VIReC Database and Methods Cyber Seminar Series

Examining Veterans' Pharmacy Use with VA and Medicare Pharmacy Data

February 3, 2014

Presented by:

Kevin T. Stroupe, PhD

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Audience Poll

- **Have you ever used VA Pharmacy Data?**
  - Yes
  - No
- **How would you rate your overall knowledge of VA Pharmacy Data?**
  - 1 (Never Used)
  - 2
  - 3
  - 4
  - 5 (Used Frequently, Very familiar)

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Session Objectives

- How has outpatient pharmacy data been used in VA studies?
- Overview of VA and Medicare pharmacy databases
- Finding information in the VA and Medicare pharmacy databases
- Examples of VA studies that have used the VA pharmacy databases
- Where to go for more help

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How has pharmacy data been used in VA studies?

Trends in Medication Use

- **Tarlov E, Stroupe KT, et al. *Support Care Cancer*. 2012; 20: 1649–57**

- **Pharmacy data was used to assess trends in medication use**

Support Care Cancer (2012) 20:1649–1657
DOI 10.1007/s00520-011-1255-0

ORIGINAL ARTICLE

Trends in anemia management in lung and colon cancer patients in the US Department of Veterans Affairs, 2002–2008

Elizabeth Tarlov · Kevin T. Stroupe · Todd A. Lee · Thomas W. Weichle · Qiuying L. Zhang · Laura C. Michaelis · Howard Ozer · Margaret M. Browning · Denise M. Hynes

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Abstract
Purpose In 2007, growing concerns about adverse impacts of erythropoiesis-stimulating agents (ESAs) in cancer patients led to an FDA-mandated black box warning on product labeling, publication of revised clinical guidelines, and a Medicare coverage decision limiting ESA coverage. We examined ESA therapy in lung and colon cancer patients receiving chemotherapy in the VA from 2002 to 2008 to ascertain trends in and predictors of ESA use.
Methods A retrospective study employed national VA databases to "observe" treatment for a 12-month period following diagnosis. Multivariable logistic regression analyses evaluated changes in ESA use following the FDA-mandated black box warning in March 2007 and examined trends in ESA administration between 2002 and 2008.
Results Among 17,014 lung and 4,225 colon cancer patients, those treated after the March 2007 FDA decision had 65% (lung OR 0.35, $CI_{95\%}$ 0.30–0.42) and 53% (colon OR 0.47, $CI_{95\%}$ 0.36–0.63) reduced odds of ESA treatment compared to those treated before. Declines in predicted probabilities of ESA use began in 2006. The magnitude of the declines differed across age groups among colon patients (p=0.01) and levels of hemoglobin among lung cancer patients (p=0.04).
Conclusions Use of ESA treatment for anemia in VA cancer care declined markedly after 2005, well before the 2007 changes in product labeling and clinical guidelines. This suggests that earlier dissemination of research results had marked impacts on practice patterns with these agents.

E. Tarlov (✉) · K. T. Stroupe · T. A. Lee · T. W. Weichle · Q. L. Zhang · M. M. Browning · D. M. Hynes
Center for Management of Complex Chronic Care, Edward Hines, Jr. VA Hospital, 5000 South 5th Ave. (151H), Hines, IL 60141, USA
e-mail: Elizabeth.Tarlov@va.gov

K. T. Stroupe · L. C. Michaelis
Stritch School of Medicine, Loyola University Chicago, Maywood, IL, USA

T. A. Lee
College of Pharmacy, University of Illinois at Chicago, Chicago, IL, USA

H. Ozer · D. M. Hynes
College of Medicine, University of Illinois at Chicago, Chicago, IL, USA

D. M. Hynes
Institute for Health Research and Policy, University of Illinois at Chicago, Chicago, IL, USA

Keywords Lung neoplasms · Colon neoplasms · Anemia/drug therapy · Physician's practice patterns · Age factors

Introduction

The use of erythropoiesis-stimulating agents (ESAs) to manage anemia in cancer is intended to reduce the need for blood transfusions and improve patients' quality of life. Their effectiveness in reducing blood transfusions has been conclusively demonstrated, but ESAs have also been implicated in higher rates of thrombotic vascular events, tumor promotion, and reduced survival [1–3]. While an increased risk of thrombotic events was noted in studies leading to FDA approval of epoetin alfa (in 1993) and darbepoetin alpha (in 2000), cancer clinical trial results

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How has pharmacy data been used in VA studies?

Cohort Identification

Arthritis Care & Research
Vol. 64, No. 10, October 2012, pp 1490–1496
DOI 10.1002/acr.21736
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ORIGINAL ARTICLE

Identification of Rheumatoid Arthritis Patients Using an Administrative Database: A Veterans Affairs Study

BERNARD NG,[1] FAWAD ASLAM,[2] NANCY J. PETERSEN,[1] HONG-JEN YU,[3] AND MARIA E. SUAREZ-ALMAZOR[4]

Objective. The accuracy of the diagnosis is vital when administrative databases are used for pharmacoepidemiologic and outcome studies. Data pertaining to the utility of databases for rheumatoid arthritis (RA) are sparse and variable. We assessed the utility of various diagnostic algorithms to identify RA patients within the Veterans Health Administration (VHA) databases.

