



Specialty Payment Model Opportunities Assessment and Design

Preliminary Assessment of Model Opportunities

Contract #: HHSM-500-2012-
000081

December 10, 2013

Revised December 19, 2013
Revised August 5, 2014

Prepared for:
Mary Kapp, Centers for Medicare &
Medicaid Services

Prepared by:
Mark McClellan
John O'Shea
Christine Dang-Vu
Sara Bencic
Sarah Bleiberg
Judith Tobin

Table of Contents

Introduction..... 3

Methodology..... 4

Recommended Specialties 5

 Cardiology: 6

 Orthopedic Surgery:..... 9

 Ophthalmology: 10

 Urology: 11

 Cardiothoracic Surgery: 13

 Vascular Surgery:..... 14

 Gastroenterology:..... 15

 Rheumatology:..... 17

 Anesthesiology:..... 17

 Nephrology: 18

 Neurology: 19

 Radiology:..... 21

 Emergency Medicine: 22

Lower Priority Specialties..... 23

 Dermatology: 23

 General Surgery: 23

 Neurological Surgery: 24

 Pathology: 25

 Otolaryngology: 25

 Endocrinology:..... 26

Other Stakeholders..... 27

 Payers..... 27

 Thought Leaders 29

Conclusion 31

Appendix A: Stakeholders By Specialty..... 37

Appendix B: Bibliography By Specialty 38

Specialty Payment Model Opportunities Assessment and Design: Preliminary Assessment of Model Opportunities

INTRODUCTION

In support of the efforts of the Center for Medicare and Medicaid Innovation (CMMI) to test new payment and delivery models, the Specialty Payment Model Opportunities project will assess the potential to develop new payment and delivery models within oncology care and other specialty areas that will result in more coordinated care, improved person-centered health outcomes and lower costs. There is broad agreement among stakeholders and health care analysts that a transition from the current volume-based fee-for-service (FFS) reimbursement system to a system that focuses on payments that align physician reimbursement with care delivery that improves the overall quality and experience for the patient is urgently needed.¹ Similar to the framework put forth for the first specialty, oncology, the Brookings team has adopted a similar payment reform approach for the specialties discussed in this report. That is, payment reforms moving forward will include some payments that are not traditional FFS. In addition, payment models should evaluate performance with meaningful quality metrics and include incentives to control costs. To assess the potential for model development, the Brookings team has engaged with a broad array of stakeholders, thought leaders, and experts, including providers, payers, advocacy groups, and policy experts, to conduct a broad scan of a number of clinical care areas to assess opportunities for developing alternative models of care and the payment structures to support those models.

While many of the interviews were with individual specialty organizations and this report is presented according to individual specialties, the Brookings team approached this assessment from the point of view of identifying, wherever possible, episodes of care or clinical conditions not necessarily confined within a single specialty, but that offered possible opportunities to develop payment reform models that could promote better coordination by involving providers across multiple specialties.

In examining the potential for payment reform in 21 specialty areas, the Brookings team considered, among other factors, whether the specialty had a large impact in terms of Medicare Part B spending²; whether there was high variability in care and spending for similar patients with the condition being treated; whether there were proposed or current models underway; and whether there were meaningful quality measures and a data infrastructure to support model development. These criteria along with other factors were used to recommend specialties and episodes of care that should be considered for developing Alternative Payment Models (APMs). It is worth noting that some of the specialty groups have applied for CMMI grants to evaluate their respective payment models and do not want to complicate their existing proposals with this project. Moreover, there may be overlap between the recommendations put forth by the Brookings team for developing APMs and CMMI's current Bundled Payment for Care Improvement (BPCI) Initiative; throughout this report, the Brookings team will note any similar models.

¹ The Brookings Institution. *Bending the Curve: Person-Centered Health Care Reform: A Framework for Improving Care and Slowing Health Care Cost Growth*. April 2013.

² Data on overall spending (including Parts A & D) according to specialty is more difficult to find.

