BARBARA J. GAGE

Dr. Barbara J. Gage is a nationally recognized expert in Medicare post-acute and long-term care payment and quality monitoring policies. She leads the performance measurement work at the Brookings Engelberg Center for Health Reform, including efforts for the Quality Alliance Steering Committee, the Long Term Quality Alliance, and performance measurement in the ACO-related work at Brookings. Dr. Gage has directed numerous national studies for CMS and Congress, including the Development of the Continuity Assessment and Record Evaluation (CARE) a standardized set of assessment items for use in the Medicare program, and numerous CMS efforts to develop quality measures for skilled nursing facilities, inpatient rehabilitation hospitals, and long term care hospitals. Dr. Gage also directed the Post Acute Care Payment Reform Demonstration which used the standardized CARE tool to examine patient outcomes and payment incentives associated with the range of acute and PAC services across an episode of care. Additionally, Dr. Gage has lead numerous studies to develop quality of care measures and examine payments and costs for these populations. Dr. Gage has also lead national studies of Medicare's hospice and DME benefits, ACL's (formerly AoA) community-based long-term care systems, and numerous studies of episodes of care, including the identification of related services, quality of care and outcomes, and payment impacts. Her work includes both qualitative and quantitative methods, including interviews, surveys, primary data collection and secondary analysis of claims data, primary data from studies, and survey and certification data.

Education

PhD, Health Policy and Administration, Pennsylvania State University, State College, PA, 1993.
MPA, Public Administration, University of Maine at Orono, Orono, ME, 1987.
BA, Medical Sociology, Boston University, Boston, MA, 1981.

Selected Project Experience

Developing Consensus on LTSS Assessment Items for Use in State Assessment Programs *(2013-2014) Consultant to the Long Term Quality Alliance.* This SCAN Foundation funded project builds on the 2013 LTQA meeting organized by Dr. Gage to bring together state and federal participants creating person-centered care systems for LTSS populations. This effort is bringing together state officials to build consensus on uniform assessment items that can be shared across programs.

Evaluation of the Bundled Payment for Care Improvement (2013-2014). Consultant to the Lewin Group. This study is evaluating three of the bundled payment models supported by the CMS Innovation Center, including Model 2 (hospital and PAC retrospective payment), Model 3 (PAC retrospective payment) and Model 4 (hospital and physician prospective payment). This work includes case studies of 100 awardees and claims and assessment data analysis to examine the impact of bundled payments on cost, outcomes, and access to care.

Development of Standardized CARE items for LTSS Populations (2012-2016). Consultant to Truven Analytics. This study is providing technical assistance to states using the standardized

LTSS item set for determining level of need for state Medicaid programs supporting LTSS populations.

Developing Alternative Payments for Therapy Services in Skilled Nursing Facilities (2013-2014). Consultant to Accumen. This study is examining alternative approaches for setting Medicare SNF payments for therapy services. The first year reviewed the literature, conducted a technical expert panel to gain stakeholder input, and proposed analyses to be conducted over the next two years.

ASPE-CMS Collaboration to Support the Center for Innovations Bundled Payments for Care Improvement Initiative *(2011-2012)—Principal Investigator*. This study is assisting the CMS Innovation Center in analyzing proposals submitted for their Bundled Payments for Care Improvement Initiative. This is a major initiative for the Administrator as it allows the provider community to partner with the Administration in developing alternative payment approaches that can better align incentives among the many providers involved in patient care. Applicants will be applying to participate in at least one of four bundled payment approaches. The first model examines the potential savings and outcomes associated with discounted payments to inpatient acute hospitals. The second model examines the potential savings and outcomes associated with discounting bundles of payments for hospitals, physicians, and post-acute care (PAC) providers involved in an episode of care. The third model is similar to model 2 but will exclude the hospital portion of the stay and examine the potential for savings associated with just the PAC portion of the episode. The fourth model differs from the first 3 by using prospectively administered payment approaches for the acute stay portion of the episode. This model may bundle physician and hospital costs incurred during the inpatient stay. Additional models are planned for the future.

Analysis of Crosscutting Medicare Quality Metrics Using the Uniform Assessment Tool Developed and Tested as Part of the CMS Post-Acute Care Payment Reform Demonstration *(2011-2012) — Principal Investigator*. This study is providing the Assistant Secretary for Planning and Evaluation/Health Policy (ASPE/HP) and the Centers for Medicare & Medicaid Services (CMS) with recommendations for crosscutting functional status quality metrics for use at the time of hospital discharge and across Medicare post-acute care (PAC) settings, including inpatient rehabilitation facilities (IRFs), acute long-term care hospitals (LTCHs), skilled nursing facilities (SNFs), and home health agencies (HHAs). Data from the uniform assessment tool (i.e., the Continuity Assessment Record and Evaluation or CARE tool) collected during the CMS PAC Payment Reform Demonstration (PAC PRD) will be used to provide standardized information on functional status and the factors affecting these outcomes in these five settings.

Development of a National Prototype: Continuity Assessment Record and Evaluation (CARE)(2008-2012)--- *Principal Investigator*. This work is providing support for ongoing CMS efforts to develop a national prototype of the CARE assessment items and to provide technical support to other CMS efforts using the CARE items to develop a health information exchange pilot test (CHIEP). This effort also provided support in developing open source software for the CARE items and coordinating efforts with the Office of the National Coordinator.

Developing Quality Measures for Inpatient Rehabilitation Hospitals, Long Term Care Hospitals, and Hospices in the Medicare Program *(2010-present)---Principal Analyst.*

The Affordable Care Act of 2010 mandated that the Secretary should develop a program to monitor quality of care for services provided in Inpatient Rehabilitation Facilities, Long Term Care Hospitals, and Hospices. This study is developing measures for submission to the National Quality Forum for use in monitoring the quality of care provided to Medicare beneficiaries in these settings. This study builds on NQF-endorsed measures where appropriate; other measures are being designed based on claims data and the standardized CARE assessment data tested in the Post-Acute Care Payment Reform Demonstration.

Analysis of The Classification Criteria For Inpatient Rehabilitation Facility (2008-2012) —*Principal Investigator*. The Medicare, Medicaid and SCHIP Extension Act (MMSEA) of 2007 directed CMS to prepare and submit a report to Congress on certain issues involving the 60 percent rule. For this report, CMS was to report on Medicare beneficiaries' access to medically necessary rehabilitation services, consider, with the input of various stakeholder groups, potential refinements to the 60 percent rule, and compare the relative costs and outcomes of rehabilitation patients with conditions outside the 13 qualifying groups, when they are treated in settings other than IRFs. This study is using multiple methods, including expert opinion through Technical Expert Groups (TEP), claims analysis and CARE data analysis to address these questions. TEP input was useful for identifying issues to examine in the secondary data analysis. Differences in severity, outcomes, and program costs were the primary dependent variables in these analyses.

Post-Acute Care Payment Reform Demonstration (PAC PRD): ***Project Implementation and Analysis*** (2007 to 2012)—*Principal Investigator*. The Post-Acute Care Payment Reform Demonstration was mandated by the Deficit Reduction Act of 2005 to examine the relative costliness and outcomes of post acute cases admitted to different settings for similar conditions. This study is collecting primary data, analyzing administrative data, and conducting site visits to 11 geographically diverse markets. This demonstration will use the standardized Medicare Continuity Assessment Record and Evaluation (CARE) patient assessment instrument to measure patient severity and case-mix across settings. Cost and resource data will also be collected in the PAC settings. Participating providers include short stay acute hospitals which will submit standardized information on patient severity at discharge; and the four post acute settings (inpatient rehabilitation hospitals, long-term care hospitals, skilled nursing facilities, and home health agencies) which will each submit patient severity information at admission and discharge and cost and resource use data. The data will be used, along with Medicare claims and cost report data, to examine substitution issues among post acute providers, including differences in costs and outcomes, all else equal. The results will be used to provide CMS and Congress information on setting-neutral payment models, revisions to single setting payment systems, current discharge placement patterns, and patient outcomes across settings.

