

Washington University Comparative Effectiveness Administrative Data Repository

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Institution/Partners: Washington University School of Medicine
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Infrastructure Description

This project expanded and enhanced the existing data repository of the Washington University Center for Administrative Data Research to facilitate comparative effectiveness research (CER) related to care and treatment for patients with multiple chronic conditions. This enhancement included developing existing server infrastructure for more efficient storage and analysis of large administrative data files, purchasing additional administrative data to extend the breadth of available information available, and providing data management and analytic expertise for health services and outcomes research throughout Washington University.

Specific Aims

1. Purchase, store, and maintain multiple large administrative databases that can be used for CER and other health services research.
2. Train and support physicians, junior investigators, and public health trainees on the ethical and secure use of administrative data for CER.
3. Provide a library of standard programming code for use with large administrative databases to create economy of scale for efficient CER.
4. Facilitate collaboration among interdisciplinary investigators using administrative databases.

Pilot Study

The pilot study evaluated the Center's enhanced data management and training infrastructure, using longitudinal Medicare claims data from 2000 to 2007 to examine the comparative effectiveness of treatments for cardiac device-related infections in older patients.

Enhancing this existing data repository and providing training and support to researchers facilitated a study of the variation in the incidence of infection after insertion or revision of implantable cardiac devices among

Infrastructure Goal

Expand and enhance an existing administrative data repository to facilitate comparative effectiveness research related to patients with multiple chronic conditions.

Data Sources

Medicare claims data from the Centers for Medicare & Medicaid Chronic Condition Warehouse (CCW); Healthcare Cost and Utilization Project (HCUP) data; The American Hospital Association (AHA) annual survey; The Health Resources and Services Administration's Area Resource File (ARF); Nielsen Claritas data.

Data Access

Data are restricted to use by investigators at Washington University who have a signed Data Use Agreement with the involved agency. Data cannot be shared or removed from the WU Center for Administrative Data HIPAA-compliant server without permission from the involved agency.

Strategies Addressed from the HHS Strategic Framework on Multiple Chronic Conditions

- 1.B. Define appropriate health care outcomes
- 3.A. Identify best practices and tools
- 4.C. Increase clinical research

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a broadly generalizable population of elderly persons, as well as among patients with end-stage renal disease and diabetes, two common chronic comorbidities in elderly patients with cardiac disease.

The incidence of cardiac device infection was significantly higher after complete device replacement than initial device insertion, and significantly higher in patients with diabetes or chronic renal failure, compared to individuals without those preexisting conditions.

Dr. Melissa Viray, a fellow in the Division of Infectious Diseases at Washington University, received a KM1 Comparative Effectiveness Career Development award to continue this work on cardiac device infections. She will examine complications in patients after device-associated infection and determine the incidence of systemic infection depending on the timing of device removal and subsequent reimplantation.

Publications (as of September 2013)

Theodoro D, Owens PL, Olsen MA, Fraser VJ. Rates and timing of central venous cannulation among patients with sepsis and respiratory arrest admitted by the emergency department. *Crit Care Med*. In Press.

Krings JG, Kallogjeri D, Wineland A, Nepple KG, Piccirillo JG, Getz AE. Complications of primary and revision functional endoscopic sinus surgery for chronic rhinosinusitis. *Laryngoscope*. In Press.

Cavazos-Rehg PA, Krauss MJ, Spitznagel EL, Bommarito K, Madden T, Olsen MA, Subramaniam H, Peipert JF, Bierut LJ. Maternal age and risk of labor and delivery complications. *Am J Obstet Gynecol*. In Press.

Strope SA, Chang SH, Chen L, Sandhu G, Piccirillo JF, Schootman M. Survival impact of followup care after radical cystectomy for bladder cancer. *J Urol* 2013 May 29. PMID: 23727308.

Jim J, Owens PL, Sanchez LA, Rubin BG. Population-based analysis of inpatient vascular procedures and predicting future workload and implications for training. *J Vasc Surg* 2012 May;55(5):1394-9. PMID: 22248530.

