrapyramidal signs, has been associated with both FGAs and SGAs; a study of 208 cases reported to the Australian Adverse Drug Reaction Advisory Committee found that clinical presentations were similar, excepting the FGA clozapine, which was associated with less rigidity. SGAs were associated with less mortality (Trollor et al, 2012).

All patients on antipsychotics are in danger of weight gain and increased chance of diabetes. One study of 421 Alzheimer's outpatients taking SGAs found clinically significant weight gain in females, of 0.14 pounds per week, and unfavorable changes in HDL cholesterol and girth (particularly with olanzapine and quetiapine) (Zheng et al, 2009).

Dozens of cases of severe hypothermia have been associated with atypical antipsychotics. The impact of antipsychotics on the body's thermoregulatory processes is not entirely understood, but one study of five hypothermia cases showed that hypothermia risk increases in the first days after beginning an antipsychotic treatment regimen, or after a

patient's daily dose has been increased. Schizophrenic patients on antipsychotics are at higher risk than those taking antipsychotics off-label (Kreuzer et al, 2011).

A nested case-control study of 22,944 elderly people prescribed an antipsychotic in the Netherlands found that antipsychotics increase the risk of pneumonia (OR 1.6, 95% CI 1.3-2.1)(Knol et al, 2008). Both FGAs and SGAs are associated with pneumonia; a retrospective study of all elderly dual-eligible (Medicaid and Medicare) nursing home residents 65 years or older in four states that began antipsychotics between July 2001 and December 2003 found no significant difference between the unadjusted rate of pneumonia for atypical users (8.17%; 4.61 events per person year) and for typical users (5.21%; 5.21 events per person year). The difference between the two was not significant (Aparasu, Chatterjee & Chen, 2013).

Antipsychotics are associated with a higher rate of hip fractures (Oderda et al, 2012), possibly by increasing falls. Falls are the leading cause of accidental death in adults aged 65 and older, between resulting hip fracture and head trauma, and psychotropic drugs are one of the most common risk factors for falls (Oderda et al, 2012). Both FGAs and SGAs are associated with increased risk of falls (Hien le et al, 2005) and hip fracture in elders (Oderda et al, 2012). In a study on interventions aimed at reducing falls, weaning patients off of psychotropic drugs had the largest effect of any intervention (Hill & Wee, 2012).

Alternative Treatments

Alternatives do exist. Education of health care workers has been found to reduce inappropriate use of antipsychotics. A two-day education program in Norwegian nursing homes, followed by a six-month period of monthly group guidance, reduced both the use of restraints and patient agitation. The study included four Norwegian nursing homes housing 145 total residents with dementia, with each home randomly assigned to receive either treatment as usual or an intervention consisting of the two-day educational seminar and monthly group guidance for six months. The co-primary outcome measures were the proportion of residents subject to interactional restraint and the severity of agitation using the Cohen-Mansfield Agitation Inventory (CMAI). The CMAI score declined from baseline to 6 and 12 months' follow-up in the experimental groups compared to a small increase in the control groups (Testad et al, 2010).

A study in Northern Ireland utilized specially trained pharmacists, who visited one group of nursing homes regularly over a year and used an algorithm to assess the appropriateness of using psychotropic drugs on residents. By the end of the study, the proportion of residents taking inappropriate psychotropic medications in the experimental group of homes was 19.5 percent, compared to 50.0 percent in the control group (Patterson, 2010).

In another Norwegian study, lowering the dose of antipsychotic medication proved effective in lowering Neuropsychiatric Inventory scores, which measures agitation, apathy, psychosis, and restlessness (Ruths et al, 2008). And in the same study that utilized the memory test, the residents taken off antipsychotics and receiving benzodiazepines or antihistamine hypnotic agents reported more stable or improved anxiety levels over the residents in the control group. At the very least, health care providers, especially those in nursing homes, should regularly monitor and reevaluate elderly patients on antipsychotic medication, and make efforts to stop use or wean off use of them over time (Hill & Wee, 2012).

