

## Out-of-pocket medical and prescription drug costs for fibromyalgia patients compared with patients with other chronic conditions

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APHA - 137<sup>th</sup> Annual Meeting & Exposition  
Philadelphia, PA, November 11, 2009

### Presenter Disclosure

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The following personal financial relationships with commercial interests relevant to this presentation existed in the past 12 months:

- Employment by commercial entity
  - Forest Research Institute, Inc., subsidiary of Forest Laboratories, Inc.
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## Abstract

- **Objectives:** Fibromyalgia (FM) is a chronic condition characterized by multiple symptoms such as pain, fatigue, cognitive dysfunction, and decreased physical function. This study compares mean annual out-of-pocket medical and prescription drug costs per patient for patients diagnosed with FM with those for patients diagnosed with Major Depressive Disorder and other Depressive Disorders (DEP) and with those for patients diagnosed with Chronic Fatigue Syndrome (CFS).
- **Methods:** Using a large US health insurance database, we identified all patients aged 18+ years with continuous health plan eligibility and  $\geq 1$  inpatient or  $\geq 2$  outpatient paid medical and prescription drug claims during calendar year 2006 with ICD-9-CM codes for one of the disease conditions. Patient groups were not mutually exclusive (10.8% of FM patients had DEP and 1.0% had CFS). For each disease condition, mean annual costs per patient were calculated using patient out-of-pocket expenditures associated with all paid health insurance claims in 2006, regardless of diagnosis. Expenditures not involving an insurance claim (e.g., over-the-counter drugs) were not included. Incremental costs relative to FM were generated using generalized linear models (family=gamma, link=log), adjusting for age, gender, beneficiary status, employment status, insurance plan type, and comorbid prevalence of FM, DEP, CFS, and other conditions.
- **Results:** A total of 77,124 FM, 11,672 CFS and 215,380 DEP patients met all study entry criteria. Total mean annual unadjusted out-of-pocket costs per patient were higher for FM patients (\$1,540) than for DEP patients (\$1,449) and CFS patients (\$1,219). The highest unadjusted cost category for all three conditions was outpatient care (FM \$900; DEP \$777; CFS \$732). Physician office visits (FM \$503; DEP \$449; CFS \$418) accounted for most outpatient costs. The second highest unadjusted cost category was prescription drugs (FM \$516; DEP \$499; CFS \$399), followed by inpatient care (FM \$124; DEP \$173, CFS \$89). After adjusting for covariates, out-of-pocket costs for FM patients were 3.8% (\$55) lower than costs for DEP patients and were 8.0% (\$105) higher than costs for CFS patients.
- **Conclusions:** Out-of-pocket costs for patients with FM are comparable to those for patients with DEP or CFS, which are chronic diseases with symptoms similar to FM. The impact of out-of-pocket expenditures on quality of care should be further investigated since these expenditures may affect whether patients are able to obtain necessary care.

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## Introduction

- Fibromyalgia (FM) is a chronic disorder characterized by widespread pain and fatigue
  - Other common symptoms include cognitive impairment, sleep and mood disturbances, and impaired physical functioning
- FM is widespread, afflicting 2% to 4% of the general population,<sup>1</sup> and 5% of patients in general medical practice<sup>2</sup>
  - Usually affects women 20-50 years of age, but also has been observed in men, adolescents, and the elderly<sup>3</sup>
- Claims analyses have estimated that FM patients cost third-party payers 2 to 3 times as much as randomly selected patients without FM<sup>4,5</sup>
- FM is difficult to treat. Prior to 2007, there were no medications approved by the FDA to treat FM. Since then, 3 medications have been approved to treat FM: milnacipran (2009), duloxetine (2008), and pregabalin (2007)
- With the increase in treatment options for FM, there is growing interest in the economic burden of FM

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## Objective

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- To assess the annual out-of-pocket costs per patient for individuals diagnosed with FM compared with patients diagnosed with other chronic medical conditions in which patients experience symptoms similar to FM, such as depressive disorders (DEP) or chronic fatigue syndrome (CFS)

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## Methods

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### *Overview*

- This analysis used a prevalence-based approach for estimating and comparing annual costs per patient to third-party payers in calendar year 2006 for patients with FM, DEP, and CFS, respectively
- Mean annual costs per patient were calculated for each disease group based on reimbursed claims for covered medical and prescription drug care in 2006