Post-Acute Care: Patient Assessment Instrument Development. (2006 to 2012)—*Principal Investigator*. This CMS-funded project is developing a standardized set of patient assessment items for the Medicare program that will build on the assessment data currently used in acute hospitals and long-term care hospitals intake and monitoring assessments and mandated in 3 of the PAC settings, (the IRF-PAI in rehabilitation hospitals, the MDS in skilled nursing facilities, and the OASIS in home health agencies). Experts from each of the different levels of care are participating in its development. The study also includes two technical expert panels for feedback from the industry and the research community as well as pilot tests of the standardized items. This instrument, the Medicare Continuity Assessment Record and Evaluation (CARE), is designed to measure differences in patient severity, resource utilization, and

outcomes for patients in acute and post-acute care settings. The items are being used by CMS to develop a set of standardized assessment items that can be used across hospital and PAC settings.

Developing Outpatient Therapy Payment Alternatives. (2008-2013)---*Principal Investigator*. This study will identify, collect, and analyze therapy-related information tied to beneficiary need and the effectiveness of outpatient therapy services. The ultimate goal is to develop payment method alternatives to the current financial cap on outpatient therapy services. Outpatient therapy services are composed of physical therapy (PT), occupational therapy (OT), and speech language pathology (SLP). Attempts to address the increased expenditures through payment policy changes led to the realization that CMS cannot adequately assess the appropriateness of utilization patterns or the impact of changes in payment policy without access to better information tied to patient need and the effectiveness of outpatient therapy services. This five year project was conceived to address that lack of therapy-related information tied to beneficiary need and the effectiveness of outpatient therapy services. In order to collect the needed data, the project involves (1) the development of a data collection strategy, including the recruitment of therapy providers to participate in data collection, (2) analysis of the resulting data to identify payment alternatives to therapy caps, and (3) close engagement with the stakeholder community throughout the project.

Examination of Risk Adjustment of Payments & Outcomes Across Episodes of Care/Bundled Payment Options (2009 - 2010)---Senior Adviser. This work builds upon RTI's previous work with ASPE on episodes of post-acute care (PAC) and ongoing work with CMS in the Post Acute Care Payment Reform Demonstration (PAC PRD). Specifically, this project is exploring potential risk adjustment models for PAC episodes using Continuity Assessment Record and Evaluation (CARE) Tool data from the PAC PRD to better understand how PAC episode payments and outcomes might be risk adjusted based on beneficiary characteristics at the start of an episode of care. These analyses complement the PAC PRD by considering appropriate risk adjustment methodologies for an episode of care rather than a single service. In this work, RTI is building PAC episodes for beneficiaries with CARE assessment data to examine the feasibility of episode-based risk-adjustment.

Expand Current Beneficiary Level Episode File Used to Model Episode Based Payments/Bundling Options to Provide Longitudinal Analysis and Improve Sample Size Modification (2009 to 2010) —*Principal Investigator*. In this work, RTI is constructing an expanded beneficiary level episode data to provide additional information on episodes of post-acute care and episode-based payments. This contract provides an opportunity to explore additional research questions as ASPE and CMS continue to consider alternatives to the prospective payment silos in post-acute care. Under this modification, RTI is constructing episodes that begin with home health (HHA), inpatient rehabilitation hospital (IRF), or long term care acute hospital (LTCH) independent of an acute hospital admission. This will provide a baseline understanding of the characteristics of beneficiaries who enter care without an acute hospital stay. Additional analyses focus on utilization for a cohort of beneficiaries over time as well as mortality within episodes of care.

Examine the Landscape of Formal and Informal Delivery Systems Needed to Comply with a Reform Option to Bundle Medicare Payments Modification (2009-2010) —*Principal Investigator*. The purpose of this project is to examine the scope of formal and informal relationships between acute care hospitals and post-acute care (PAC) providers. This is important for assessing the impact of payment policies that would bundle payments for PAC services to an acute hospital. Though many PAC providers currently have formal or informal relationships with acute hospitals, under a bundled payment system, these relationships may become necessary in order to comply with new payment rules. This work provides information on the current landscape of integrated delivery systems and provider relationships nationally, and at the state level, in order to anticipate the extent to which providers may need to establish new relationships to comply with a bundled payment approach.

Risk-Adjusted Quality Measurement for Inpatient Rehabilitation Facilities.(2009- 2010)- Scientific Reviewer. The Medicare Payment Advisory Commission (MedPAC) contracted with RTI International to assess risk-adjusted quality measurement for the inpatient rehabilitation facilities (IRFs). The objective of this work is to estimate the aggregate trend in risk-adjusted IRF quality measures from 2004 to 2008. The proposed quality measures include average change in functional impairment levels (measured by the FIM® Instrument), rate of discharge to the community, and rate of hospital readmission. RTI will report the observed and risk-adjusted trends in these quality measures for the period from 2004 to 2008, reporting these trends in the aggregate and by impairment type (e.g., hip fracture, stroke). The resulting report describes the risk adjustment methodology and evaluates the effectiveness of the approach.

Post Acute Care Episode and Chronic Care Warehouse Database Modification (2008-2009) — *Principal Investigator*. This ASPE funded project examined patterns of post-acute care utilization and payments for Medicare beneficiaries using 2006 claims data. Specifically, this project examined the impact of various definitions of episodes of post-acute care particularly as they relate to the inclusion/exclusion of different claims and associated payments for care. The work was based on analyzing a beneficiary-level episode file using Medicare claims data. This file is unique in its ability to track beneficiary service use across settings following an index acute hospital admission, reflecting actual utilization patterns of acute, home health, inpatient rehabilitation facility, skilled nursing facility, long term care acute hospital, and hospital outpatient department therapy services. This project also included extensive analyses of comorbidity using the Chronic Care Warehouse (CCW) in order to learn more about the effect of comorbidities on PAC episode utilization.

Identifying the Logic to Assign Post-Acute Care Claims to Episodes of Care for Comparing Relative Resource Use (2008-2009) —*Principal Investigator*. In this CMS funded work, RTI developed a logic for grouping post-acute care (PAC) claims and readmissions to index hospitalizations to support the examination of relative resource use comparisons. The RTI team performed extensive analysis looking at the patterns of PAC utilization using a beneficiary-level episode file constructed in previous work with ASPE. In developing the episode logic, RTI examined whether shorter time windows or diagnostic-based approaches were more appropriate for defining related services. This work also examined how the RTI logic assigns post-acute and readmission claims to episodes relative to two commercial grouper software products.

Long-Term Care Hospital Prospective Payment System (PPS) Refinement/Evaluation. (2004 to 2008)—*Principal Investigator.* This study is developing recommendations for CMS to develop patient classification measures to identify appropriate LTCH admissions. In 2002, Medicare established a LTCH PPS, using the LTCH-DRGs to set payment rates. In 2004, MedPAC requested that the criteria covering LTCH admissions be refined to clearly distinguish between these and other types of inpatient cases, such as those qualifying for outlier adjustments in the acute hospital, rehabilitation facilities, or psychiatric hospitals. This study is analyzing Medicare claims to develop case mix differences among sites of care, collecting information from QIOs and LTCHs on the types of cases admitted and instruments used, and conducting site visits to compare settings for LTCH appropriate patients.

Examining Relationships in an Integrated Hospital System. (2006 to 2007)—*Principal Investigator*. This ASPE-funded study is examining the role of organizational relationships as they affect transfer patterns across post-acute settings. Using 2005 Medicare claims data to build episodes of care and the Provider of Service data to identify organizational relationships between providers, this study is examining whether PAC patterns of use are associated with a hospital having a PAC subprovider. This study expands on the usual definition of hospital affiliation by incorporating the Medicare co-location definition for also determining relationships. Post-acute episodes are case-mix adjusted using the APR-

DRG severity of illness measures. Since supply factors also affect these decisions, this study includes a GIS-based analysis using the Provider of Service file to look at the availability of post-acute providers across the country including the distribution of hospital-based, freestanding, and co-located providers.