Methods. Using the International Classification of Diseases, Ninth Revision code for RA at 2 visits at least 6 months apart, we identified 1,779 patients between October 1, 1998 and September 30, 2009 in our local Veterans Affairs Medical Center (VAMC) administrative database. Disease-modifying antirheumatic drug (DMARD) use was ascertained from the pharmacy database. Cases were analyzed based on DMARD therapy and RA codes at clinic visits. A total of 543 patients' medical records, selected by stratification and random selection on the basis of their visits, were reviewed to ascertain the clinicians' diagnoses and clinical criteria documentation. Positive predictive values (PPVs) were calculated for various database case identification algorithms using diagnosis of RA by medical record review as the gold standard.

Results. The PPV for identification of RA with 2 RA codes 6 months apart was 30.9%. Addition of DMARD therapy increased the PPV to 60.4%. The PPV further increased to 91.4% when having an RA code at the last VAMC rheumatology clinic visit criterion was added. An algorithm using only 2 administrative RA codes 6 months apart had a low PPV for correctly identifying patients with RA in the VHA database.

Conclusion. Including DMARD therapy and requiring an RA code at the last visit with a rheumatologist increased the performance of the data extraction algorithm.

INTRODUCTION

Computerized administrative databases are frequently used for epidemiologic research. The Veterans Health Administration (VHA) databases, among the largest in the country, are one such example. International Classification of Diseases, Ninth Revision (ICD-9), clinical modification codes are often used to identify subjects for research purposes. While the strategy promises to be cost effective and less labor intensive than extracting information from individual patient records, the validity and reliability of using administrative codes as the sole source of patient identification have been debated. A few studies have been undertaken for rheumatic diseases including rheumatoid arthritis (RA), gout, and spondylarthritides (1–3). While the coding accuracy has been good for the latter, the same cannot be said for RA and gout. For RA in particular, the results have been mixed. A study by Singh et al originating

The views expressed herein are those of the authors and do not necessarily represent those of the Department of Veterans Affairs or Baylor College of Medicine.

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[1]Bernard Ng, MBBS, MMed, Nancy J. Petersen, PhD: Michael E. DeBakey VA Medical Center Health Services Research and Development Center of Excellence, and Baylor College of Medicine, Houston, Texas; [2]Fawad Aslam, MBBS: Baylor College of Medicine, Houston, Texas; [3]Hong-Jen Yu, MS: Michael E. DeBakey VA Medical Center Health Services Research and Development Center of Excellence, Houston, Texas; [4]Maria E. Suarez-Almazor, MD, PhD: University of Texas MD Anderson Cancer Center, Houston.

Dr. Ng has received consultant fees, speaking fees, and/or honoraria (less than $10,000) from UCB Pharmaceuticals.

Address correspondence to Bernard Ng, MBBS, MMed, Assistant Professor, Section of Allergy, Immunology and Rheumatology, MCL, Michael E. DeBakey VA Medical Center, 2002 Holcombe Boulevard, Mail Stop 152, Houston, TX 77030. E-mail: bernardng1@gmail.com.

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- **Ng B, et al. *Arthritis Care & Research*. 2012; 64: 1490–96**
- **Pharmacy data used for cohort identification**

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How has pharmacy data been used in VA studies?

Medication Use

- **Gellad WF, et al. *Med Care.* 2012; 50: 954–60**
- **Pharmacy data used to examine antipsychotic medication use**

ORIGINAL ARTICLE

Use of Antipsychotics Among Older Residents in VA Nursing Homes

Walid F. Gellad, MD, MPH,†‡§ Sherrie L. Aspinall, PharmD,*‡‖¶*
Steven M. Handler, MD, PhD,‡#**†† Roslyn A. Stone, PhD,*‡‡ Nicholas Castle, PhD,‡‡*
Todd P. Semla, PharmD,‖§§ Chester B. Good, MD,†‖ Michael J. Fine, MD,*†*
Maurice Dysken, MD,‖‖ and Joseph T. Hanlon, PharmD‡**††‖‖*

Background: Antipsychotic medications are commonly prescribed to nursing home residents despite their well-established adverse event profiles. Because little is known about their use in Veterans Affairs (VA) nursing homes [ie, Community Living Centers (CLCs)], we assessed the prevalence and risk factors for antipsychotic use in older residents of VA CLCs.

Methods: This cross-sectional study included 3692 Veterans age 65 or older who were admitted between January 2004 and June 2005 to one of 133 VA CLCs and had a stay of ≥90 days. We used VA Pharmacy Benefits Management data to examine antipsychotic use and VA Medical SAS datasets and the Minimum Data Set to identify evidence-based indications for antipsychotic use (eg, schizophrenia, dementia with psychosis). We used multivariable logistic regression and generalized estimating equations to identify factors independently associated with antipsychotic receipt.

Results: Overall, 948/3692(25.7%) residents received an antipsychotic, of which 59.3% had an evidence-based indication for use. Residents with aggressive behavior [odds ratio (OR)=2.74, 95% confidence interval (CI), 2.04–3.67] and polypharmacy (9+ drugs; OR=1.84, 95% CI, 1.41–2.40) were more likely to receive antipsychotics, as were users of antidepressants (OR=1.37, 95% CI, 1.14–1.66), anxiolytic/hypnotics (OR=2.30, 95% CI, 1.64–3.23), or drugs for dementia (OR=1.52, 95% CI, 1.21–1.92). Those residing in Alzheimer/dementia special care units were also more likely to receive an antipsychotic (OR=1.66, 95% CI, 1.26–2.21). Veterans with dementia but no documented psychosis were as likely as those with an evidence-based indication to receive an antipsychotic (OR=1.10, 95% CI, 0.82–1.47).