Strope SA, Yang L, Nepple KG, Andriole GL, Owens PL. Population-based comparative effectiveness of transurethral resection of the prostate and laser therapies for benign prostatic hyperplasia. *J Urol* 2012 Apr;187(4):1341-5. PMID: 22341267

Nepple KG, Yang L, Grubb RL, III, Strope SA. Population-based analysis of the rising incidence of kidney cancer in the United States: Evaluation of age-specific trends from 1975 to 2006. *J Urol* 2012 Jan;187(1):32-8. PMID: 22088338

Posters and Presentations

Kelly MP, White NJ, Ray W, Olsen MA. Age at surgery not BMP exposure predicts cancer after BMP exposure: Analysis of 127,087 cases. *Scoliosis Research Society 48th Annual Meeting*; 2013 Sept 18-21; Lyon, France.

Grewal S, Vetter J, Brandes S, Strope S. A population based analysis of contemporary rates of reoperation for penile prosthesis procedures. *American Urological Association Annual Meeting*, 2013 May 3-8; San Diego, CA.

Sandhu G, Vemana G, Baty J, Tao Y, Strope S. Limited use of follow-up imaging among patients after partial or radical nephrectomy for renal cell carcinoma. *American Urological Association Annual Meeting*, 2013 May 3-8; San Diego, CA.

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Sandhu G, Tao Y, Baty J, Vemana G, Strobe S. Impact of pre-surgical chemotherapy on lymph node dissection in high risk bladder cancer. American Urological Association Annual Meeting, 2013 May 3-8; San Diego, CA.

Strobe SA, Chang SH, Chen L, Sandhu G, Piccirillo JG, Schootman M. Survival impact of follow-up care after radical and partial cystectomy for bladder cancer. American Urological Association Annual Meeting, 2013 May 3-8; San Diego, CA.

Vemana G, Sandhu G, Tao Y, Baty J, Strobe SA. Does intensity of follow-up imaging after partial or radical nephrectomy impact survival. American Urological Association Annual Meeting, 2013 May 3-8; San Diego, CA.

Nagasako EM, Owens PL, Chen L. Physician supply and health outcomes: Do Hawaii counties with fewer health system resources have higher readmission rates? Translational Science 2013 Apr 17-19; Washington, DC.

Amin AP, Shapiro R, Novak E, Olsen M, Singh J, Bach RG and Cohen DJ. Costs of contrast induced acute kidney injury. Washington University in St Louis Comparative Effectiveness Research Symposium, 2013 Apr 16-17; St. Louis, MO.

Sandhu G, Nepple KG, Grubb R 3rd, Strobe SA. Survival impact of postoperative expenditures by high volume providers following definitive surgery for bladder cancer. Society of Urologic Oncology Meeting, 2012 Nov 28-30; Bethesda, MD.

Vemana G, Chen L, Strobe SA. Sources of variation in expenditure after cystectomy. Society of Urologic Oncology Meeting, 2012 Nov 28-30; Bethesda, MD.

Viray M, Liang S, Warren D, Gleva M, Subramaniam H, Fraser V, Olsen M. Increased incidence of infection in cardiac resynchronization devices compared with pacemakers: insights from a longitudinal Medicare population. Scientific Sessions of the American Heart Association; 2012 Nov 3-7; Los Angeles, CA.

Liang Y, Viray M, Warren D, Gleva M, Subramaniam H, Fraser V, Olsen M. Implantable cardiac device infections in a longitudinal Medicare population, 2000-2006. ID Week Annual Meeting; 2012 Oct 17-21; San Diego, CA.

Warren D, Liang S, Viray M, Gleva M, Subramaniam H, Fraser V, Olsen M. Implantable cardiac device infections in a longitudinal Medicare population, 2000-2006. 6th Annual Conference of the Agency for Healthcare Research and Quality; 2012 Sept 9-12; Bethesda, MD.