Impacts Associated with the Medicare Psychiatric Prospective Payment System (PPS) (2004 to 2006)—*Task Leader.* This study is evaluating the impact of the new Psychiatric PPS on non-PPS bed use and costs, rural providers, and shifts to ambulatory settings. Included are claims analyses where patterns of care are being investigated to understand the relative use of partial hospitalization programs on inpatient use both before and subsequent to the new Medicare inpatient payment system.

Evaluation of BBA Impacts on Medicare Delivery and Utilization of Inpatient and Outpatient Rehabilitation Therapy Services (2001 to 2006)—*Principal Investigator*. The Centers for Medicare & Medicaid Services (CMS)-funded study of changes in the use of rehabilitation services, both inpatient and outpatient, resulting from implementation of the Inpatient Rehabilitation Facility PPS and the establishment of related PPS for other PAC providers, including Long-Term Care Hospitals, Skilled Nursing Facilities, and Home Health Agencies. This study analyzes shifts between inpatient and ambulatory rehabilitation services, changes in the use of IRF inpatient providers, and changes in the number of PAC providers, including changing distributions across geographic areas.

Inpatient Prospective Payment System Analysis: Patient Shifting Among Co-Located Providers (2004 to 2005)—*Principal Investigator*. This project is producing software for CMS to identify LTCHs that are co-located with other types of providers, create episodes of care to track admissions sequences between settings, and develop payment adjustment groups to correct for payments to LTCHs with over 5% of admissions coming from co-located providers.

Integrated Payment Options: Mercy Hospital Bundled Payments (2003 to 2005)—*Principal Investigator*. This work is providing CMS payment rate estimates for a bundled post-acute care (PAC) payment demonstration. Costs are being estimated for three groups of inpatient admissions (orthopedic, cardiopulmonary, and CVA/Stroke), patterns of care are being examined, and cases are being risk-adjusted using IRF-PAI and MDS data.

Development of Quality Indicators for Inpatient Rehabilitation Facilities (2001 to 2004)—*Principal Investigator*. This study developed quality indicators for the Medicare program to monitor inpatient rehabilitation facility (IRF) services. IRFs moved to a PPS in 2002 and instituted a Patient Assessment Instrument (IRF-PAI) as part of the new payment system. The original quality measures included on the IRF-PAI tool were never tested on an IRF population so this study conducted an extensive literature review to identify valid quality measures for use with rehabilitation populations, organized TEPs to review the items, collected primary data to test proposed items with different rehabilitation populations in IRFs with varying characteristics, constructed a primary data set, analyzed the data, and recommended IRF appropriate quality measures to include on the revised IRF-PAI.

Medicare Post-Acute Care: Evaluation of BBA Impact and Related Changes (2000 to 2005)—*Principal Investigator*. CMS-funded analysis of pre-post changes in the use of rehabilitation and long-term care hospitals, SNFs, HH agencies, and outpatient therapists between 1996 and 2000. This analysis looks at changes in the relative use of these services in response to implementation of the HH interim payment system, SNF PPS, and HH PPS.

Psychiatric Inpatient Routine Cost Analysis (2000 to 2003)—*Co-Principal Investigator*. CMS-funded study to design a national case mix classification system for Medicare's inpatient psychiatric populations. Led the design and development of primary data collection including interviews with key stakeholders, site visit management, and patient and staff time and motion study development and design.

Access to Outpatient Rehabilitation Therapy (2001 to 2002)—*Principal Investigator.* American Association for Retired People (AARP)-funded study of the effects of the BBA changes on Medicare beneficiaries' access to ambulatory-based rehabilitation therapy services. This study used the Medicare Current Beneficiary Survey to investigate differences in the types of populations who access rehabilitation therapy services through different sites of care, including hospital outpatient departments, SNFs, HH agencies, and rehabilitation therapy agencies/offices. The results were useful for considering whether the new Medicare policies affected subgroups of beneficiaries differently.

Changes in Medicare+Choice Enrollments and Plan Participation (1999 to 2001)—*Principal Investigator*. Commonwealth-funded study using Medicare administrative data to investigate the types of individual-level factors related to changes in managed care enrollments for Medicare beneficiaries in eight select markets and nationally.

Medicare Post-Acute Care and the BBA (1998 to 2000)—*Principal Investigator*. Commonwealth-funded study to understand baseline levels in the use of Medicare's post-acute services, including rehabilitation hospitals, SNFs, and HH agencies prior to the BBA.

Synthesis and Analysis of Medicare's Hospice Benefit (1997 to 2000)—*Principal Investigator*. Assistant Secretary for Planning and Evaluation (ASPE)-funded study of the Medicare hospice benefit. This study used Medicare administrative data to analyze the 1996 cohort of Medicare hospice enrollees. These analyses identified the types of patients enrolling in hospice and variations in their Medicare payments and use. This study also included interviews with hospices, nursing homes, and federal survey and certification specialists to examine duplications and complementariness of services or payments made for Medicare beneficiaries in nursing facilities. Also responsible for two related subcontracts. One used Minimum Data Set (MDS) and claims data to study hospice use and outcomes for long-term nursing facility residents in five states. The other used data to study employer-based coverage of hospice in the privately insured sector.

State-Level Variations in Medicare Spending, 1995 (1998 to 1999)—*Co-Principal Investigator.* This study used Medicare administrative data to construct person-level files to study annual expenditures by type of service for 1995. The data were used as baseline for considering the impact of various changes in Medicare payment policies.

DME Use in Nursing Facilities (1999)—*Principal Investigator*. ASPE-funded study to estimate DME use in the nursing facilities. Used Medicare claims for all nursing facility users (Medicare, Medicaid, and private) to analyze the types of DME used and the associated Medicare payments.

Medicare Post-Acute Care Quality Measures (1999)—*Senior Researcher*. ASPE-funded study to assist A. Kramer, University of Colorado, in developing quality of care measures for post-acute populations based on related analysis of Medicare claims.

Medicare Policy Analysis (1992 to 1996)—*Staff member/Director, Post-Acute Studies*. Directed evaluations of alternative payment policies for Medicare post-acute care, including HH, SNF, and certain PPS-Excluded hospitals. Analyzed incentives associated with different volume and price control methods.

Professional Experience

2012 to date	The Brookings Institution, Washington, DC.
	Fellow, Managing Director, Engelberg Center for Health Care Reform
2000 to 2012	RTI International, Waltham, MA.
	Principal Research Associate, Aging Disability and Research Program.
1999 to 2000	The MEDSTAT Group, Cambridge, MA.
	Senior Research Associate, Research & Policy Division.
1997 to 1999	The Urban Institute, Washington, DC.
	Senior Research Associate, Health Policy Center.
1996	Agency for Health Care Policy and Research, Rockville, MD.
	Expert Appointment, Center for Organization and Delivery Studies.
1992 to 1996	Prospective Payment Commission, Washington, DC.
	Senior Analyst/Analyst.
1985 to 1988	Maine State Legislature, Office of Fiscal and Program Review, Augusta, ME.
	Budget Analyst/Program Evaluator.