Nonpharmacologic interventions, including exercise, have also been found to alleviate behavioral and psychological symptoms of dementia (BPSD) (Thuné-Boyle et al, 2012). Dementia recommendation guidelines also suggest interventions besides off-label antipsychotic use in easing agitation, anxiety, and insomnia. A systematic appraisal identified aromatherapy, multisensory stimulation, music therapy, massage, and bright light therapy as potential treatments. These guidelines also called for careful antipsychotic use, since adverse events might outweigh efficacy (Azermai et al, 2011).

IV. Marketing to Nursing Home Medical Directors

Given the concerns over the use of antipsychotics in nursing homes, we analyzed the pharmaceutical marketing reports submitted to the District of Columbia to evaluate whether nursing home medical directors appear to be preferentially targeted for marketing efforts. We obtained a list of District nursing home medical directors from the Department of Health's Health Regulation & Licensing Administration (current as of June 2013) and searched for records of pharmaceutical-company gifts to these individuals from 2007-2011 in the AccessRx database.

An examination of annual gift totals for the physicians identified as nursing home medical directors found the following (because some physicians fall into different total-amount categories in different years, an individual may be represented in multiple categories):

- About half (nine of 19) of these physicians received no gifts from pharmaceutical companies between 2007 and 2011.
- Seven physicians received single-year gift totals of less than \$100, all in the form of food.
- Six of the physicians received gifts totaling \$100 - \$800 in at least one year. Most of these gifts were in the form of food; some took the form of books.
- Only four physicians received pharmaceutical-company gifts totaling more than \$1,000 in at least one of the years studied. Three received cash or checks for speaking or consulting, which totaled \$34,639 over five years. All four of these physicians received food from pharmaceutical companies.

The total value of gifts pharmaceutical companies reported giving to District nursing home medical directors during these years is low compared to the total value of gifts to physicians who received the greatest total amounts. In 2011, for instance, 12 physicians each received gifts totaling more than \$100,000 from pharmaceutical companies; together, their gifts totaled \$1.6 million.

Of the ten medical-director physicians to whom pharmaceutical companies reported giving gifts in 2007-2011, two received gifts in one or two years; four received gifts in three or four years; and four received gifts in all five years.

Nursing home quality measures relevant for this report include nursing homes' ratings from CMS's Nursing Home Compare and the percentage of residents receiving antipsychotic medications. CMS reports on both the percentage of short-stay residents receiving new antipsychotic medications and long-stay residents receiving antipsychotic medications. Ratings and percentages for the District's 19 nursing homes are summarized in Table 3. It is important to note that nursing homes may have different populations, and differences in the percentages of short- and long-stay residents receiving antipsychotic medications may be due to population differences as well as to different policies and practices among facilities.

Table 3: District of Columbia Nursing Home Quality Measures, 2013				
Nursing Home	Ward	Overall Rating	Percent of short-stay residents who newly received an antipsychotic medication	Percent of long-stay residents who received an antipsychotic medication
Stoddard Baptist Nursing Home	1	★★★★★	0.0%	2.5%
Brinton Woods Health and Rehab Center at Dupont Circle	2	★★★★★	2.9%	31.3%
Health and Rehabilitation Center at Thomas Circle		★★★★☆	2.3%	1.7%
The Washington Home	3	★★★☆☆	1.0%	12.5%
Lisner Louise Dickson Hurthome		★★★★★	1.6%	27.4%
Sibley Memorial Hospital Renaissance		★★★★★	0.7%	2.8%
Methodist Home	4	★★★★★	6.2%	16.4%
Knollwood HSC		★★★★★	0.0%	12.5%
Ingleside at Rock Creek		★★★★☆	0.50%	18.7%
Washington Center for Aging Services	5	★★★★★	1.8%	8.3%
Carroll Manor Nursing and Rehabilitation		★★★☆☆	0.7%	17.3%
Jeanne Jugan Residence		★★★★★	-	43.3%
Unique Residential Care Center	6	★★★★★	0.0%	34.3%
Capitol Hill Nursing Center		★★★☆☆	7.9%	12.1%
United Medical Nursing Home	7	★★☆☆☆	1.0%	15.5%
Carolyn Boone Lewis Health Care Center		★★★★☆	22.6%	17.5%
Deanwood Rehabilitation and Wellness Center		★★☆☆☆	6.3%	26.7%
Washington Nursing Facility	8	★★★☆☆	6.6%	19.0%
Specialty Hospital of Washington – Hadley SNF		★★★★☆	10.4%	22.9%

