RESEARCH LETTER

Frequency and Magnitude of Co-payments Exceeding Prescription Drug Costs

A co-payment suggests sharing the total cost between patients and payers. However, drug co-payments sometimes exceed costs, with the insurer or pharmacy benefit manager (PBM) keeping the difference.[1] Furthermore, some pharmacists are contractually prevented from alerting patients when their co-payment exceeds the drug's cash price.[2] Although some have argued that the practice is uncommon, a 2016 survey of independent pharmacists indicates otherwise.[3]

Such overpayments have been the subject of lawsuits and state legislation, but little is known about their frequency or magnitude.

Methods | Pharmacies collect patients' co-payments and pass them to PBMs, who reimburse the pharmacy a negotiated rate to cover drug costs, dispensing fees, and any markup. Overpayments occur when the co-payment exceeds the negotiated reimbursement. To assess the frequency of overpayments, we compared co-payments with the national average reimbursement received by pharmacies for commercially insured patients for the same prescription.

The reimbursement data came from a survey by the Centers for Medicare & Medicaid Services from January to June 2013, the national average retail price (NARP). NARP data are based on 50 million retail pharmacy transactions from independent and chain pharmacies nationwide. They measure per-unit mean reimbursement to retail pharmacies for commercially insured patients for more than 4000 common outpatient drugs and represent the total cost to the PBM, including dispensing fees and pharmacy markup.[4]

We compared NARP reimbursements to co-payments from pharmacy claims from a 25% random sample of Optum's Clinformatics Data Mart from the same period. These claims come from 1.6 million commercially insured beneficiaries from 50 states, with greater representation from the south and less from the northeast compared with the US privately insured population. The data are representative in terms of sex, but overrepresent the age category of 21 to 64 years.

We identified claims in which co-payment exceeded NARP reimbursement, and the excess amount (overpayment). To ensure the excess did not simply reflect variation in reimbursements (NARP measures average reimbursement), we conservatively identified overpayments only on claims in which the co-payment exceeded the NARP by more than $2.00 for reimbursements below $20 or 10% of the NARP for reimbursements above $20. We calculated the frequency and mean size of overpayments for all claims and performed 2-sided tests of equality between these values for brand drugs vs generic drugs ($\alpha = .05$). We report results for all prescriptions together, and for the 20 drugs most frequently prescribed. Confidence intervals were binomial; all analyses were performed with Stata (StataCorp), version 14.0.

Results | Among 9.5 million claims, 2.2 million (22.94% [95% CI, 22.91%-22.97%]) involved overpayments (**Table 1**). The 28.17% rate (95% CI, 28.14%-28.20%) for generic drugs was significantly greater than for brand drugs (5.95% [95% CI, 5.92%-5.98%]); difference, 22.22% (95% CI, 22.17%-22.26%), $P < .001$. The mean overpayment was $7.69 (SD, $8.59); 17.15% (95% CI, 17.10%-17.20%) exceeded $10. Although less common, overpayments were significantly larger on brand drugs (mean, $13.46 [SD, $18.01]) than on generic drugs (mean, $7.32 [SD, $7.43]); difference, $6.14 (95% CI, $6.09-$6.19), $P < .001$. Aggregate overpayments totaled $135 million for 2013 or $10.51 per covered member.

The most commonly prescribed drug, hydrocodone/acetaminophen, involved an overpayment on 36.15% of claims (95% CI, 35.99%-36.31%), with mean overpayment of $6.94 (SD, $4.27) (**Table 2**). Twelve of the 20 most commonly prescribed drugs involved overpayment rates above 33%.

Discussion | Overpayments were common in this data set, affecting 23% of all prescriptions, and 28% of generic prescriptions. Although the mean overpayment was relatively small, their widespread use on popular drugs resulted in a total cost of $10.51 per member. By comparison, 1 large PBM reported its clients spent $10.67 per member on metformin in 2016.[5]

Primary limitations were the use of pharmacy claims from a single, large insurer and national mean prices, which were only available for 2013 and may not represent current practice.

Table 1. Frequency and Mean Overpayment Among Pharmacy Claims With Patient Co-pay Overpayment in the United States, 2013[a]

Drugs	No. of Claims	No. of Claims With Overpayment	Frequency of Claims With Overpayment, % (95% CI)[b]	Overpayment (When Present), $ Mean (SD)	Overpayment (When Present), $ Median (IQR)
All	9 539 846	2 188 578	22.94 (22.91-22.97)	7.69 (8.59)	5.78 (3.83-8.56)
Generic	7 295 525	2 055 024	28.17 (28.14-28.20)	7.32 (7.43)	5.64 (3.80-8.29)
Brand	2 244 321	133 554	5.95 (5.92-5.98)	13.46 (18.01)	8.77 (6.16-13.44)

[a] Sources: Optum's Clinformatics Data Mart pharmacy claims 2013 and national average retail prices 2013. Statistical analysis performed with Stata (StataCorp), version 14.0.