Honors and Awards

Advisory Board Member, NIDRR funded Health Services Research DRRP on Medical Rehabilitation, Rehabilitation Institute of Chicago, 2005–date
Advisory Board Member, Rehabilitation Research and Training Center, Rehabilitation Institute of Chicago, 2005–date
Member, Farnsworth Aging Policy Research Fellowship Review Committee, 2004–2008
Advisory Board Member: National Institutes of Health Advisory Board for Pain Therapy and Palliative Care, Ann Berger, MD, Director, 2001–2003
Advisory Panel Member: RAND project on End of Life Care, Joanne Lynn, MD, Director, 1999/2000
Advisory Board Member: HCFA Project on the Provision of SNF, Home Health and Rehabilitation Services to Medicare HMO Members, fall 1996
Expert Panel Member: AHCPR expert meeting on long-term and chronic care issues to plan for fall workshop on this issue, spring 1996
National Advisory Committee Member: HCFA-funded project entitled "A Randomized Controlled Trial of Expanded Medical Care in Nursing Homes for Acute Care Episodes," 1995–1996
NIA Research Trainee, Dissertation Research Award, 1991–1993

Professional Associations

Association for Health Services Research

Gerontological Society of America
American Public Health Association

Peer-Reviewed/Invited Journal Articles

Gage, B.J. *Continuity Assessment Record and Evaluation (CARE): Developing Standardized Assessment Items for Post Acute Care,* Nursing Home Alliance Quality Report, 2012.

Gage, B.J., State of the Science in Rehabilitation, ACRM, Archives of Physical Medicine and Rehabilitation, Volume 88, Issue 12, December 2007.

Gage, B. J., Crotty, R. G., & Coots, L. A. (2008). Medicare post acute care and the national post acute payment reform demonstration. *Home Care Journal of Texas*.

Wiener, J. M., Anderson, W. L., & Gage, B. J. (2008). Making the system work for home care quality. *Journal of Heathcare Quality, 31*(2), 18–23.

Drozd, E. M., Cromwell, J., Gage, B., Maier, J., Greenwald, L. M., & Goldman, H. H. (2006). Patient casemix classification for Medicare psychiatric prospective payment. *Journal of the American Psychiatric Association, 163*(4), 724–732.

Cromwell, J., Drozd, E., Gage, B., Maier, J., Richter, E., & Goldman, H. H. (2005). Variation in patient routine costliness in U.S. psychiatric facilities. *Journal of Mental Health Policy and Economics, 8*(1), 15–28.

Stineman, M., Kallen, M., Thompson, C., & Gage, B. (2004, September). Commentary: Challenges in paying for effective stays. *Medical Care*.

Cromwell, J., Maier, J., Gage, B., Drozd, E., Osber, D., Richter, E., Greenwald, L., & Goldman, H. (2004, Fall). Characteristics of high staff intensive Medicare psychiatric inpatients. *Health Care Financing Review, 26*(1), 103-117.

Gage, B., Grauer, P., Friedman, M., & Berger, A. (2003, Winter). Impacts of palliative care services. Paper being prepared for a special issue of *The Journal of Palliative Care Medicine*, highlighting the work of our NIH palliative care workgroup.

Cotterill, P., & Gage, B. (2002, Winter). Overview: Medicare post-acute care since the balanced budget act of 1997. *Health Care Financing Review, 24*(2), 1–6.

Gage, B., Moon, M., & Chi, S. (1999, Winter). State-level variation in Medicare spending. *Health Care Financing Review, 21*(2), 85–98.

Gage, B. (1999, Summer). Impact of the BBA on post-acute utilization. *Health Care Financing Review, 20*(4), 103–126.

Gage, B. (1998, Fall). Medicare home health and the IPS: Is access a problem? The Commonwealth Fund: New York. Working paper submitted to various congressional committees and DHHS offices.

Gage, B., Stevenson, D., Liu, K., & Aragon, C. (1998, Fall). Medicare home health: An update. *Public Policy and Aging Report*.

Gage B. (1998, Summer). The history and growth of Medicare managed care. *Generations*.

Gage B. (1998, August). The balanced budget act: Implications for post-acute services. The Commonwealth Fund: New York.

Moon, M., Gage, B., & Evans, A. (1997, September). An examination of key Medicare provisions in the Balanced Budget Act of 1997. The Commonwealth Fund: New York.

Moon, M., Evans, A., Gage, B., et al. (1997, July). A preliminary examination of key differences in the Medicare savings bills. Washington, DC: The Urban Institute.

Gage, B., Moon, M., Nichols, L., et al. (1997, June). Medicare savings: Options and opportunities. Washington, DC: The Urban Institute.

Hurley, R., Gage, B., & Freund, D. (1991, Winter). Rollover effects in gatekeeper programs: Cushioning the impact of restricted choice. *Inquiry, 28*(4), 375–384.

Hurley, R., Freund, D., & Gage, B. (1991). Gatekeeper effects on patterns of physician use. *Journal of Family Practice, 32*(2), 167–174.

Rydell, L., Gage, B., & Colnes, A. (1986). Teacher retention and recruitment in Maine: An overview. *Rural Special Education Quarterly, 7*(2), 22–24.

Gage, B., & Pattakos, A. (1986, Spring). Volunteers: A local government "natural" resource. *Current Municipal Problems, 12*(4), 511–517.

Pattakos, A., & Gage, B. (1985, August). Volunteers: A municipal resource. *The Maine Townsman, 47*(8), 13–15.

Presentations and Proceedings

Gage, B.J., (2012, December). IOM

Gage, B.J.,(2012, August). *Post Acute Care Payment Reform Demonstration.* UDS Annual Meeting for Inpatient Rehabiliation Hospital Users Group.

Gage, B.J., (2011, September). *Overview of 5 Medicare Rehabilitation Initiatives.* National Association for the Support of Long term care, Washington, DC.

Gage, B.J., (2011, April). *Long Term Care Hospitals: Update on Selected Research Initiatives.* Washington, D.C.,

Gage, B.J., (2010, August). *CARE Tool in the Post Acute Care Continuum.* MediServe Annual Users Conference, Phoenix, Arizona.

Smith, L. M., Gage, B. J., Coots, L. A., Spain, P. C., Morley, M. A., & Ingber, M. J. (2010, June). *Death and the bundle: Patterns of service use associated with mortality among Medicare post-acute care patients*. Poster presented at Academy Health, Boston, MA.

Gage, B. J. (2010, June). *Medicare post acute research issue*s. Presented at American Hospital Association's Policy Council, Houston, TX.

Morley, M. A., Coots, L. A., Gage, B. J., Forgues, A. L., & Baker, R. D. (2010, June). *Health care costs and utilization for Medicare beneficiaries with multiple sclerosis*. Poster presented at Academy Health, Boston, MA.

Gage, B. J. (2009, June). *Accountable organizations: What can current episodes of care tell us*. Invited Paper at National Rehabilitation Hospital Center for Post-Acute Studies & Georgetown University School of Nursing and Health Services, Washington, DC.

Morley, M. A., Coots, L. A., Gage, B. J., Baker, R. D., & Forgues, A. L. (2009, June). *Medicare beneficiaries with multiple sclerosis: Utilization of services and functional impairment levels*. Poster presented at Academy Health Annual Research meeting, Chicago, IL.

Gage, B. J., & Tobin, J. (2009, June). *CARE: Standardizing data, improving quality*. Presented at Case Management Society of America, Washington, DC.

Morley, M. A., Smith, L. M., Ingber, M. J., & Gage, B. J. (2009, April). *Defining post-acute episodes of care*. Presented at ASPE Leadership team and ASPE/DHHS offices, Washington, DC.

Constantine, R. T., & Gage, B. J. (2009, April). *PAC payment reform demonstration and related efforts*. Presented at Partners HealthCare System case management team, Boston, MA.

Gage, B.J**.** (2009, April). *Quality of care and outcomes research in cardiovascular disease and stroke*. Presented at American Heart Association, Washington, DC.

Wiener, J. M., Anderson, W. L., & Gage, B J. (2009, March). *You can run, but you can't hide: Problems and policy in long-term care*. Presented at Fellow Seminar, Washington, DC.

Wiener, J. M., Anderson, W. L., & Gage, B. J. (2008, July). *Making the system work for home care quality*. Presented at Promoting Excellence in Geriatric Home Care, Crystal City, VA.

