the Medicare prescription drug program provided this vulnerable population with an important new source of drug coverage.

PHP21

CLINICALLY SIGNIFICANT DRUG-DRUG INTERACTION PROFILES IN THE ELDERLY—A CALIFORNIA QUALITY IMPROVEMENT ORGANIZATION (QIO) COLLABORATIVE EXPERIENCE

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OBJECTIVE: Drug-drug interactions (DDI) have been well associated with significant medical, safety, and economic consequences, particularly in older and chronically ill patients. This study examined several aspects of medication safety by quantifying and profiling the prevalence, population exposure, and characteristics of clinically significant DDIs among Medicare Part D utilizing beneficiaries. Lumetra and six California Medicare Advantage prescription drug plans (MAPD) and stand-alone prescription drug plans (PDP) will collaboratively utilize results to design effective quality improvement initiatives to minimize adverse clinical outcomes due to these DDIs.

METHODS: This study assessed the prevalence and population exposure of DDIs among Medicare and dual eligible (i.e., Medicare +Medicaid status) beneficiaries enrolled across six of California’s Part D MAPD and PDPs. Retrospective, cross sectional pharmacy claims data from January 1, 2006 through December 31, 2006 were analyzed to obtain the frequency of drug interactions that are clinically significant and well-documented in the medical and pharmacy literature.

RESULTS: The analysis included 368,607 utilizing beneficiaries. The overall prevalence rate of DDI was 5.9%. The number of clinically significant DDI cases was 7962 per 100,000 beneficiaries. Stratified analyses indicated that males and older beneficiaries appear to be at a higher risk of incurring a clinically significant DDI. Risk of a DDI also increased as the number of unique medications and/or number of prescribing physicians increased per enrollee. CONCLUSION: The prevalence and characteristics of clinically significant DDIs among California elderly and chronically ill patients were positively associated with certain demographic factors and health care resource utilization profiles. Stratifying high-risk individuals with discrete or multiple DDI’s will enable Part D MAPDs and PDPs to perform in-depth case management in targeted individuals. Point-of-service edits and information obtained from retrospective drug claims review can be used in conjunction to customize meaningful intervention strategies.

PHP22

MEDICARE SPENDING GROWTH FOR DIAGNOSTIC IMAGING AND ACCESS TO CARE

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OBJECTIVE: To measure the impact of improvements in access to care on Medicare spending growth for diagnostic imaging (DI) services. METHODS: We modeled Medicare DI spending growth as a function of growth in: enrollment; per-service payment; access to care (% using ≥ 1 service); volume (services/user); and intensity (relative value units per service used). We then used Medicare Standard Analytic File 5% sample data from 2002–2005 to decompose DI spending growth into these factors by modality: standard (x-ray and ultrasound); and advanced (computed tomography (CT), magnetic resonance (MR) and nuclear). RESULTS: Aggregate DI service spending grew at an annual rate of 15.2% during 2002–2005, and varied substantially by modality (x-ray 10.2%, ultrasound 11.7%, CT 19.6%, MR 18.5%, nuclear 15.0%). Enrollment growth accounted for less than 15% of this increase (range: 7.2% (CT)—13.3% (x-ray)), while the impact of payment increases was far greater and varied widely (range: 7.6% (nuclear)—54.0% (x-ray)). The share of DI spending growth attributable to improvements in access to care was: x-ray (6.5%); ultrasound (19.1%); CT (30.4%); MR (49.0%); and nuclear (30.5%). The contribution of volume growth to overall spending growth ranged from 10.5% for MR to 24.1% for CT. Service intensity growth accounted for less than 10% of spending growth for x-ray, CT and MR; 17.9% and 33.0% of spending growth for ultrasound and nuclear were due to service intensity growth, respectively. CONCLUSION: Improved access to care explains approximately 30%–50% of the growth in Medicare spending for advanced diagnostic imaging services.

PHP23

SPECIALTY BIOLOGIC DRUG COVERAGE UNDER MEDICARE PART D: THE EXPERIENCE OF VULNERABLE BENEFICIARIES WITH RHEUMATOID ARTHRITIS (RA) AND MULTIPLE SCLEROSIS (MS)

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OBJECTIVE: In early 2006, 18,820 vulnerable Medicare beneficiaries with RA or MS participating in a biologic drug demonstration program (MRDD) transitioned into Medicare Part D plans. We compared the types of biologic drug coverage offered by Part D plans.