Conclusions: Antipsychotic use is common among VA nursing home residents aged 65 and older, including those without a documented evidence-based indication for use. Further quality improvement efforts are needed to reduce potentially inappropriate antipsychotic prescribing.

Key Words: nursing homes, antipsychotics, Veterans, pharmacoepidemiology

(*Med Care* 2012;50: 954–960)

From the *Center for Health Equity Research and Promotion, Veterans Affairs Pittsburgh Healthcare System; †Department of Medicine (General Medicine), University of Pittsburgh; ‡The University of Pittsburgh Geriatric Pharmaceutical and Geri-Informatics Research and Training Program; §RAND Corporation, Pittsburgh, PA; ‖Pharmacy Benefits Management Services, U.S. Department of Veterans Affairs, Hines, IL; ¶School of Pharmacy; #Department of Biomedical Informatics, University of Pittsburgh; **Pittsburgh VA Geriatric Research, Education, and Clinical Center; ††Department of Medicine (Geriatrics); ‡‡Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA; §§Departments of Medicine and Psychiatry and Behavioral Sciences, The Feinberg School of Medicine, Northwestern University, Chicago, IL; and ‖‖Minneapolis VA Geriatric Research, Education, and Clinical Center, Minneapolis, MN.

Supported by a VA Career Development Award (CDA 09-207), National Institute of Aging Grants (P30AG024827, T32 AG021885, K07AG033174, R01AG034056, R56AG027017, 3U01 AG012553), a National Institute of Mental Health Grant (R34 MH082682), a National Institute of Nursing Research grant (R01 NR010135), and Agency for Healthcare Research and Quality Grants (R01 HS017695, R01 HS018721, K12 HS019461).

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Portions of this research were presented as a paper at the VA Health Services Research and Development (HSR&D) Annual Meeting in National Harbor, MD, on February 17, 2011 and as a poster at the Society of General Internal Medicine Annual Meeting in Phoenix, AZ, on May 5, 2011.

Reprints: Walid F. Gellad, MD, MPH, Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, 7180 Highland Drive, Pittsburgh, PA 15206. E-mail: walid.gellad@va.gov.

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Neuropsychiatric symptoms are common in dementia and are one of the reasons individuals with dementia are placed in nursing homes.[1,2] There are no Food and Drug Administration (FDA)-approved medications for common dementia-associated behavioral symptoms such as wandering, agitation, and aggression. Nonetheless, antipsychotics are commonly used in nursing homes off-label to treat patients with dementia and behavioral symptoms, in addition to treating those with psychotic illnesses for whom antipsychotics are FDA approved (eg, schizophrenia).[3–9] In 2006, nearly 30% of nursing home residents in a large national study received an antipsychotic medication, of which 32% had no identified indication for use.[5] Recently, the Office of the Inspector General in the Department of Health and Human Services addressed this potential overuse, reporting that 22% of Medicare part D claims for atypical

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Pharmacy Data Sources

- **Local Databases**
  - VistA
- **National Data Sources**
  - Pharmacy Benefit Management (PBM)
  - Decision Support System (DSS) National Data Extract (NDE) Pharmacy Datasets
  - Corporate Data Warehouse (CDW)
  - Medicare Part D events data from Part D Slim File

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Pharmacy Data Sources

- **Other Key Pharmacy Data Sources**
  - DSS Product Table
  - National Drug File

- **Note: These are not person-level files**

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Audience Poll

- **Which national sources of VA pharmacy data have you used in the past?**
  - DSS NDE Pharmacy Data
  - PBM Pharmacy Data
  - CDW Pharmacy Data
  - Part D Slim File
  - None

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VA Pharmacy Data Sources

- **VA Pharmacy Benefits Management (PBM) Database**
  - Outpatient Data available from FY1999
  - Inpatient Data available from FY2004
  - Source of pharmacy data is local VA facilities' VistA systems
  - Includes records for inpatient and outpatient prescriptions from VA pharmacies or Consolidated Mail Outpatient Pharmacy (CMOP)
  - Housed by PBM and available through custom extracts

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VA Pharmacy Data Sources

- **VA Decision Support System (DSS) National Data Extract (NDE) Pharmacy Datasets**
  - Data available from FY2005
  - Includes records for inpatient and outpatient prescriptions from VA pharmacies or Consolidated Mail Outpatient Pharmacy (CMOP)
  - Source of pharmacy data is the local VA facilities' VistA systems
  - Housed at Corporate Data Warehouse (CDW) and available through custom extracts

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VA Pharmacy Data Sources

- **CDW Pharmacy Data**
  - Data available from FY 2000
  - Source of pharmacy data is VistA
  - CDW has two pharmacy production domains
    - Outpatient Pharmacy
    - Bar Code Medication Administration (BCMA)

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VA Pharmacy Data Sources

- **Select CDW Tables**
  - Pharmacy BCMA
    - Dispensed Drug
    - Medication Log
    - Medication Variance
    - Missing Dose Request
  - Pharmacy Outpatient
    - RxOutPat Prescriptions
    - RxOutPat Fill
    - RxOutPat Sig
    - RxOutPat Medication Instructions

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Comparison of VA Pharmacy Data Sources