[b] Confidence intervals were binomial.

Table 2. Frequency and Mean Overpayment Among Pharmacy Claims With Patient Co-pay Overpayment for the 20 Most Frequently Prescribed Drugs in the United States, 2013[a]

Rank by No. of Claims	Drug Name	No. of Claims	No. of Claims With Overpayment	Frequency of Claims With Overpayment, % (95% CI)[c]	Overpayment (When Present), $	
					Mean (SD)	Median (IQR)
1	Hydrocodone/acetaminophen	330 812	119 587	36.15 (35.99-36.31)	6.94 (4.27)	6.26 (4.46-8.35)
2	Levothyroxine sodium	258 936	108 910	42.06 (41.87-42.25)	6.12 (4.82)	5.59 (3.64-6.56)
3	Azithromycin	218 416	38 600	17.67 (17.51-17.83)	8.53 (7.12)	5.38 (4.81-9.86)
4	Lisinopril	212 553	103 612	48.75 (48.53-48.96)	7.17 (6.08)	5.87 (4.50-7.47)
5	Fluticasone propionate	163 891	3427	2.09 (2.02-2.16)	17.55 (5.10)	18.91 (17.83-20.10)
6	Simvastatin	162 241	84 324	51.97 (51.73-52.22)	6.33 (7.85)	3.62 (3.34-8.02)
7	Atorvastatin calcium	161 998	12 199	7.53 (7.40-7.66)	8.82 (11.20)	4.90 (2.35-11.29)
8	Omeprazole	157 964	17 858	11.31 (11.15-11.46)	10.34 (11.05)	6.39 (5.51-11.08)
9	Amoxicillin	153 293	54 770	35.73 (35.49-35.97)	6.21 (4.70)	5.14 (3.38-7.16)
10	Amlodipine besylate	150 060	89 688	59.77 (59.52-60.02)	6.98 (7.99)	4.25 (3.83-8.83)
11	Sertraline hydrochloride	128 829	60 328	46.83 (46.56-47.10)	5.94 (6.90)	3.50 (3.03-7.84)
12	Amoxicillin trihydrate/ potassium clavulanate	113 724	3636	3.20 (3.10-3.30)	12.07 (7.73)	9.64 (4.98-18.97)
13	Zolpidem tartrate	111 616	67 516	60.49 (60.20-60.78)	6.48 (6.99)	3.57 (2.70-7.86)
14	Ventolin hydrofluoroalkane (albuterol sulfate inhalation aerosol)[b]	105 818	198	0.19 (0.16-0.22)	19.95 (15.00)	20.53 (5.79-28.02)
15	Crestor (rosuvastatin calcium)[b]	102 596	105	0.10 (0.08-0.12)	14.56 (20.09)	8.12 (5.51-17.81)
16	Metformin hydrochloride	97 015	32 548	33.55 (33.25-33.85)	6.72 (6.79)	4.42 (3.43-8.05)
17	Hydrochlorothiazide	95 837	45 905	47.90 (47.58-48.22)	6.86 (4.13)	7.04 (4.97-7.16)
18	Metoprolol succinate	91 904	19 995	21.76 (21.49-22.02)	13.21 (13.97)	9.79 (7.72-14.72)
19	Citalopram hydrobromide	89 521	42 916	47.94 (47.61-48.27)	7.08 (7.49)	4.66 (4.01-8.86)
20	Prednisone	88 675	44 508	50.19 (49.86-50.52)	6.79 (3.72)	6.70 (4.41-8.22)

[a] Sources: Optum Clinformatics Data Mart pharmacy claims 2013 and national average retail prices 2013. Statistical analysis performed with Stata (StataCorp), version 14.0.

[b] Brand drugs.

[c] Confidence intervals were binomial.

Cost-related nonadherence is common and associated with increased medical services use and negative health outcomes.[6] By raising patient costs at the point of sale, overpayments may exacerbate these effects. To lower patient expenses, legislation addressing overpayments and gag clauses warrants further investigation.

Karen Van Nuys, PhD
Geoffrey Joyce, PhD
Rocio Ribero, PhD
Dana P. Goldman, PhD

Author Affiliations: Leonard D. Schaeffer Center for Health Policy and Economics, University of Southern California, Los Angeles.

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Corresponding Author: Karen Van Nuys, PhD, Leonard D. Schaeffer Center for Health Policy and Economics, University of Southern California, 635 Downey Way, Los Angeles, CA 90089 (vannuys@usc.edu).