METHODOLOGY

In order to identify the most promising opportunities to develop APMs as a pathway to specialty physician payment reform, the Brookings team first identified specialties and subspecialties of interest through the American Board of Medical Specialties and then conducted interviews with clinical and health policy leaders in those specialties.³ In addition to individual specialties, the Brookings team attempted to identify episodes of care or clinical conditions that show opportunity to improve care and lower costs. Certain broad criteria were considered in this regard. The ideal episode of care or clinical condition is one where there is a large cost burden on the Medicare program and where there is variability in the nature, amount or quality of care that patients receive; suggesting that a change in care, supported by payments aligned with quality metrics, could result in improved clinical results and lowered costs.

The first task for deciding on specialties to evaluate was to eliminate specialties and subspecialties that did not meet basic inclusion criteria. If the specialty or subspecialty does not serve a Medicare population or if the overall spending impact is low it was eliminated from consideration. Examples of these types of specialties include pediatrics and obstetrics. The Brookings team then identified appropriate contacts from each specialty or subspecialty under consideration. This person might be a leader of an individual specialty or subspecialty organization, a prominent thought leader in the field, an expert in physician payment, or another individual identified by the team. In addition to leaders in the specialties or subspecialties, Brookings sought input from broader, non-specialist organizations that provided insight on how payment for specialty care could be reformed. The team also spoke with payer organizations that hold a large stake in the development of payment models, as many of them are already participating in innovative payment models in the private market and can provide helpful guidance.

Brookings conducted 26 exploratory interviews with the identified experts, payers, and non-specialist organizations. Following the interviews, the Brookings team compiled the information from the interviews, in addition to available data on Medicare Part B spending⁴, to develop recommendations to present to CMMI on the most promising specialties and conditions in terms of the potential to develop APMs. This report is organized into three sections summarizing the information gathered from the interviews: Recommended Specialties, Lower Priority Specialties, and Other Stakeholders. All bibliography sources for these interviews can be found in the Appendix.

³ The American Board of Medical Specialties (ABMS) is charged with working alongside 24 medical specialties, as well as additional subspecialties to determine the standards and certifications of practicing physicians. The Brookings team believes the ABMS list of medical specialties and subspecialties is a comprehensive list of all specialties and subspecialties under consideration for payment model design and evaluation.

⁴ Data on overall spending (Parts A & D) according to specialty is more difficult to find.

Table 1: Medicare Part B Spending for the Most Promising Specialties (Ordered from most spending to least spending)

Specialty	Part B Spending
Cardiology	\$ 5,849,477,983
Ophthalmology	\$ 5,135,417,048
Diagnostic Radiology	\$ 4,154,743,956
Orthopedic Surgery	\$ 2,867,715,865
Emergency Medicine	\$ 2,146,383,099
Dermatology	\$ 2,130,148,076
Urology	\$ 1,808,028,815
General Surgery	\$ 1,727,541,030
Nephrology	\$ 1,694,244,274
Anesthesiology	\$ 1,532,524,467
Gastroenterology	\$ 1,438,790,464
Neurology	\$ 1,288,215,625
Rheumatology	\$ 1,069,549,699
Pathology	\$ 952,622,333
Otolaryngology	\$ 759,597,621
Cardiothoracic Surgery	\$ 598,234,517
(Cardiac Surgery)	\$ 303,991,692
(Thoracic Surgery)	\$ 294,242,825
Vascular Surgery	\$ 591,194,286
Neurological Surgery	\$ 523,059,799
Endocrinology	\$ 372,232,545

Note: The specialties highlighted were identified as the most promising specialties for CMMI to explore.

Source: Centers for Medicare and Medicaid Services (CMS)/OIS, Part B Analytics Report, 2010.

RECOMMENDED SPECIALTIES

The following are the specialties the Brookings team identified as the most promising for conducting further research on APMs based on high Medicare Part B spending⁵, significant variability of care, proposed or current models underway, and quality and data infrastructure, ordered from greatest to least potential.

⁵ The Brookings team did not include data on overall spending (Parts A & D) according to specialty because it is more difficult to find.