	PBM	DSS	CDW
Cost Data	Drug supply cost	Actual cost (ACT_COST) Dispensing cost (DISPCOST) Supply cost (VS_COST)	Cost available
Access	Researcher requested extract	Researcher requested extract	Researcher requested extract
Data availability	FY1999 (Outpatient) FY2004 (Inpatient)	FY2005 (Outpatient & Inpatient)	FY2000
Directions for use	SIG available (also components of SIG available: SCHED, UNT_DOSE, DSP_UNT)	Not Available	SIG available

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Medicare Part D

- **About a third of VHA/Medicare enrolled Veterans are enrolled in Medicare Part D**
- **Different than Medicare Parts A & B**
  - Claims for drugs are paid for by insurance companies, not the Center for Medicare & Medicaid Services (CMS)
  - Insurance companies submit data to CMS on all prescriptions filled
- **Data for research use**
  - Prescription Drug Event (PDE)
  - Drug, Pharmacy, Prescriber, Plan Characteristics
  - Slim File is subset of PDE data

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RESEARCHERS' GUIDE TO VA DATA

Medicare Part D

- **Medicare Part D Pharmacy Data**
  - Beginning January 1, 2006 drug coverage became available to Medicare enrollees through Medicare Part D drug benefit
  - Medicare Part D enrollment status in Medicare Enrollment Files
  - Important Variables in Medicare Enrollment Files include
    - Number of months of Part D coverage
    - Type of Part D plan (e.g., Managed care plan, prescription drug plan [PDP])
  - Medicare Data available from VIReC as custom extracts
  - Medicare Part D enrollment data are available from CY 2006

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Medicare Part D

- **Medicare Part D Slim File**
  - 13 variables from Medicare Prescription Drug Event (PDE) data are available in Part D Slim File
  - Part D Slim File Data are available from VIReC as custom extracts
  - Data are available from CY 2006

Medicare Part D

- **Medicare Part D Slim File variables include:**
  - Service Date
  - Product Service ID – National Drug Code (NDC)
  - Quantity Dispensed
  - Days Supply
  - Patient Payment
  - Gross Drug Cost
  - Brand Name
  - Generic Name
  - Drug Strength
  - Dosage Form – Tablet, capsule, etc.

Key Pharmacy Variables

Variable	DSS	PBM	CDW	Part D Slim File
Days Supply	X	X	X	X
Drug Description	X	X	X	X
Quantity	X	X	X	X
NDC	X	X	X	X
Drug class	X	X	X	

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Other Pharmacy Data

- **DSS Product Table**
  - Key Variables
    - IPNum, Feeder Key, Description (short and long), Drug Class
    - Feeder Key => 1st 5 characters are VA product file IEN; last 12 characters are NDC
  - Available on DSS Intranet website
- **National Drug File**
  - Key Variables
    - VA_PRODUCT, FEEDER KEY, NDF_NDC, VA_CLASS
  - Available on PBM Intranet website
- **Note: These are not person-level files**

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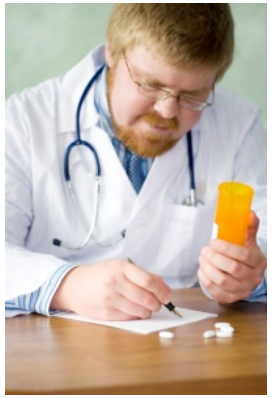
RESEARCHERS' GUIDE TO VA DATA

Assessing Outpatient Pharmacy Use:
Finding info in VA Pharmacy Datasets

- **Where can I find cost variables?**

- **DSS and PBM contain different cost variables**
  - PBM: cost of the drug product from the supplier
  - DSS:
    1) Dispensing Cost (DISPCOST): direct pharmacist labor for dispensing the prescription and the mailing costs
    2) Supply Cost (VS_COST): Drug product cost and cost of supplies used in preparing the prescription, such as bottles and labels
    3) Actual Cost (ACT_COST): Drug product cost, cost of supplies such as bottles and labels to prepare the prescription, indirect costs, and overhead



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Assessing Outpatient Pharmacy Use:
Finding info in VA Pharmacy Datasets

- **Where can I find cost variables? (Cont.)**

- **Part D Slim File**
  1) Patient Pay Amount (PTNT_PAY_AMT): Amount patient pays for medication
  2) Gross Drug Cost (TOT_RX_CST_AMT):

     This variable is derived from the sum of Ingredient Cost Paid, Dispensing Fee Paid, Total Amount Attributed to Sales Tax, Vaccine Administration Fee

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Assessing Outpatient Pharmacy Use:
Finding info in VA Pharmacy Datasets

- **Why is the NDC for the same prescription different on the PBM record than on the DSS record?**

- The NDC's are obtained from different sources
- Differences can result if Local Drug File has not been updated to reflect supply that was stocked when medication was dispensed
- Different NDC's will refer to the same drug, dosage, and strength, but may indicate a different manufacturer and/or package size

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Assessing Outpatient Pharmacy Use:
Examples of Questions Addressed with Pharmacy Data

- **Cohort identification**
  - *Can pharmacy data be used to identify specific groups of patients?*
- **Medication utilization**
  - *Recent year? Longer historical view? Does policy change impact medication use?*
- **Healthcare quality**
  - *Are patients being prescribed medications in accordance with quality measures?*
- **Medication adherence**
  - *How much of a prescribed medication are patients using?*
- **Exposure to specific medications or medication classes**
  - *Are specific drugs associated with better/worse outcomes?*
- **Combining outpatient and pharmacy data to identify events**
  - *Can we identify acute exacerbations of COPD with outpatient and prescription data?*
- **Assessing comorbidity or case-mix with medication data**