### *Data Source*

- Retrospective data on medical and prescription drug claims for individuals with employer-sponsored private health insurance were obtained from the 2006 Thomson Healthcare MarketScan Commercial Claims Database
  - Health insurance plans included preferred provider organizations (PPOs), health maintenance organizations (HMOs), point-of service (POS), comprehensive, and other plans
  - Study participants included employees (active, retired, and disabled), spouses, and their dependents

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## Methods

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### *Study Population*

- Three disease groups compose the study population:
  - Patients diagnosed with FM
  - Patients diagnosed with DEP
  - Patients diagnosed with CFS
- Disease groups were not mutually exclusive
  - Segmenting groups into mutually exclusive groups would have minimized the true clinical complexity of these conditions
  - Because disease groups were not mutually exclusive, there was double counting of costs for some patients; thus, this study provides a good estimate of the burden on patients but not the overall burden of each disease
  - Because disease groups were not mutually exclusive, the independence of observations assumption required for conventional significance testing (ie, t-tests, chi-square tests) was violated; thus, significance testing was not used to assess differences in characteristics across disease groups

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## Methods

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### *Inclusion Criteria*

- Aged 18+ years
- Continuous health plan eligibility during calendar year 2006
- Prescription drug benefit during calendar year 2006
- Minimum of one inpatient or two outpatient claims with ICD-9-CM codes for one of these three disease conditions:
  - Fibromyalgia
    - ICD-9 Code: 729.1
  - Major Depressive Disorder and other Depressive Disorders
    - ICD-9 Codes: 296.2x, 296.3x, 298.0x, 300.4x, 309.0x, 309.1x, 311.xx
  - Chronic Fatigue Syndrome
    - ICD-9 Code: 780.71

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## Methods

### Analyses

- Mean annual cost estimates for each disease group were generated for:
  - All medical and prescription drug care incurred by patients
  - Specific cost components incurred by patients
    - Inpatient care
    - Outpatient care
    - Prescription drugs
- Incremental cost estimates for DEP and CFS patients relative to FM patients were generated using generalized linear models with family and link function selected based on diagnostic testing
  - Estimates were adjusted for patient age, gender, beneficiary status, employment status, insurance plan type, co-presence of FM/DEP/CFS, and presence of other comorbidities (Prescription Drug Hierarchical Condition Category [RxHCC] conditions)
    - RxHCC conditions were used to adjust for the presence of 84 medical comorbidities. To avoid double counting and collinearity, we excluded the ICD-9-CM codes for FM/DEP/CFS from the algorithms coding RxHCC conditions

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## Results: Patient Characteristics

Characteristics	FM (N=77,124)	DEP (N=215,380)	CFS (N=11,672)
Sex, % Female	72.4	69.7	71.9
Age (%)			
18-44 years	38.6	48.1	48.8
45-54 years	34.4	31.3	30.1
55-64 years	27.1	20.6	21.1
Geographic Region			
Northeast	8.5	11.3	12.2
Midwest	30.0	31.5	20.4
South	43.9	36.8	48.1
West	17.2	20.0	19.0
Unknown	0.4	0.4	0.3
Insurance Plan Type (%)			
PPO	59.0	53.6	58.3
HMO	17.0	21.9	19.7
POS	11.1	10.7	10.3
Comprehensive	7.8	9.4	6.6
Other	5.1	4.4	5.1
Beneficiary Status (%)			
Employee	56.8	59.1	59.4
Spouse/Dependent/Other	43.2	40.9	40.6
Employment Status			
Active	60.3	67.0	71.2
Retiree	14.1	12.1	11.0
Other	25.7	20.9	17.8
FM/DEP/CFS Co-presence (%)			
FM	100.0	3.9	6.9
DEP	10.8	100.0	9.6
CFS	1.0	0.5	100.0
Other Comorbidities, RxHCC Conditions, mean	3.22	3.11	2.75