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Concept and design: All authors.
Acquisition, analysis, or interpretation of data: Van Nuys, Joyce, Ribero.
Drafting of the manuscript: Van Nuys, Ribero.
Critical revision of the manuscript for important intellectual content: All authors.
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COMMENT & RESPONSE

ICU Admission and Mortality Among Elderly Adults

To the Editor Dr Guidet and colleagues[1] investigated whether, among critically ill patients aged at least 75 years, systematic admission to an intensive care unit (ICU) vs usual practice reduced mortality at 6 months. In the trial, patients with cancer were excluded without explanation. In the United States, 47% of patients with cancer (active or in remission) are aged 70 years or older.[2] Only 3 studies have investigated the prognoses of elderly critically ill patients with cancer. The first study concerned patients with stage III or IV non–small cell lung cancers (aged ≥66 years) and reported poor results.[3] Bonomi et al[4] reported similar results in a similar population. More recently, Auclin et al[5] reported that patients 65 years or older with solid cancer admitted to a medical ICU of a teaching hospital accounted for 14.3% of ICU admissions during the study period. These patients had the same ICU mortality rate as patients without cancer. In addition, 52.7% of patients with cancer discharged from the ICU received anticancer treatment when indicated.

We believe that there was no valid scientific argument to exclude older patients with cancer from the study by Guidet and colleagues.[1] The rapidly reversible character of organ failure and the functional status before admission to the emergency department (usually measured with the Eastern Cooperative Oncology Group performance status score, an essential marker for short-term and medium-term survival in this population) are most important.

Elderly patients increasingly benefit from targeted therapies or immunotherapies and present to the emergency department for reasons other than cancer, with good functional status.[5] The decision to admit older patients with cancer to the ICU should be made by taking into account not only the clinical condition and the opinions of the emergency physician and the intensivist but also of the oncologist or the hematologist, requiring a broader discussion than described in the trial.[1]

Valentin Andre, MD
Nadia Aissaoui, MD, PhD
François Vincent, MD

Author Affiliations: Polyvalent Intensive Care Unit, GHIC Le Raincy-Montfermeil, Montfermeil, France (Andre, Vincent); Intensive Care Unit, Hôpital Européen Georges-Pompidou, Paris, France (Aissaoui).

Corresponding Author: François Vincent, MD, Polyvalent Intensive Care Unit, GHIC Le Raincy-Montfermeil, 10 Avenue du Général Leclerc, 93370 Montfermeil, France (frncsvncnt@aol.com).

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In Reply Dr Andre and colleagues ask why patients with active cancer were excluded from the Intensive Care for Elderly-CUB-Réa 2 (ICE-CUB 2) trial focusing on acutely ill elderly patients presenting to the emergency department. They emphasize that the short-term prognosis of these patients is comparable with that of patients free of cancer and that new therapies, such as targeted or immunotherapies, may improve prognosis in the future. They rely on a single-center study documenting that ICU mortality and 90-day mortality of ICU patients older than 65 years with solid tumors were 33.6% and 51.9%, respectively.[1] In this study, performance status was not associated with 90-day mortality, although cumulative evidence suggests that mid-term and long-term mortality in elderly patients is mainly influenced by underlying conditions, as documented recently with the clinical frailty score.[2]

The benefit of ICU admission for elderly patients is controversial. In a previous observational cohort study (ICE-CUB 1) including all critically ill patients 80 years or older presenting to the emergency department regardless of their underlying condition, an improvement in 6-month outcome in patients admitted to the ICU was not demonstrated.[3] In that study, 9.8% of included patients had an active cancer and they were similarly referred by an emergency physician for ICU admission.[4] Overall, 12.4% of patients were admitted to the ICU, whereas 9.6% of patients with cancer were admitted. Active cancer was independently associated with 6-month mortality (odds ratio, 2.59 [95% CI, 1.74-3.90]).[5]

In a context in which intensive care may be refused to patients based only on their biological age, the ICE-CUB 2 study aimed to evaluate the benefit of ICU care for selected patients, those who should benefit the most from admission. We excluded patients with at least 1 of the 3 prognostic factors associated with poor 6-month survival identified in the ICE-CUB 1 study: active cancer, poor functional status, and poor nutritional status. The main end point was 6-month mortality, which is heavily influenced by comorbidities and functional status regardless of final hospital admission location (ICU or other wards).

Our trial does not imply that ICU admission is always futile for elderly patients. The subgroup of elderly patients with solid tumors deserves a specific assessment to identify favorable prognostic factors of long-term mortality, quality of life, and functional status. From that perspective, acute