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How has pharmacy data been used in VA studies?
Trends in Medication Use

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Abstract
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Methods A retrospective study employed national VA databases to "observe" treatment for a 12-month period following diagnosis. Multivariable logistic regression analyses evaluated changes in ESA use following the FDA-mandated black box warning in March 2007 and examined trends in ESA administration between 2002 and 2008.
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E. Tarlov (✉) · K. T. Stroupe · T. A. Lee · T. W. Weichle · Q. L. Zhang · M. M. Browning · D. M. Hynes
Center for Management of Complex Chronic Care, Edward Hines, Jr. VA Hospital, 5000 South 5th Ave. (151H), Hines, IL 60141, USA
e-mail: Elizabeth.Tarlov@va.gov

K. T. Stroupe · L. C. Michaelis
Stritch School of Medicine, Loyola University Chicago, Maywood, IL, USA

T. A. Lee
College of Pharmacy, University of Illinois at Chicago, Chicago, IL, USA

H. Ozer · D. M. Hynes
College of Medicine, University of Illinois at Chicago, Chicago, IL, USA

D. M. Hynes
Institute for Health Research and Policy, University of Illinois at Chicago, Chicago, IL, USA

Keywords Lung neoplasms · Colon neoplasms · Anemia/drug therapy · Physician's practice patterns · Age factors

Introduction

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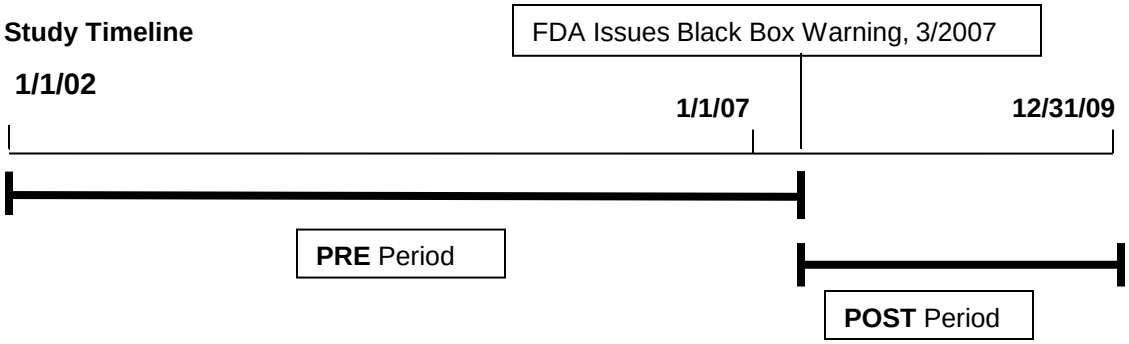
Trends in Medication Use:
Tarlov et al. *Support Care Cancer.* 2012



- **How was pharmacy data used?**
  - Pharmacy data was use to examine
    - Whether ESA use differed before (PRE) or after (POST) the black box warning
    - Trends in ESA use over time

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Trends in Medication Use:
Tarlov et al. *Support Care Cancer.* 2012

- **Source of pharmacy data**
  - PBM Database was used to identify ESA use
- **How were ESAs identified in the PBM Database?**
  - NDCs were used to identify the ESAs in the PBM database

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Trends in Medication Use:
Tarlov et al. *Support Care Cancer.* 2012

Table 2 Odds of receiving ESA treatment

	Adjusted odds ratios[a] (95% confidence limits)	
	Lung cancer (*N*=17,014)	Colon cancer (*N*=4,225)
Time period[b]		
PRE	Ref	Ref
POST	0.35 (0.30–0.42)	0.47 (0.36–0.63)

[a] Odds ratios obtained from a logistic regression model.

[b] PRE/POST time periods defined in relation to March 1, 2007

- **For lung cancer patients**
  - Odds of ESA use decreased 65% in the POST period
- **For colon cancer patients**
  - Odds of ESA use decreased 53% in the POST period