CARDIOLOGY:

Part B spending in 2010: \$5,849,477,983

A leading cardiology specialist interviewed for this report described the Smarter Management and Resource Use for Today's Complex Cardiac Care (SMARTCare) model, developed by the American College of Cardiology (ACC), as the most fully developed model in cardiology. The stakeholder also related that this model has been submitted for a CMMI Health Care Innovation Award. SMARTCare is designed to improve the management of **chronic coronary artery disease (CAD)**, beginning with the ordering of a stress test either for patients in a stable phase of the disease or for those who show symptoms and have a history that puts them at increased risk. This model aims to improve quality and reduce cost by improving decision-making in three key areas: 1) the appropriateness of noninvasive cardiac imaging, 2) the treatment choice between medical therapy, stenting, and bypass surgery, and 3) medication lifestyle-change adherence. SMARTCare also places an emphasis on shared decision making between the patient and physician. SMARTCare uses six distinct tools to accomplish these goals including: FOCUS which embeds population risk models into electronic medical records (EMRs) or a web portal at the point of care; HealthDialog which is a patient education tool; ePRISM, another patient education tool specifically for informed consent; INDIGO, also for patient education, which creates customized risk profiles; NCDR/FOCUS benchmarking for quality measure reporting; and performance improvement models. These tools will provide customized benefit and risk information for each patient available in real time in the clinical setting. Feedback and continuous monitoring will allow the model to adapt and develop over time.⁶

Under this model, an episode payment would be triggered by an imaging procedure and would cover Evaluation and Management (E&M) codes, imaging, cardiac catheterization, and therapeutic interventions for a six month period. The payment amount would be determined by an evaluation of the average, risk-adjusted cost of this set of services. The goal of this payment model would be to move provider incentives away from more aggressive treatments to use of evidence-based and patient-preferred treatments wherever possible. Based on CMS data from 2011, the SMARTCare model, when implemented nationally, could save Medicare \$1.08 to \$3.48 billion per year by reducing resource utilization 10 to 30 percent.⁷ There is a high level of interest within at least one large professional organization interviewed for this report, and many providers have already been moving in the direction of this model. One state chapter of this organization and a specialty society in the same state have worked with integrated health systems, measurement and data groups, and business coalitions, and another state chapter has also developed partnerships with several provider organizations. These pre-existing partnerships demonstrate the interest in this model and suggest that it could be implemented quickly.

Beyond the SMARTCare model, the physician interviewed identified **atrial fibrillation**⁸ as another condition that presents a good opportunity for developing condition based payment models. However, at this time, no specific model has been developed. An episode of care around atrial fibrillation is a good opportunity for many reasons: it is treated by many specialties and

⁶ *A Pathway to Evidence-Driven Payment Reform in Cardiology*. American College of Cardiology.

⁷ *SMARTCare Abstract*. American College of Cardiology.

⁸ BPCI Models 2-4 includes a cardiac arrhythmia episode.

would provide an opportunity to promote collaboration; there is also an opportunity for prevention in treating and avoiding certain predisposing conditions such as diabetes, hypertension, and sleep apnea; and there is significant variation in treatment.

Variation in treatment around atrial fibrillation includes certain clinical decisions, specifically rate control versus rhythm control with the use of medications or the use of an ablation procedure. For patients who require anti-coagulation, there is also the decision of which type of anti-coagulation to use. The specialty organization interviewed has identified the use of anticoagulants for patients with atrial fibrillation as an area for significant opportunity to reduce morbidity and cost in cardiology due to reductions in bleeding complications and embolic events. In the past, warfarin was the standard of care for anticoagulation therapy; however, more recent developments of several new anticoagulants which are available in fixed doses and do not require drug-level monitoring present additional and potentially improved options.⁹ To help physicians navigate these options and meet updated treatment guidelines, this organization recently launched the Anticoagulation Initiative. There are already a number of tools available as a part of this effort including: The AnticoagEvaluator Mobile App, which evaluates stroke risk and the benefits and risks of antithrombotic therapy; the Atrial Fibrillation Clinical Toolkit to provide physicians with the most recent evidence regarding best treatment practices; the Anticoagulation Management Clinical Community, an online forum with relevant news, cases, and discussions; and the Anticoagulation Shared Decision Making Tool, which is designed to help physicians work alongside patients to make a decision regarding anticoagulation therapy.¹⁰ While the size of the problem requires further evaluation, many efforts are in place already to improve anticoagulation status including anticoagulation clinics.¹¹