Source: Centers for Medicare & Medicaid Services' Nursing Home Compare site (retrieved August 2013)

No statistically significant differences were found between nursing homes whose medical directors received pharmaceutical-company gifts between 2007 and 2011 and those whose directors were not found in the AccessRx database on overall rating, percent of short-stay residents receiving new antipsychotics, or percentage of long-stay residents receiving antipsychotics.

The majority of District nursing homes have antipsychotic prescribing rates below the national averages. In the US as a whole, 2.7% of short-stay nursing home residents receive new antipsychotic prescriptions and 22.4% of long-stay nursing home residents receive an antipsychotic medication (CMS Nursing Home Compare, 2013). In the District, seven out of 18 nursing homes have above-average prescribing rates for short-stay patients, and six out of 19 have above-average rates of long-stay patients taking antipsychotics.

V. Antipsychotic Prescribing to District Medicare Recipients

Most Part D beneficiaries are seniors; in the District, fewer than 15% are under the age of 65 (The Henry J. Kaiser Family Foundation, 2007). This makes Part D prescriptions a good proxy for prescriptions written to seniors.

A new resource from the nonprofit news organization ProPublica assists with investigating antipsychotic prescribing to the District's senior residents. Through Freedom of Information Act requests, ProPublica obtained Medicare Part D prescribing data for 2010. With that data, they created a publicly accessible "Prescriber Checkup" database of providers who wrote 50 or more Part D prescriptions for at least one drug that year (<http://projects.propublica.org/checkup/>). Each prescriber's listing gives the total number of Medicare Part D prescription claims, the average and total cost of those drugs, and the number of Medicare Part D patients receiving at least one drug from this prescriber. It also gives the number of prescriptions filled for all drugs for which the provider wrote 50 or more prescriptions. Users can perform searches by state and physician name and view prescriber records by specialty.

A search of the Prescriber Checkup database found 41 psychiatrists in the District of Columbia (specialties are self-reported) who prescribe antipsychotics for Medicare patients. The 44,828 filled Part D prescriptions written by these psychiatrists had a total cost of \$7.5 million and an average cost of \$162.

We then consulted the AccessRx database to explore associations between Part D prescribing and receipt of pharmaceutical-company gifts. Thirty-one of the 41 District psychiatrists appearing in the Prescriber Checkup database received gifts from the manufacturers of six commonly prescribed antipsychotics in 2010. Their gift-value totals ranged from \$89 to \$52,903, with a median value of \$533. Thirteen psychiatrists received fewer than five gifts from antipsychotic manufacturers in 2010, and nine received 10 or more. The ten psychiatrists receiving the highest total gift amounts from antipsychotic manufacturers collectively received 161 gifts totaling \$66,613.

As a group, the 31 psychiatrists listed in both Prescriber Checkup and the AccessRx database received 244 gifts from antipsychotic manufacturers totaling \$70,556 in value in 2010. While that is a large sum, it is far lower than the \$446,530 these antipsychotic manufacturers gave to the ten District psychiatrists who received the largest gift amounts in 2010. These 31 psychiatrists wrote 36,079 prescriptions that were filled by Part D beneficiaries; these claims had a total cost of \$6.3 million and an average cost of \$166. That compares to an average cost of \$149 for the ten prescribing psychiatrists receiving no gifts from antipsychotic manufacturers in 2010. The difference in average prescription costs is

not statistically significant; i.e., this analysis does not indicate that receiving gifts from antipsychotic manufacturers corresponds to higher average prescription costs for Part D prescriptions written by District psychiatrists.