Adapted from Tarlov et al
Support Care Cancer. 2012

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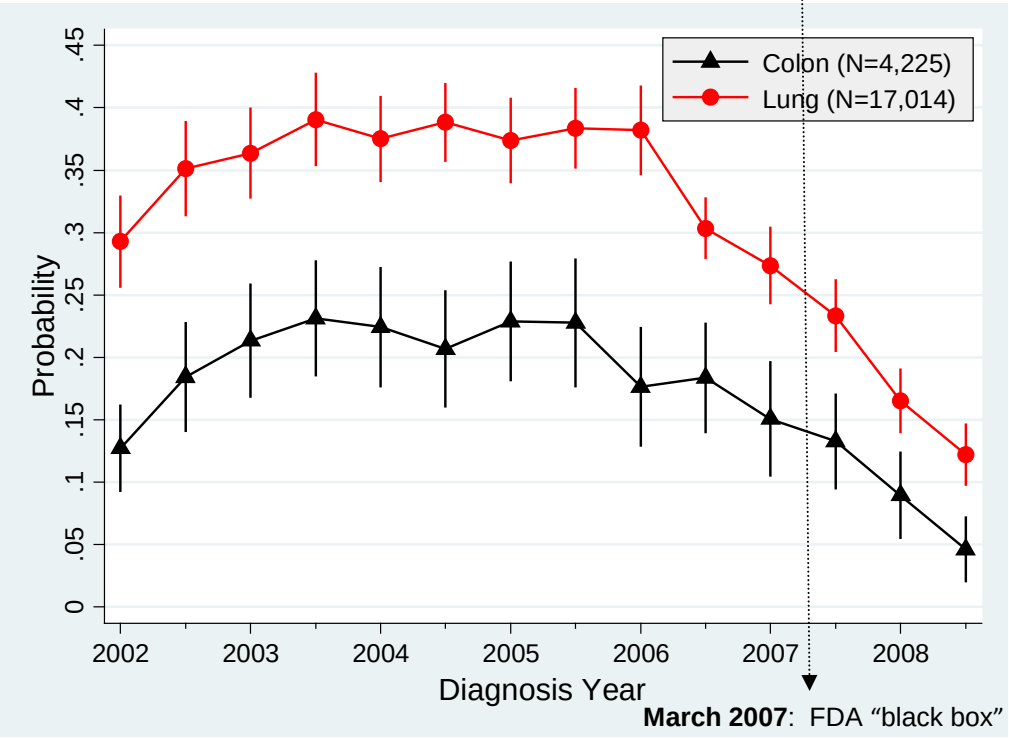
Trends in Medication Use:
Tarlov et al. *Support Care Cancer.* 2012



- ESA use began to decline for both cancer groups before black box warning was issued

Adapted from Tarlov et al
Support Care Cancer. 2012

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RESEARCHERS' GUIDE TO VA DATA

How has pharmacy data been used in VA studies?

Cohort Identification

Arthritis Care & Research
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ORIGINAL ARTICLE

Identification of Rheumatoid Arthritis Patients Using an Administrative Database: A Veterans Affairs Study

BERNARD NG,[1] FAWAD ASLAM,[2] NANCY J. PETERSEN,[1] HONG-JEN YU,[3] AND MARIA E. SUAREZ-ALMAZOR[4]

Objective. The accuracy of the diagnosis is vital when administrative databases are used for pharmacoepidemiologic and outcome studies. Data pertaining to the utility of databases for rheumatoid arthritis (RA) are sparse and variable. We assessed the utility of various diagnostic algorithms to identify RA patients within the Veterans Health Administration (VHA) databases.

Methods. Using the International Classification of Diseases, Ninth Revision code for RA at 2 visits at least 6 months apart, we identified 1,779 patients between October 1, 1998 and September 30, 2009 in our local Veterans Affairs Medical Center (VAMC) administrative database. Disease-modifying antirheumatic drug (DMARD) use was ascertained from the pharmacy database. Cases were analyzed based on DMARD therapy and RA codes at clinic visits. A total of 543 patients' medical records, selected by stratification and random selection on the basis of their visits, were reviewed to ascertain the clinicians' diagnoses and clinical criteria documentation. Positive predictive values (PPVs) were calculated for various database case identification algorithms using diagnosis of RA by medical record review as the gold standard.

Results. The PPV for identification of RA with 2 RA codes 6 months apart was 30.9%. Addition of DMARD therapy increased the PPV to 60.4%. The PPV further increased to 91.4% when having an RA code at the last VAMC rheumatology clinic visit criterion was added. An algorithm using only 2 administrative RA codes 6 months apart had a low PPV for correctly identifying patients with RA in the VHA database.

Conclusion. Including DMARD therapy and requiring an RA code at the last visit with a rheumatologist increased the performance of the data extraction algorithm.

INTRODUCTION

Computerized administrative databases are frequently used for epidemiologic research. The Veterans Health Administration (VHA) databases, among the largest in the country, are one such example. International Classification of Diseases, Ninth Revision (ICD-9), clinical modification codes are often used to identify subjects for research purposes. While the strategy promises to be cost effective and less labor intensive than extracting information from individual patient records, the validity and reliability of using administrative codes as the sole source of patient identification have been debated. A few studies have been undertaken for rheumatic diseases including rheumatoid arthritis (RA), gout, and spondylarthritides (1–3). While the coding accuracy has been good for the latter, the same cannot be said for RA and gout. For RA in particular, the results have been mixed. A study by Singh et al originating

The views expressed herein are those of the authors and do not necessarily represent those of the Department of Veterans Affairs or Baylor College of Medicine.

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[1]Bernard Ng, MBBS, MMed, Nancy J. Petersen, PhD: Michael E. DeBakey VA Medical Center Health Services Research and Development Center of Excellence, and Baylor College of Medicine, Houston, Texas; [2]Fawad Aslam, MBBS: Baylor College of Medicine, Houston, Texas; [3]Hong-Jen Yu, MS: Michael E. DeBakey VA Medical Center Health Services Research and Development Center of Excellence, Houston, Texas; [4]Maria E. Suarez-Almazor, MD, PhD: University of Texas MD Anderson Cancer Center, Houston.

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Address correspondence to Bernard Ng, MBBS, MMed, Assistant Professor, Section of Allergy, Immunology and Rheumatology, MCL, Michael E. DeBakey VA Medical Center, 2002 Holcombe Boulevard, Mail Stop 152, Houston, TX 77030. E-mail: bernardng3@gmail.com.