Gage, B. J. (2008, April 30). Medicare post acute care payment reform demonstration. Poster presented at Visiting Nurse Association of America's annual meeting, Nashville, TN.

Gage, B. J., Morley, M. A., & Ingber, M. J. (2007, October 3). *Examining relationships in an integrated delivery system.* Presented at the CMS Policy Council, Baltimore, MD.

Gage, B. (2006, June 25). *Incorporating PAC measures in monitoring system performance.* Presented at AcademyHealth Annual Research Meeting, Seattle, WA.

Gage, B., Bernard, S., Constantine, R., Root, E., Squire, C., Green, J., Osber, D., & Gainor, B. (2005, August 4–5). *Developing quality indicators for inpatient rehabilitation facilities.* Presented at the 2005 Buffalo Conference of the Uniform Data System for Medical Rehabilitation (UDSMR).

Gage, B., Pilkauskas, N., Bernard, S., Constantine, R., & Green, L. (2006, April). *LTCH payment system refinement evaluation.* Presented at the National Association of the LTCH Hospitals, Washington, DC.

Gage, B., Hoover, S., Haber, S., & Gilman, B. (2005, June). *Impact of prescription drug coverage on unmet need.* Poster presented at AcademyHealth Annual Research Meeting, Boston, MA.

Cromwell, J., Drozd, E. M., Gage, B., Maier, J., Greenwald, L. M., & Goldman, H. H. (2005, March). *Patient case mix classification for Medicare psychiatric prospective payment.* Presented at the Seventh Workshop on Costs and Assessment in Psychiatry "Financing Mental and Addictive Disorders," Venice, Italy.

Gage, B., Bernard, S., Constantine, R., Root, E., Squire, C., Green, J., Osber, D., & Gainor, B. (2005, January 13–14). *Developing quality indicators for inpatient rehabilitation facilities.* Presented at the California Rehabilitation Association.

Gage, B. (2004, June 6–8). *Long-term care community services & market factors.* Invited panelist. AcademyHealth 2004 Annual Research Meeting, San Diego, CA.

Mobley, L., Root, E., McCall, N., Subramanian, S., Kapp, M., & Gage, B. (2004, June 6–8). *Spatial analysis of healthcare markets: Separating the signal from the noise in ambulatory care sensitive condition admission rates.* Panel member. AcademyHealth Meeting, San Diego, CA.

Cromwell, J., Drozd, E., Gage, B., Maier, J., & Greenwald, L. (2004, January). *Final findings from RTI's psychiatric routine inpatient cost study.* Presented to research and policy staff at the Centers for Medicare & Medicaid Services, Baltimore, MD.

Gage, B., Wiener, J., Walsh, E., Khatutsky, G., Osber, D., Moore, A., Maier, J., Bernard, S., & Kramer, C. (2003, November). *Creating a more balanced LTC system: The role of the aging network.* Paper presented at the 56th Annual Scientific Meeting of the Gerontological Society of America, San Diego, CA.

Gage, B., Wiener, J., Walsh, E., Khatutsky, G., Osber, D., Moore, A., Maier, J., Bernard, S., & Kramer, C. (2003, October 26–28). *Rebalancing the long-term care system with the help of the aging network: Lessons from the states.* Presented at the Home Care in the Heartland: 20th National Home and Community-Based Services Waiver Conference. Madison, WI.

Gage, B., Gilman, B., Mitchell, J., & Haber, S. (2002, June). *Outpatient pharmacy costs and use among low-income elderly.* Paper presented at the Academy for Health Services Research and Health Policy, Washington, DC.

Gage, B., & Bartosch, W. (2002, June). *Medicare reimbursement for post acute and long-term care: Research informing policy.* Invited paper at the Academy for Health Services Research and Health Policy, Washington, DC.

Gage, B., Kautter, J., & Richter, E. (2002, June). *Medicare rehabilitation therapy use, 1998.* Presented at the Annual Meeting of the Association for Health Services Research, Washington, DC.

Gage, B., Kautter, J., & Richter, E. (2002, June). *Access to outpatient rehabilitation therapy: Who goes where?* Paper presented at the Academy for Health Services Research and Health Policy, Washington, DC.

Gage, B. (2001, April). *Medicare's hospice benefit: Use, payments, and populations.* Alzheimer's Association Public Policy Forum, Invited Panelist on Hospice and Alzheimer's: Quality Care at the End of Life, Washington, DC.

Gage, B., & Moon, M. (2001, June). *Medicare post acute care post BBA: Where have all the patients gone?* Paper presented at the Academy for Health Services Research and Health Policy, Atlanta, GA.

Gage, B. (2000, March). *Long-term care financing in the new millennium.* American Association of Homes and Services for the Aging, Invited panelist at AAHSA annual meeting, Washington, DC.

Gage, B. (1999, July). *Who are the high cost home health cases?* Paper presented at the GW National Health Policy Forum on Medicare's Home Health Benefit.

Gage, B. (1999, July). *Medicare home health utilization patterns.* Paper presented at the National Academy on Aging/Georgetown University Roundtable on Normative Standards in Home Health.

Gage, B. (1999, June). *Medicare home health: The good, the bad, and the ugly.* Invited paper at the 1999 Association for Health Services Research annual meeting. Chicago, IL.

Gage, B. (1999, June). *Synthesis and analysis of Medicare's hospice benefit.* Symposium paper presented at the 1999 Association for Health Services Research annual meeting. Chicago.

Gage, B. (1999, May). *Long-term care financing issues.* Panelist at the annual meeting of the Home Health Care Association of Massachusetts.

Gage, B. (1998, November). *Medicare's home health benefits revisited: Implications of program reform.* Symposium paper presented at the 1998 annual meeting of the Gerontological Society of America. Philadelphia.

Gage, B. (1998, Summer). *Patterns of post-hospital use for aged Medicare beneficiaries, 1995.* Poster presented at the 1998 annual meeting of the Association for Health Services Research. Washington, DC.

Gage, B. (1997, November). *Aging women in Medicare.* Invited paper for a panel on Aging Women and Managed Care at the 1997 annual meeting of the American Public Health Association. Indianapolis, IN.

Gage, B. (1997, November). *Medicare service use: Variation by population.* Symposium paper presented at the 1997 annual meeting of the Gerontological Society of America. Cincinnati, OH.

Gage, B. (1997, November). *Home health use: Changes in mix over time.* Paper presented at the 1997 annual meeting of the Gerontological Society of America. Cincinnati, OH.

Gage, B. (1997). *Medicare post-acute care utilization, 1995.* Paper presented at the 1997 National Case Mix Reimbursement and Quality Assurance Conference, sponsored by the Health Care Financing Administration. Cleveland, OH.

Gage, B. (1995). *State variations in post-acute care for Medicare beneficiaries.* Paper presented at the 1995 annual meeting of the American Public Health Association. San Diego, CA.

Gage, B., Arnold, S., & Harris, J. (1993). *Home health: Stairs to independence in later life.* Poster presented at the 1993 annual meeting of the Gerontological Society of America.

Gage, B. (1991). *Assessing the impact of community service use on the elderly's risk of institutionalization.* (with C. Himes). Poster presented at the 1991 annual meeting of the Gerontological Society of America.

Gage, B., & Long, M. (1991). *Variations in physician practice patterns.* Paper presented at the 1991 annual meeting of the American Public Health Association.

Gage, B., Hurley, R., & Freund, D. (1990). *Rollover effects in physician gatekeeping programs.* Paper presented at the 1990 annual meeting of the American Public Health Association.

Gage, B., Gamm, L., Hurley, R., & Eisele, F. (1989). *State initiatives in health care cost containment.* Paper presented at the 1989 annual meeting of the American Public Health Association.

Gage, B., Hurley, R., & Freund, D. (1989). *Primary care gatekeeper effects on patterns of physician use.* Paper presented at the 1989 annual meeting of the American Public Health Association.