To investigate which types of providers are writing large numbers of prescriptions for Part D patients, we searched Prescriber Checkup for the District’s top prescribers of six commonly prescribed antipsychotics: Abilify, Clozapine, Geodon, Risperidone, Seroquel, and Zyprexa. We then added the number of claims for each of the six antipsychotics together to generate each prescriber’s number of total 2010 Part D antipsychotic claims. It is important to note that most prescribers’ records did not include claim numbers for each of the six antipsychotic medications, because the database only includes claim information for the drugs for which the prescriber wrote at least 50 prescriptions for Part D patients in 2010. The comparison of total claims numbers is nonetheless useful as an indication that the prescribers writing the most prescriptions for Part D patients are psychiatrists. Of the District prescribers with the largest number of antipsychotic claims for Part D patients, 33 are psychiatrists, while only 15 classify themselves as Internal, Family, or Adult Medicine physicians and six as Geriatric Medicine physicians (see Table 4). Of the ten prescribers with the most antipsychotic claims, nine are psychiatrists and only one is a primary-care provider.

Table 4: Specialties of District of Columbia Part D Prescribers with Most Antipsychotic Claims (Data from ProPublica’s Prescriber Checkup)	
Specialty	Number of Prescribers
Psychiatry	33
Adult, Family, or Internal Medicine	15
Geriatric Medicine	6
Other Mental Health* (Clinical Nurse Specialist, Psychiatric/Mental Health; Forensic Psychiatry; Geriatric Psychiatry; Professional Counselor)	4
Other* (Gastroenterology; Hematology; Neurology; Nurse Practitioner; Nurse Practitioner, Gerontology; Pulmonary Disease; Rheumatology; Specialist)	9
Total	67

* Specialties are self-reported; each unique reported specialty is listed

Table 5 lists the District of Columbia providers whose Prescriber Checkup records show the greatest number of claims for six commonly prescribed antipsychotics. In addition to information on the number of claims and each prescriber's specialty, it gives the number and percentage of each prescriber's Part D patients who filled at least one antipsychotic prescription in 2010 (these figures come directly from Prescriber Checkup). Claim numbers are generally far higher than the number of patients filling antipsychotic prescriptions; this suggests that the patients taking antipsychotics received multiple antipsychotic prescriptions, either in the form of refills of the same drug or prescriptions for multiple antipsychotic medications. Claim numbers range from 50 to 1,531; the percentage of these prescriber's Part D patients receiving antipsychotics ranges from 7% to 92%.

Prescriber	Total Part D Antipsychotic Claims	Specialty (self-reported)	# of Part D patients who filled at least one antipsychotic prescription	% of Part D patients who filled at least one antipsychotic prescription
Joel Cohen	1,531	Psychiatry	205	76%
Angiolina Melchiorre	1,455	Psychiatry	176	84%
Stephen Peterson	602	Psychiatry	145	66%
Ashraf Fanous	530	Psychiatry	104	71%
Gerardo Manansala	512	Psychiatry	138	72%
David Ault	506	Psychiatry	91	74%
Ronald Koshes	489	Psychiatry	60	77%
Risa Fishman	437	Psychiatry	82	64%
Marc Shepard	409	Internal Medicine	49	24%
Yvonne Bascug	399	Psychiatry	73	78%
Ni Ni Khin	376	Psychiatry	65	52%
Philip Seibel	373	Psychiatry	74	69%
Daniel Podell	332	Psychiatry	91	80%
Margaret Roberts	310	Psychiatry	74	79%
Asim Haracic	309	Psychiatry	69	65%
Esmerando Juanitez	287	Internal Medicine	42	12%
Alen Salerian	281	Specialist	62	43%
Dawit Yohannes	278	Family Medicine	44	19%
Laila Alamgir	266	Geriatric Medicine	39	35%
Bob Keisling	266	Psychiatry	70	65%
Ismail Kalokoh	237	Internal Medicine	18	23%
Anthony Ibe	236	Adult Medicine	39	21%
Melvin Williams	234	Psychiatry	66	77%
Alice Britt	233	Clinical Nurse Specialist, Psychiatric/ Mental Health	49	84%
Jean D'Souza	215	Psychiatry	93	54%
Jerry Earll	177	Internal Medicine	38	28%
Kathy Brenneman	173	Geriatric Medicine	22	10%
Raj Mathur	161	Geriatric Medicine	39	10%
Jay Lippman	154	Internal Medicine	28	18%
Cedric Poku-Dankwah	153	Family Medicine	20	13%
Stuart Horwitz	152	Gastroenterology	26	15%