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- **Ng B, et al., *Arthritis Care Research*. 2012; 64:1490–96**
- Objective: **To assess the utility of diagnostic algorithms, including prescriptions, to identify rheumatoid arthritis patients within VHA databases**

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Cohort Identification:
Ng et al. *Arthritis Care Research*. 2012

- **Study sample consisted of patients having 2 outpatient visits with rheumatoid arthritis (RA) codes at least 2 months apart at Houston VAMC between FY99 and FY09**
- **How was pharmacy data used?**
  - Study tested algorithms to identify RA in through VHA databases using
    - Presence of at least 2 ICD-9 at least 6 months apart
    - Use of disease-modifying antirheumatic drugs (DMARD) for at least 180 days
    - ICD-9 code for RA at visit to rheumatologist

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Cohort Identification:
Ng et al. *Arthritis Care Research*. 2012

- **Study design**
  - To validate diagnosis of RA, study conducted chart review
  - Study evaluated the positive predictive value (PPV) of the diagnostic algorithms using validation from chart review

- **Source of Pharmacy Data**
  - PBM Database

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RESEARCHERS' GUIDE TO VA DATA

Cohort Identification:
Ng et al. *Arthritis Care Research*. 2012

Table 2. Total population number and sample statistics: PPV, sensitivity, and specificity of different algorithms for random sample of patients with at least 2 RA codes*

	Total population, no.	Estimated no. of RA patients (PPV from random sample × total population)	Random sample statistics, % (95% CI)		
			PPV	Sensitivity	Specificity
All patients (with or without DMARD therapy for ≥180 days)					
Two RA codes (any visit)	1,779	550	30.9 (27.7–34.2)	NA†	NA†
Two RA codes with at least 1 RA code in a rheumatologist visit	1,014	408	40.2 (34.1–46.3)	47.6 (41.4–53.8)	68.3 (62.5–74.1)
Two RA codes with at least 1 rheumatology visit and with the last rheumatologist visit with an RA code	541	364	67.3 (58.9–75.8)	39.3 (30.5–48.0)	91.5 (86.5–96.5)
Patients with DMARD therapy for ≥180 days					
Two RA codes (any visit)	791	478	60.4 (55.3–65.5)	88.1 (84.7–91.5)	74.1 (69.6–78.7)
Two RA codes with at least 1 RA code in a rheumatologist visit	621	466	75.0 (67.2–82.8)	44.6 (35.7–53.6)	93.3 (88.9–97.8)
Two RA codes with at least 1 rheumatology visit and with the last rheumatologist visit with an RA code	430	393	91.4 (85.4–97.4)	38.1 (27.7–48.5)	98.4 (95.7–100.0)

* PPV = positive predictive value; RA = rheumatoid arthritis; 95% CI = 95% confidence interval; DMARD = disease-modifying antirheumatic drug; NA = not applicable.
† Sensitivity and specificity cannot be estimated for all.

Adapted from Ng et al. *Arthritis Care Research*. 2012

VIReC RESEARCHERS' GUIDE TO VA DATA

How has pharmacy data been used in VA studies?
Medication Use

- **Gellad WF, et al., *Med Care.* 2012;50: 954–60.**
- Objective: **To assess the prevalence and risk factors for antipsychotic use in older residents of VA Community Living Centers**

ORIGINAL ARTICLE

Use of Antipsychotics Among Older Residents in VA Nursing Homes

Walid F. Gellad, MD, MPH,†‡§ Sherrie L. Aspinall, PharmD,*‡‖¶*
Steven M. Handler, MD, PhD,‡#**†† Roslyn A. Stone, PhD,*‡‡ Nicholas Castle, PhD,‡‡*
Todd P. Semla, PharmD,‖§§ Chester B. Good, MD,†‖ Michael J. Fine, MD,*†*
Maurice Dysken, MD,‖‖ and Joseph T. Hanlon, PharmD‡**††‖‖*

Background: Antipsychotic medications are commonly prescribed to nursing home residents despite their well-established adverse event profiles. Because little is known about their use in Veterans Affairs (VA) nursing homes [ie, Community Living Centers (CLCs)], we assessed the prevalence and risk factors for antipsychotic use in older residents of VA CLCs.

Methods: This cross-sectional study included 3692 Veterans age 65 or older who were admitted between January 2004 and June 2005 to one of 133 VA CLCs and had a stay of ≥ 90 days. We used VA Pharmacy Benefits Management data to examine antipsychotic use and VA Medical SAS datasets and the Minimum Data Set to identify evidence-based indications for antipsychotic use (eg, schizophrenia, dementia with psychosis). We used multivariable logistic regression and generalized estimating equations to identify factors independently associated with antipsychotic receipt.

Results: Overall, 948/3692(25.7%) residents received an antipsychotic, of which 59.3% had an evidence-based indication for use. Residents with aggressive behavior [odds ratio (OR) = 2.74, 95% confidence interval (CI), 2.04–3.67] and polypharmacy (9+ drugs; OR = 1.84, 95% CI, 1.41–2.40) were more likely to receive antipsychotics, as were users of antidepressants (OR = 1.37, 95% CI, 1.14–1.66), anxiolytic/hypnotics (OR = 2.30, 95% CI, 1.64–3.23), or drugs for dementia (OR = 1.52, 95% CI, 1.21–1.92). Those residing in Alzheimer/dementia special care units were also more likely to receive an antipsychotic (OR = 1.66, 95% CI, 1.26–2.21). Veterans with dementia but no documented psychosis were as likely as those with an evidence-based indication to receive an antipsychotic (OR = 1.10, 95% CI, 0.82–1.47).