METHODS: We examined Part D plans’ cost structure (e.g., premium, deductible, cost sharing) for the specialty biologic drugs offered during the MRDD: adalimumab, etanercept, anakinra (for RA), interferon beta 1a and 1b, glatiramer acetate, and HP acthar gel (for MS). For MRDD and Part D plans, we compared beneficiaries’ average out-of-pocket costs (OOPC).

RESULTS: Beneficiaries enrolled in 1061 stand-alone (SA) and 705 Medicare Advantage (MA) Part D plans. All SA plans and all but one MA plan covered etanercept, interferon beta 1b, and glatiramer acetate. The proportion covering the other drugs varied between 38–92%. MA plans were more likely to cover anakinra, interferon beta 1a, and HP acthar gel than SA plans (p < 0.05). All plans used co-insurance as the preferred form of cost sharing; average co-insurance ranged from 25–31% of the drug price. The majority of plans assumed >75% of the cost sharing for each drug dispensing during the initial coverage period, but only 2% of plans offered coverage during the coverage gap. On average, beneficiaries’ OOPC were greater under Part D than the standard benefit-structured MRDD. Patients with a MRDD subsidy were significantly less likely to receive a Part D subsidy (p < 0.0001), because assets were considered in addition to income in the granting of subsidies under Part D.

CONCLUSION: Many Part D plans assume some costs for specialty biologic drugs to treat RA and MS. Beneficiaries still find themselves facing high OOPC due to drug price, plans’ preference for co-insurance, and scant coverage during the coverage gap.

PHP24

THE IMPACT OF BENEFIT PLAN DESIGN ON COST AND HEALTH OUTCOMES

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OBJECTIVE: When private payers implement changes to control health benefit costs, the longer term consequences may not be considered. The aim was to identify scientific studies that exam-
ined the impact of changes in private drug plan formulary design on the health of private plan beneficiaries.

**METHODS:** A search of the medical literature was conducted using the PubMed search engine. Search terms included combinations of reimbursement, formulary, plan, payer, restriction, cost, and adherence. The ‘related articles’ feature in PubMed was also used to identify relevant papers.

**RESULTS:** While no published studies of Canadian employer-sponsored drug plans were identified, there were 15 North American studies that focused on the effects of changes in drug plan design. This body of research demonstrated three key points. Cost-sharing initiatives resulted in a reduction, or complete cessation, of medication consumption, including drugs deemed “essential”, and that decreased adherence to drug therapy can actually lead to the increased use of other more expensive health care resources. On the other hand, higher levels of medication adherence, which increased drug costs, were associated with lower overall health care costs. Employee satisfaction with their employer drug plan decreased when cost-containment measures were implemented and this is a problem for employers since drug plan changes typically involved increasing fees or imposing more restrictions to access.

**CONCLUSION:** A short-term focus on controlling drug costs is likely to have negative consequences on the health, productivity and satisfaction of plan members. If changes to drug plans are not properly assessed, there can be undesirable and expensive consequences for plan members and employers. Employers need a longer term framework to guide and support health plan decision-making that avoids sudden or drastic changes to health benefits. Careful consideration of drug plan design and cost-sharing can improve medication adherence, health outcomes, employee satisfaction, and costs.

**PHP25**

**TOWARDS HIGH PERFORMANCE ‘PHARMACARE’ SYSTEMS: A REVIEW OF EXPERIENCES IN SEVEN COUNTRIES**

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**OBJECTIVES:** While pharmaceuticals can significantly improve the health of patients and help to mitigate health-related inequities within a population, their rising prominence within health systems is not without challenges. This paper explores health related aspects of pharmaceutical policy in Australia, Canada, Germany, The Netherlands, New Zealand, the UK and the United States.

**METHODS:** Drawing on published goals for national policies, we developed a framework for gauging pharmacare system performance. We review policy structures and investigate system performance using preliminary indicators.

**RESULTS:** Among the countries studied, the most quickly in the US. COSTS WITH REIMBURSEMENT TARIFFS AND RETAIL PRICES IN BELGIUM

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**OBJECTIVE:** The RIZIV/NAM, the Belgian third-party payer, aims to set reimbursement tariffs at a level that reflects costs of orthotic braces. In the absence of publicly disclosed information on the cost structure of braces, estimating production and distribution costs of braces is valuable to reimbursement agencies with a view to setting tariffs. The aim of this study is to calculate the cost of production and distribution of a prefabricated hard neck brace and a prefabricated hard knee brace, and to explore whether Belgian tariffs and actual retail prices correspond with estimated costs of these two braces.

**METHODS:** The cost model took into account manufacturing costs, general overhead, research and development, warehousing, profit and distribution margins. Data were gathered from manufacturers, a visit to a production site, desk research, a decomposition of finished products and interviews with stakeholders.