Technical Reports

Gage, B. Constantine, R, Aggarwal, J, Morley, M, Kurlantzick,V. Bernard, S Munevar, D, Garrity, M, Smith, L, Barch, D (2012, August). *The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set: Final Report on the Development of the CARE Item Set*. Prepared for Centers for Medicare & Medicaid Services. Volumes 1-3.

Gage, B., Morley, M., Smith, L., Ingber, M., Deutsch, A., Kline, T, Dever, J., Abbate, J., Miller, R., Lyda-McDonald, B., Kelleher, C., Garfinkel, D., and Manning, J. (2012, March). *Post-Acute Care Payment Reform Demonstration: Final Report, Volumes 1 – 4.* Prepared for Centers for Medicare & Medicaid Services.

Thaker, S., Gage, B. J., Bernard, S. L., & Nguyen, K. H. (2011, March). Technical expert panel report: Quality measures for long-term care hospitals. Prepared for Centers for Medicare & Medicaid Services.

Bernard, S. L., Gage, B. J., Etlinger, A. L., Nguyen, K. H., & Thaker, S. (2011, March). *Technical expert panel report: Quality measures for inpatient rehabilitation facilities*. Prepared for Centers for Medicare & Medicaid Services.

Rokoske, F. S., Bernard, S. L., Gage, B. J., & Nguyen, K. H. (2011, March). *Technical expert panel report: Quality measures for hospice programs*. Prepared for Centers for Medicare & Medicaid Services.

Gage, B. J., Smith, L. M., Coots, L. A., Macek, J. F., Manning, J. R., & Reilly, K. E. (2009, September). *Analysis of classification criteria for inpatient rehabilitation facilities: Report to Congress*. Prepared for Centers for Medicare & Medicaid Services.

Gage, B. J., Morley, M. A., Smith, L. M., Forgues, A. L., & Ingber, M. J. (2009, August). *Analysis of post acute care definitions: Data chart book.* Prepared for ASPE..

Gage, B. J., Morley, M. A., Smith, L. M., Spain, P. C., & Ingber, M. J. (2009, July). *Post acute care episodes and chronic care warehouse database modification*. Prepared for ASPE.

Spain, P. C., Ingber, M. J., Gage, B. J., Morley, M. A., & Smith, L. M. (2009, July). *Chronic care warehouse (CCW) database and hierarchical condition categories (HCCs) to examine comorbidities in post acute care episodes*. Prepared for ASPE.

Gage, B. J., Morley, M. A., Spain, P. C., & Ingber, M. J. (2009, February). *Examining post acute care relationships in an integrated hospital system*. Prepared for ASPE.

Drozd, E. M., Gage, B. J., & Constantine, R. T. (2008, February). *Post-acute payment reform and demonstration report on cost and resource utilization instrument pilot test result*s. Prepared for Centers for Medicare & Medicaid Service.

Gage, B., Constantine, R., Aggarwal, J., Morley, M., Kurlantzick, V. G., Bernard, S., Munevar, D., Garrity, M., Duetsch, A., Mallinson, T., Erlich-Jones, L., Heinemann, A., & Roth, E. (2008, February). *The development of the Continuity Assessment Record and Evaluation (CARE) tool.* Prepared for the Centers for Medicare & Medicaid Services.

Gage, B. J., Morley, M. A., Constantine, R. T., Spain, P. C., Allpress, J. L., Garrity, M. K., & Ingber, M. J. (2008, February). *Examining relationships in an integrated hospital system.* Prepared for the Assistant Secretary for Planning and Evaluation.

Gage, B. J., Ingber, M. J., & Drozd, E. M. (2008, February). *Post acute care payment reform demonstration implementation and analysis strategy design report*. Prepared for Centers for Medicare & Medicaid Services.

Gage, B. J., Ingber, M. J., Constantine, R. T., Bernard, S. L., Drozd, E. M., Morley, M. A., Wen, C., Kurlantzick, V. G., Munevar, D., & Garrity, M. K. (2008, January). *Post acute care payment reform demonstration (PAC PRD): Year one report*. Prepared for Centers for Medicare & Medicaid Services.

Gage, B., Ingber, M., Drozd, E. M., & Morley, M. (2008, January). *Post acute care payment reform demonstration: Market area selection report.* Prepared for the Centers for Medicare & Medicaid Services.

Gage, B. J., Ingber, M. J., Drozd, E. M., & Morley, M. A. (2008, January). *Post acute payment reform demonstration (PAC PRD): Project implementation process and analysis work plan*. Prepared for Centers for Medicare & Medicaid Services.

Spain, P. C., Lynch, M. M., Horne, J. M., McCall, N., & Gage, B. J. (2007, October). *Identifying researchers' issues and needs in the study of heart failure: Literature review.* Prepared for Kennell and Associates.

Khatutsky, G., Leung, M. Y., Green, N., McCall, N., & Gage, B. J. (2007, May). *Identifying researchers' issues and needs in the study of diabetes: Final literature review.* Prepared for Kennell and Associates.

Wiener, J. M., Khatutsky, G., Green, J. C., Gage, B. J., O'Keeffe, J., & O'Keeffe, C. (2006, October). *Medicare and end-of-life care: A literature review*. Prepared for U.S. Department of Health and Human Services.

McCall, N., Bernard, S. L., Cromwell, J., Brody, E. R., Burton, J., Gage, B. J., Rabiner, D. J., Smith, K. W., & Anderson, W. L. (2006, March). *Evaluation of phase I of voluntary chronic care improvement (CCI) pilot program under traditional fee-for-service Medicare*. Prepared for Centers for Medicare & Medicaid Services.

Gage, B., & Bartosch, W. (2006, January). *Changes in the supply of Medicare post acute care providers.* Prepared for Centers for Medicare & Medicaid Services (Contract No. 500-00-0030, T.O. #2).

Gage, B., Green et al, J. (2006, January 25). The state of the art: Current CMS PAC instruments, Chapter 2 in *Uniform Patient Assessment for Post-Acute Care.* Final report (A. Kramer & D. Holthaus), Division of Health Care Policy and Research, University of Colorado at Denver and Health Sciences Center. Prepared for the Centers for Medicare & Medicaid Services under subcontract to IFMC (Contract No. IFMC 500-2IA03).

Wiener, J., Gage, B., Rabiner, D. J., Brown, D. W., Maier, J., Mitchell, N., Osber, D. S., & Walsh, E. G. (2006, January). *Assessment of Title III-D of the Older Americans Act: Disease prevention and health promotion services.* Prepared for the U.S. Department of Health and Human Services.

McCall, N., Bernard, S., Cromwell, J., Brody, E., Burton, J., Gage, B., Rabiner, D., Smith, K., & Anderson, W. (2006, March). *Evaluation of Phase I of Voluntary Chronic Care Improvement (CCI) Pilot Program under traditional fee-for-service Medicare.* Final Evaluation Design Report prepared for Centers for Medicare & Medicaid Services.

Gage, B., Pilkauskas, N., Bartosch, W., Leung, M., Hoover, S., & Green, J. (2005, October). *Long-term care hospital (LTCH) payment system monitoring and evaluation.* Phase II Report. Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-00-0024, T.O. #20).

Gage, B., Bartosch, W. J., & Osber, D. S. (2005, September). Medicare post-acute care: Evaluation of BBA payment policies and related changes. Issues report. Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-96-0006, T.O.#4.

Gage, B., Bernard, S., Constantine, R., Greenwald, L., Root, E., Squire, C., Green, J., Osber, D., Gainor, B., & Steineman, M. (2005, July). *Development of quality indicators for inpatient rehabilitation facilities.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-00-0024, T.O. #4).

Gilman, B., Gage, B., & Osber, D. S. (July 8, 2005). *Impact of post-BBA rate adjustments under SNF PPS on access to non-therapy ancillary services.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-96-0006, T.O. #4).