- Patient characteristics appeared to be similar across disease groups, with some exceptions:
  - FM patients appeared to be older than DEP or CFS patients
  - FM patients appeared to be less likely to be active employees than DEP or CFS patients
  - FM and DEP patients appeared to be more likely to have a higher number of comorbidities than CFS patients
  - Among FM patients, there was a higher co-presence of DEP than CFS

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## Results: Unadjusted Out-of-Pocket Cost Estimates

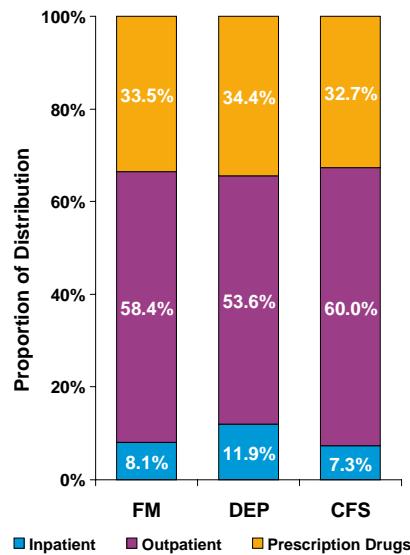
Type of Costs	FM (N=77,124)	DEP (N=215,380)	CFS (N=11,672)
Total	\$1540	\$1449	\$1219
Inpatient	\$124	\$173	\$89
Outpatient	\$900	\$777	\$732
Prescription Drugs	\$516	\$499	\$399

### Cost Estimates

- Mean total unadjusted out-of-pocket costs for FM patients (\$1,540) were greater than that for DEP patients (\$1,449) and CFS patients (\$1,219)
- For each disease group, the largest cost component was
  - Outpatient costs (FM, \$900; DEP, \$777; CFS, \$732), followed by;
  - Prescription drug costs (FM, \$516; DEP, \$499; CFS, \$399), then;
  - Inpatient costs (FM, \$124; DEP, \$173; CFS, \$89)
    - For third-party payers, inpatient costs exceed prescription drug costs

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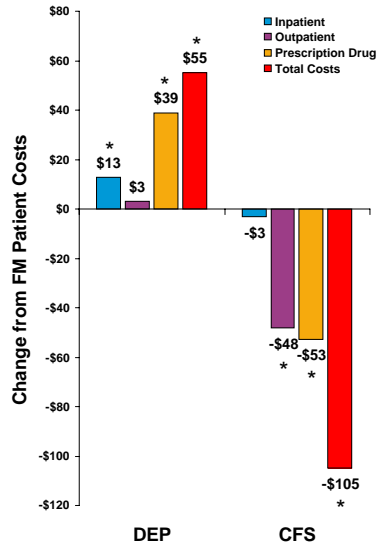
## Results: Distribution of Unadjusted Total Costs



- Distribution of total costs among cost components were similar between cohorts
- DEP patients a higher proportion of inpatient costs
- CFS patients had a higher proportion of outpatient costs

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## Results: Adjusted Incremental Costs



- After adjusting for covariates, total costs for DEP patients were 3.8% (\$55) higher than total costs for FM patients
  - Inpatient and prescription drug costs were higher for DEP patients
- Total costs for CFS patients were 8.0% (-\$105) lower than total costs for FM patients
  - Outpatient and prescription drug costs were lower for CFS patients

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\* P<.05

## Limitations

- Identification of patients based on electronic healthcare claims data:
  - Clinical information limited
  - Some diagnoses may not be accurate
- While ICD-9-CM diagnosis code exists for FM (729.1) it is not specific to FM:
  - Unknown how many FM patients actually receive this code as opposed to others (ie, sensitivity), and how many receive it who do not actually have FM (ie, specificity)
- Co-presence of FM, DEP and CFS may reflect misdiagnoses or delay in the diagnosis of the individual conditions because many symptoms of these diseases mimic or overlap with those of others, although the selection criteria for 1-inpatient or 2-outpatient claims attempts to control for this

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## Conclusions

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- Fibromyalgia patients incur high total out-of-pocket costs, similar to that of patients with Chronic Fatigue Syndrome or Depressive Disorders
- Early diagnosis and use of effective treatments for Fibromyalgia could reduce the economic burden on patients
- Further research is needed to understand whether out-of-pocket expenditures may affect whether patients are able to obtain necessary care

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*Thank You!*

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