Michael Grady	145	Internal Medicine	25	9%
Marta Schneider	142	Internal Medicine	22	9%
Tamrat Retta	139	Internal Medicine	30	24%
Edwin Williams	132	Family Medicine	27	8%
Robert Ketcham	130	Psychiatry	35	71%
Ann Lux	130	Psychiatry	28	78%
Snezana Sonje	125	Neurology	36	78%
Glenn Legler	122	Psychiatry	37	77%
Marina Bota	108	Psychiatry	29	43%
Dwayne Bennett	107	Psychiatry	40	45%
Tama Gillis	102	Professional Counselor	37	92%
Jaime Botello	102	Internal Medicine	28	13%
Sharyn Horwitz	90	Geriatric Medicine	14	25%
Thomas Obisesan	88	Geriatric Medicine	28	30%
Cecilia Chukwu	82	Specialist	13	16%
Thomas Havell	76	Hematology	18	10%
Jason Rosen	76	Psychiatry	51	84%
David Fischer	75	Forensic Psychiatry	59	66%
Walter Bland	72	Geriatric Psychiatry	19	54%
Igor Volkov	72	Psychiatry	47	78%
Bindu Joseph	71	Geriatric Medicine	18	8%
John Foxen	66	Family Medicine	24	7%
Rosario Nunezbrito	64	Psychiatry	23	61%
Alvaro Guzman	63	Psychiatry	14	48%
Nancy Sassa	63	Nurse Practitioner	14	12%
Robert Sherron	63	Psychiatry	49	74%
Richard Wilson	62	Rheumatology	24	10%
Michelle Broadnax	60	Psychiatry	29	83%
Kenneth Smothers	59	Psychiatry	24	60%
Calya Myint	58	Psychiatry	34	74%
Janet Goldberg	57	Nurse Practitioner, Gerontology	14	12%
Anjali Singh	52	Psychiatry	34	58%
Kumudini Attanagoda	51	Psychiatry	19	83%
Wayne Davis	51	Pulmonary Disease	14	10%
Robert Jayes	51	Internal Medicine	N/A	N/A
Ilian Bandaranayake	50	Psychiatry	26	48%

Conclusion

The District's investment in the health of its residents is paying off; in many ways the District is setting an example for other jurisdictions. The majority of the District's nursing homes have above-average Nursing Home Compare ratings and below-average antipsychotic prescription rates when compared to the US as a whole. Health and access disparities remain and are motivating continued efforts to expand access to care. Recent reports have addressed the inadequacy of mental-health services in the District, for seniors as well as for the population as a whole. Both the District of Columbia Office on Aging's Senior Needs Assessment and the Community Health Needs Assessment offer recommendations to expand access to mental-health care.

Prescription drugs play an important role in the health of the District's seniors, but inappropriate use of antipsychotics for seniors brings an increased risk of serious adverse events, including death, without a commensurate benefit. Our analysis of pharmaceutical marketing data did not find evidence of extensive marketing targeted at nursing home medical directors.

ProPublica's Prescriber Checkup database is a helpful tool for understanding patterns of antipsychotic prescribing to Medicare Part D beneficiaries, the majority of whom are seniors. An analysis of Prescriber Checkup records for District psychiatrists and our AccessRx data found that 31 of the 41 psychiatrists with large Part D claim totals for antipsychotic drugs received gifts from antipsychotic manufacturers in 2010. Although several of those psychiatrists received large gift totals, they were small compared to the total gifts received by other District psychiatrists from antipsychotic manufacturers in 2010. Our analysis of the claims and marketing information found no statistically significant difference between the average cost per Part D claim of psychiatrists who received gifts compared to those who did not.

These analyses demonstrate the valuable role publicly accessible databases such as Nursing Home Compare and Prescriber Checkup, combined with the AccessRx pharmaceutical marketing database, can play. Researchers, payers, healthcare providers, and individuals choosing doctors or nursing homes can all benefit from the information they contain. Making AccessRx data available to the public would complement and advance this beneficial transparency.

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