Jim J, Owens PL, Geraghty PJ, Sanchez LA, Rubin BG. Medicare age-stratified comparative effectiveness of carotid revascularization procedures: A national evaluation. 36th Annual Meeting, Midwestern Vascular Surgical Society, 2012 Sept 8; Milwaukee, WI.

Wildes TM, Hellstrom A, Vij E, Owens PL, Colditz G. Autologous stem cell transplant in older patients with multiple myeloma (MM): Analysis of the Nationwide Inpatient Sample (NIS). ASCO 2012 Annual Meeting Abstracts, 2012 Jun 1-5; Chicago, IL. abstract e18551.

Nepple KG, Owens PL, Strobe SA, Sandhu GS, Kallogjeri D, Kibel AS. Hospital readmission after radical cystectomy for bladder cancer: results of a population-level analysis. American Urological Association Annual Meeting, 2012 May 19-23; Atlanta, GA.

Sandhu GS, Strobe SA, Kibel AS, Owens PL, Tanagho YS, Kallogjeri D, Wiegand LR, Nepple KG. State-level analysis of the contemporary utilization of radical prostatectomy in the United States. American Urological Association Annual Meeting, 2012 May 19-23; Atlanta, GA.

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Sandhu GS, Strobe SA, Kibel AS, Owens PL, Tanagho YS, Kallogjeri D, Nepple KG. Predictors of the contemporary use of minimally invasive radical prostatectomy. American Urological Association Annual Meeting, May 19-23; Atlanta, GA.

Nepple KG, Owens PL, Strobe SA, Sandhu GS, Kibel AS. Hospital readmission after radical cystectomy for bladder cancer: results of a population-based analysis from the California State Inpatient Database. Society of Urologic Oncology, 2011 Nov 30-Dec 2; Bethesda, MD. (Selected presentation for Young Urologic Oncologist program.)

Jim J, Owens PL, Sanchez LA, Rubin BG. Improved outcomes in treatment of ruptured thoracic aortic aneurysms in the endovascular era. 35th Annual Meeting, Midwestern Vascular Surgical Society, 2011 Sept 15; Chicago, IL.

Jim J, Owens PL, Sanchez LA, Rubin BG. Population-based analysis of inpatient vascular procedures: Predicting future workload and implications for training. Society for Vascular Surgery Annual Meeting, 2011 June 17; Chicago, IL.

Nepple KG, Owens PL, Strobe SA, Bhayani SB, Kibel AS. Comparative effectiveness of open versus minimally invasive radical prostatectomy: results from the California State Inpatient Database. World Robotic Symposium, 2011 June; Miami Beach, FL.

Jim J, Owens PL, Sanchez LA, Rubin BG. Endovascular treatment improves national outcomes in surgical management of thoracic aortic aneurysms. 39th Annual Symposium, Society for Clinical Vascular Surgery, 2011 Mar 17; Orlando, FL.

Jim J, Owens PL, Sanchez LA, Rubin BG. Population-based utilization and outcome of endovascular and open thoracic aneurysm repair. 34th Annual Meeting, Midwestern Vascular Surgical Society, 2010 Sept 10; Indianapolis, IN.

Theodoro DL, V Fraser, S Boslaugh. The Incidence of Central Venous Catheters and Comorbidities in the Emergency Department Is Increasing. Society for Healthcare Epidemiology of America annual meeting, 2010 Apr 1-4; Atlanta, GA.

Awards

Getz AE. Adverse Outcomes in Endoscopic Skull Base and Sinus Surgery. Triological Society career development grant, 2012.

Nepple KG. Hospital readmission after radical cystectomy for bladder cancer: results of a population-level analysis from the California State Inpatient Database. Bladder Cancer Advocacy Network Think Tank, Coronado, CA, August 2011. John Quale Travel Fellowship Award for Young Investigators.

Nepple KG, Owens PL, Strobe SA, Bhayani SB, Kibel AS. Comparative effectiveness of open versus minimally invasive radical prostatectomy: results from the California State Inpatient Database. World Robotic Symposium, 2011 June; Miami Beach, FL. Award for Best Abstract.