McCall, N., Bernard, S. L., Cromwell, J., Burton, J., Gage, B., Rabiner, D. J., Brody, E. R., Smith, K. W., & Anderson, W. L. (2005, July). *Evaluation of phase I on voluntary chronic care improvement (CCI) pilot program under traditional fee-for-service Medicare.* Evaluation report. Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-00-0022).

Gilman, B., Gage, B., & Osber, D. (July 8, 2005). *Impact of transfer payment policy reform under Medicare's inpatient PPS on the use of post-acute care services.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-96-0006, T.O. #4).

Gilman, B., & Gage, B. (2005, June). *Impact of transfer payment policy reform under Medicare's inpatient PPS on the use of post-acute care services.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-96-0006, T.O. #4).

Gage, B., & Bartosch, W. J. (2005, June). *Changes in the supply of Medicare post-acute care providers.* Prepared for the Centers for Medicare & Medicaid Services Contract No. 500-96-0006, T.O. #4.

Cromwell, J., Gage, B., Drozd, E. M., Maier, J., Osber, D., Evensen, C., Richter, E., & Goldman, H. H. (2005, February). *Psychiatric inpatient routine cost analysis.* Final Report. CMS Contract No. 500-95-0058, T.O. 13.

Gage, B., Bartosch, W., & Green, J. (February 2005). *Long-term care hospital (LTCH) project approach* Phase I Report, Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-00-0024, T.O. #20).

Gilman, B. H., Gage, B., Haber, S., Hoover, S., Green, J., Ciemnecki, A., CyBulski, K., & Clusen, N. (2004, September 30). *Evaluation of the Vermont pharmacy assistance programs for low-income Medicare beneficiaries: Findings from the enrollee and nonenrollee surveys.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-95-0040).

Cromwell, J., Gage, B., Drozd, E., Maier, J., Osber, D., Evensen, C., Richter, E., & Goldman, H. (2004, May). *Psychiatric inpatient routine cost analysis.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-95-0058, T.O. #13).

Rabiner, D., & Gage, B. (2004, April). *Evaluation of the disease prevention and health promotion services program of the older American act: Summary of technical advisory group interviews.* Prepared for U.S. Department of Health and Human Services, Administration on Aging.

Rabiner, D., Brown, D., Bandel, K., Maier, J., & Gage, B. (2004, March). *Conceptual framework and literature review for the evaluation of the disease prevention and health promotion services program of the older American act.* Prepared for U.S. Department of Health and Human Services, Administration on Aging.

Gage, B., & Urato, C. J. (2003, June). *Examining gender and racial disparities among Medicare beneficiaries with chronic diseases: Stroke 1998.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-95-0058, T.O. #15).

Gilman, B. H., Gage, B., & Mitchell, J. B. (February 28, 2003). *Evaluation of Vermont pharmacy assistance programs for low income Medicare beneficiaries.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-95-0040).

Gage, B., Gilman, B., Bartosch, W., & Auerbach, D. (2002, December). *Medicare post acute care: Evaluation of BBA payment policies and related changes.* Interim report. Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-96-0006).

Cromwell, J., Gage, B., Drozd, E. M., Maier, J., & Richter, E. (July 15, 2002). *Psychiatric inpatient routine cost analysis.* Second Interim Report. Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-95-0058, T.O. #13).

Gage, B., Kautter, J., & Richter, E. (January 3, 2002). *Medicare rehabilitation therapy use, 1998.* Prepared for AARP, January 3, 2002.

Gage, B., Kautter, J., & Richter, E. (2002, January). *Medicare rehabilitation therapy use, 1998.* Report to AARP.

Gage, B. (December 18, 2001). *A Medicare primer: Rehabilitation therapy coverage in the new millennium.* AARP Contract No. 3000003226.

Cromwell, J., Gage, B., Drozd, E., Maier, J., & Richter, E. (September 29, 2001). *Report on the feasibility of a per diem prospective payment system for psychiatric facilities excluded from PPS.* Prepared for the Centers for Medicare & Medicaid Services (Contract No. 500-95-0058, T.O. #13).

Gage, B., Willis, J., Dallek, G., & Biles, B. (August 10, 2001). *Medicare+choice enrollments: After the fall part I (1998-1999).* Final report. Commonwealth Fund.

Gage, B., Miller, S. C., Coppola, K., Harvell, J., Laliberte, L., Mor, V., & Teno, J. (2000, February). *Synthesis and analysis of Medicare's hospice benefit: Executive summary and recommendations.* Prepared for the Office of Disability, Aging, and Long-Term Care Policy, ASPE, DHHS.

Gage, B., Miller, S. C., Mor, V., Jackson, B., & Harvell, J. (2000, February). *Important questions for hospice in the next century.* Prepared for the Office of Disability, Aging, and Long-Term Care Policy, ASPE, DHHS.

Gage, B., & Dao, T. (2000, February). *Medicare's hospice benefit: Use and expenditures1996 cohort.* Prepared for the Office of Disability, Aging, and Long-Term Care Policy, ASPE, DHHS.

Liu, K., Gage, B., & Kramer, A. (1998, August). *Medicare post-acute quality measurement: Selecting and evaluating eight targeted conditions.* Prepared for the Office of Disability, Aging, and Long-Term Care Policy, ASPE, DHHS.

Kramer, A., Eilertsen, T., Holthaus, D., Johnston, M., & Gage, B. (1998, July). *Medicare post-acute quality measurement: Selecting targeted conditions.* Prepared for the Office of Disability, Aging, and Long-Term Care Policy, ASPE, DHHS.

Liu, K., Gage, B., Stevenson, D., & Brennan, N. (1998). *Synthesis and analysis of Medicare's post-acute benefits and alternatives.* Prepared for the Office of Disability, Aging, and Long-Term Care Policy, ASPE, DHHS.

Gage, B., & Kerr, C. (1996, Fall). *Building a health information infrastructure to improve quality of care and healthcare efficiency: National meeting of business leaders.* Final Report, submitted to RWJ.

Gage, B., Lynch, A. M., & Miles, M. A. (1996). *Post-acute care providers in Medicare and the American health care system.* Report to Congress, Washington, DC: ProPAC.

Gage, B., Lynch, A. M., & Miles, M. A. (1996). *Post-acute and ambulatory care providers.* Report and Recommendations to the Congress, Washington, DC: ProPAC.

Ashby, J., Guterman, S., Fisher, K., Gage, B., et al (1996). *State variation in the resource costs of treating aged Medicare beneficiaries.* Congressional Report, Washington, DC: ProPAC.

Physician Payment Review Commission & the Prospective Payment Assessment Commission. (1995). Joint Report to the Congress on Medicare Managed Care, Congressional Report, Washington, DC: ProPAC.

Gage, B., & Thomas, S. (1995). *Health care use and insurance coverage in Medicare and the American health care system.* Report to Congress, Washington, DC: ProPAC

Gage, B. (1995). *Managed care recommendations.* Report and Recommendations to the Congress, Washington, DC: ProPAC.

Gage, B. (1994). *Managed care recommendations.* Report and Recommendations to the Congress, Washington, DC: ProPAC.

Arnold, S., Gage, B., & Harris, J. (1994, March). *Interim analysis of payment reform for home health services.* Congressional Report, C-94-02, Prospective Payment Assessment Commission.

Gage, B. (1993). *Case management effects on a long-term care population.* Ph.D. dissertation, Pennsylvania State University.

Committee on Energy and Commerce
U.S. House of Representatives

Witness Disclosure Requirement - "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

1. Your Name: Barbara Gage		
2. Are you testifying on behalf of the Federal, or a State or local government entity?	**Yes**	**No** X
3. Are you testifying on behalf of an entity that is not a government entity?	**Yes**	**No** X
4. Other than yourself, please list which entity or entities you are representing:		

5. Please list any Federal grants or contracts (including subgrants or subcontracts) that <u>you or the entity you represent have received</u> on or after October 1, 2011:

Evaluation of the Bundled Payment for Care Improvement (2013-2014). Consultant to the Lewin Group. This study is evaluating three of the bundled payment models supported by the CMS Innovation Center, including Model 2 (hospital and PAC retrospective payment), Model 3 (PAC retrospective payment) and Model 4 (hospital and physician prospective payment). This work includes case studies of 100 awardees and claims and assessment data analysis to examine the impact of bundled payments on cost, outcomes, and access to care.