Conclusions: Antipsychotic use is common among VA nursing home residents aged 65 and older, including those without a documented evidence-based indication for use. Further quality improvement efforts are needed to reduce potentially inappropriate antipsychotic prescribing.

Key Words: nursing homes, antipsychotics, Veterans, pharmacoepidemiology

(*Med Care* 2012;50: 954–960)

From the *Center for Health Equity Research and Promotion, Veterans Affairs Pittsburgh Healthcare System; †Department of Medicine (General Medicine), University of Pittsburgh; ‡The University of Pittsburgh Geriatric Pharmaceutical and Gero-Informatics Research and Training Program; §RAND Corporation, Pittsburgh, PA; ‖Pharmacy Benefits Management Services, U.S. Department of Veterans Affairs, Hines, IL; ¶School of Pharmacy; #Department of Biomedical Informatics, University of Pittsburgh; **Pittsburgh VA Geriatric Research, Education, and Clinical Center; ††Department of Medicine (Geriatrics); ‡‡Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA; §§Departments of Medicine and Psychiatry and Behavioral Sciences, The Feinberg School of Medicine, Northwestern University, Chicago, IL; and ‖‖Minneapolis VA Geriatric Research, Education, and Clinical Center, Minneapolis, MN.

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Portions of this research were presented as a paper at the VA Health Services Research and Development (HSR&D) Annual Meeting in National Harbor, MD, on February 17, 2011 and as a poster at the Society of General Internal Medicine Annual Meeting in Phoenix, AZ, on May 5, 2011.

Reprints: Walid F. Gellad, MD, MPH, Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, 7180 Highland Drive, Pittsburgh, PA 15206. E-mail: walid.gellad@va.gov.

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Neuropsychiatric symptoms are common in dementia and are one of the reasons individuals with dementia are placed in nursing homes.[1,2] There are no Food and Drug Administration (FDA)-approved medications for common dementia-associated behavioral symptoms such as wandering, agitation, and aggression. Nonetheless, antipsychotics are commonly used in nursing homes off-label to treat patients with dementia and behavioral symptoms, in addition to treating those with psychotic illnesses for whom antipsychotics are FDA approved (eg, schizophrenia).[3–9] In 2006, nearly 30% of nursing home residents in a large national study received an antipsychotic medication, of which 32% had no identified indication for use.[5] Recently, the Office of the Inspector General in the Department of Health and Human Services addressed this potential overuse, reporting that 22% of Medicare part D claims for atypical

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Medication Use:
Gellad et al. *Med Care.* 2012

- Antipsychotic medications are commonly prescribed to nursing home residents despite well-established adverse events
- Cohort consisted of all residents of VA Community Living Center between 1/1/2004 and 6/30/2005 with at least VA Rx dispensing
- Logistic regression used to indentify factors associated with antipsychotic use

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RESEARCHERS' GUIDE TO VA DATA

Medication Use:
Gellad et al. *Med Care.* 2012

- **How was pharmacy data used?**
  - Pharmacy data was linked with Minimum Data Sets (MDS) and MedSAS data
  - For each dispensed drug, study collected
    - Start and stop date
    - Medication name
    - Medication strength
    - Directions for use (i.e., SIG)
    - Amount dispensed
  - To create a polypharmacy covariate for analysis, the study identified the number of unique drugs per resident
- **Source of Pharmacy Data**
  - PBM Database

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Medication Use:
Gellad et al. *Med Care.* 2012

- **Resident classified based on whether there were indications for antipsychotic medications**
  - Appropriate use included patients with psychiatric diagnosis in which psychotic symptoms are prominent feature or a diagnosis of dementia and psychotic symptoms
  - Potentially inappropriate use were remaining patients without psychiatric diagnosis or psychotic symptoms

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RESEARCHERS' GUIDE TO VA DATA

Medication Use:
Gellad et al. *Med Care.* 2012

- **Antipsychotic used during Community Living Center Stay by:**
  - 948 (25.7%) of 3692 Veterans

- **Of those with Antipsychotic medications:**
  - 59.3% had documented indication for appropriate use
  - 40.7% had no evidence of appropriate indication for use

Adapted from Gellad et al. *Med Care.* 2012

VIReC RESEARCHERS' GUIDE TO VA DATA

Session Objectives

- How has outpatient pharmacy utilization been measured in VA studies?
- Overview of VA and Medicare pharmacy databases
- Finding information in the VA and Medicare pharmacy databases
- Examples of VA studies that have used the VA Pharmacy databases
- Where to go for more help

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VIReC Help

- **VIReC Webpage http://www.virec.research.va.gov/Pharmacy/Overview.htm**
  - Information on VA pharmacy sources
  - Resource users guide for pharmacy data
    - http://www.virec.research.va.gov/RUGs/RUG-PBM-2nd-Ed-CY08-ER.pdf

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VIReC Help (cont'd)

- **HSRData Listserv**
  - Join at the VIReC Web site
  - Discussion among >400 data stewards, managers, and users
  - Past messages in archive (on intranet)

- **VIReC Help Desk**
  - VIReC staff will answer your question and/or direct you to available resources on topics
  - VIReC@va.gov
  - (708) 202-2413

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Questions?

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Upcoming Seminar

Using CAPRI and VistAWeb - March 3, 2014

Linda Williams, MD

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