Development of Standardized CARE items for LTSS Populations (2012-2016). Consultant to Truven Analytics. This study is providing technical assistance to states using the standardized LTSS item set for determining level of need for state Medicaid programs supporting LTSS populations.

Developing Alternative Payments for Therapy Services in Skilled Nursing Facilities (2013-2014). Consultant to Accumen. This study is examining alternative approaches for setting Medicare SNF payments for therapy services. The first year reviewed the literature, conducted a technical expert panel to gain stakeholder input, and proposed analyses to be conducted over the next two years.

ASPE-CMS Collaboration to Support the Center for Innovations Bundled Payments for Care Improvement Initiative *(2011-2012)—Principal Investigator*. This study is assisting the CMS Innovation Center in analyzing proposals submitted for their Bundled Payments for Care Improvement Initiative. This is a major initiative for the Administrator as it allows the provider community to partner with the Administration in developing alternative payment approaches that can better align incentives among the many providers involved in patient care. Applicants will be applying to participate in at least one of four bundled payment approaches. The first model examines the potential savings and outcomes associated with discounted payments to inpatient acute hospitals. The second model examines the potential savings and outcomes associated with discounting bundles of

payments for hospitals, physicians, and post-acute care (PAC) providers involved in an episode of care. The third model is similar to model 2 but will exclude the hospital portion of the stay and examine the potential for savings associated with just the PAC portion of the episode. The fourth model differs from the first 3 by using prospectively administered payment approaches for the acute stay portion of the episode. This model may bundle physician and hospital costs incurred during the inpatient stay. Additional models are planned for the future.

Analysis of The Classification Criteria For Inpatient Rehabilitation Facility (2008-2012) —*Principal Investigator*. The Medicare, Medicaid and SCHIP Extension Act (MMSEA) of 2007 directed CMS to prepare and submit a report to Congress on certain issues involving the 60 percent rule. For this report, CMS was to report on Medicare beneficiaries' access to medically necessary rehabilitation services, consider, with the input of various stakeholder groups, potential refinements to the 60 percent rule, and compare the relative costs and outcomes of rehabilitation patients with conditions outside the 13 qualifying groups, when they are treated in settings other than IRFs. This study is using multiple methods, including expert opinion through Technical Expert Groups (TEP), claims analysis and CARE data analysis to address these questions. TEP input was useful for identifying issues to examine in the secondary data analysis. Differences in severity, outcomes, and program costs were the primary dependent variables in these analyses.

Post-Acute Care Payment Reform Demonstration (PAC PRD): ***Project Implementation and Analysis*** (2007 to 2012)—*Principal Investigator*. The Post-Acute Care Payment Reform Demonstration was mandated by the Deficit Reduction Act of 2005 to examine the relative costliness and outcomes of post acute cases admitted to different settings for similar conditions. This study is collecting primary data, analyzing administrative data, and conducting site visits to 11 geographically diverse markets. This demonstration will use the standardized Medicare Continuity Assessment Record and Evaluation (CARE) patient assessment instrument to measure patient severity and case-mix across settings. Cost and resource data will also be collected in the PAC settings. Participating providers include short stay acute hospitals which will submit standardized information on patient severity at discharge; and the four post acute settings (inpatient rehabilitation hospitals, long-term care hospitals, skilled nursing facilities, and home health agencies) which will each submit patient severity information at admission and discharge and cost and resource use data. The data will be used, along with Medicare claims and cost report data, to examine substitution issues among post acute providers, including differences in costs and outcomes, all else equal. The results will be used to provide CMS and Congress information on setting-neutral payment models, revisions to single setting payment systems, current discharge placement patterns, and patient outcomes across settings.

Post-Acute Care: Patient Assessment Instrument Development. (2006 to 2012)—*Principal Investigator*. This CMS-funded project is developing a standardized set of patient assessment items for the Medicare program that will build on the assessment data currently used in acute hospitals and long-term care hospitals intake and monitoring assessments and mandated in 3 of the PAC settings, (the IRF-PAI in rehabilitation hospitals, the MDS in skilled nursing facilities, and the OASIS in home health agencies). Experts from each of the different levels of care are participating in its development. The study also includes two technical expert panels for feedback from the industry and the research community as well as pilot tests of the standardized items. This instrument, the Medicare Continuity Assessment Record and Evaluation (CARE), is designed to measure differences in patient severity, resource utilization, and outcomes for patients in acute and post-acute care settings. The items are being used by CMS to develop a set of standardized assessment items that can be used across hospital and PAC settings.

Developing Outpatient Therapy Payment Alternatives. (2008-2013)---*Principal Investigator*. This study will identify, collect, and analyze therapy-related information tied to beneficiary need and the effectiveness of outpatient therapy services. The ultimate goal is to develop payment method alternatives to the current financial cap on outpatient therapy services. Outpatient therapy services are composed of physical therapy (PT), occupational therapy (OT), and speech language pathology (SLP). Attempts to address the increased expenditures through payment policy changes led to the realization that CMS cannot adequately assess the appropriateness of utilization patterns or the impact of changes in payment policy without access to better information tied to patient need and the effectiveness of outpatient therapy services. This five year project was conceived to address that lack of therapy-related information tied to beneficiary need and the effectiveness of outpatient therapy services. In order to collect the needed data, the project involves (1) the development of a data collection strategy, including the recruitment of therapy providers to participate in data collection, (2) analysis of the resulting data to identify payment alternatives to therapy caps, and (3) close engagement with the stakeholder community throughout the project.

Analysis of Crosscutting Medicare Quality Metrics Using the Uniform Assessment Tool Developed and Tested as Part of the CMS Post-Acute Care Payment Reform Demonstration *(2011-2012) — Principal Investigator*. This study is providing the Assistant Secretary for Planning and Evaluation/Health Policy (ASPE/HP) and the Centers for Medicare & Medicaid Services (CMS) with recommendations for crosscutting functional status quality metrics for use at the time of hospital discharge and across Medicare post-acute care (PAC) settings, including inpatient rehabilitation facilities (IRFs), acute long-term care hospitals (LTCHs), skilled nursing facilities (SNFs), and home health agencies (HHAs). Data from the uniform assessment tool (i.e., the Continuity Assessment Record and Evaluation or CARE tool) collected during the CMS PAC Payment Reform Demonstration (PAC PRD) will be used to provide standardized information on functional status and the factors affecting these outcomes in these five settings.

Development of a National Prototype: Continuity Assessment Record and Evaluation (CARE)(2008-2012)--- *Principal Investigator*. This work is providing support for ongoing CMS efforts to develop a national prototype of the CARE assessment items and to provide technical support to other CMS efforts using the CARE items to develop a health information exchange pilot test (CHIEP). This effort also provided support in developing open source software for the CARE items and coordinating efforts with the Office of the National Coordinator.

6. If your answer to the question in item 3 in this form is "yes," please describe your position or representational capacity with the entity or entities you are representing:

7. If your answer to the question in item 3 is "yes," do any of the entities disclosed in item 4 have parent organizations, subsidiaries, or partnerships that you are not representing in your testimony?	**Yes**	**No**

8. If the answer to the question in item 3 is "yes," please list any Federal grants or contracts (including subgrants or subcontracts) that were received by the entities listed under the question in item 4 on or after October 1, 2011, that exceed 10 percent of the revenue of the entities in the year received, including the source and amount of each grant or contract to be listed:
9. Please attach your curriculum vitae to your completed disclosure form.

Signature:____[redacted]

[redacted]_____**Date:**__**5/20/14**_____