Transcatheter Aortic Valve Replacement (TAVR) presents a good opportunity because of the availability of registry data that provides detail on which patients receive TAVR, their outcomes, and the potential to create guidelines. In the past, Surgical Aortic Valve Replacement (SAVR) had been the preferred therapy for severe aortic stenosis, but TAVR has become more accepted as a good option for patients who are not ideal candidates for open surgery as well as some operable patients for whom TAVR could reduce morbidity and mortality. TAVR outcomes continue to improve and as more research becomes available, the decision to perform TAVR as opposed to SAVR could be a key decision point for a new payment model.¹² In terms of a model involving TAVR, one option would be to design a bundle around the procedure including the cost of the device, or it could be folded into an episode around heart failure. However, due to small numbers this option may be limited for the purposes of this project.

The specialty organization interviewed has also done an evaluation of other conditions, procedures, and treatments that present good opportunities to reduce cost and increase the quality

⁹ Cove CL and Hylek EM. An Updated Review of Target-Specific Oral Anticoagulants Used in Stroke Prevention in Atrial Fibrillation, Venous Thromboembolic Disease, and Acute Coronary Syndromes. *Journal of the American Heart Association*. 2013.

¹⁰ *Anticoagulation Initiative*. American College of Cardiology. <http://www.cardiosource.org/Science-And-Quality/Quality-Programs/Anticoagulation.aspx>

¹¹ *Cardiology Payment Models*. American College of Cardiology.

¹² Webb JG and Wood DA. Current Status of Transcatheter Aortic Valve Replacement. *Journal of the American College of Cardiology*. 2012. 60:483-92.

of care within cardiology. The first is to decrease the use of **diagnostic catheterization** on patients with low probability of CAD. Medicare spends over \$10 billion per year on diagnostic catheterization, and many people with non-cardiac symptoms face delays, anxiety, and the risks of adverse events during these procedures. One study estimated that improving practices in this area could significantly reduce the number of procedures without a significant effect on outcomes.¹³ This is an area of opportunity due to its high cost, but requires further analysis at the patient level to evaluate alternatives to diagnostic catheterization. Additionally, according to this organization, to achieve success in this area, physicians would need access to decision support tools to assist with evaluating the patient's risk of CAD, and the payment reform would need to promote coordination of care between primary care providers and cardiologists.

Heart failure is another condition for which the use of hospital care, including both admissions and readmissions, could be greatly reduced in order to improve the quality of care and reduce costs. Annual direct medical costs have been estimated at \$39.2 billion, with over 70% attributed to inpatient care.¹⁴ Potential interventions to reduce hospitalization include improving patient self-management of disease, medication compliance, and transitions of care. Initial episode and bundled payment models are in the early testing phases in this area.¹⁵ The organization interviewed related that developing a model around congestive heart failure (CHF) would be complicated and may not fit the timeline of the project. Also, you may need to be fairly granular about the Stage of CHF to target. However, Stage 1 may not have much potential for savings, since this is mostly outpatient care. Stages 2 and 3 involve hospital care, but how these interact with the current CMMI Bundled Payments for Care Improvement (BPCI) program is unclear. Stage 4 CHF would likely involve end of life issues that may complicate model development in terms of this project.

Two additional areas for further exploration are improving the appropriateness of the use of **Implantable Cardioverter-Defibrillators (ICDs)** and the appropriateness of **cardiac imaging**. The specialty organization interviewed has identified this as an area in which their registry could improve appropriateness, but further study is necessary. Additionally, various studies suggest that the cost of evaluation of patients at risk for CAD could be reduced 25 to 40 percent through various strategies aimed at reducing imaging for patients at lower risk.¹⁶ Bundling or partial capitation is one option, but this area also requires further evaluation.

¹³ Douglas, et al, Use of stress testing and diagnostic catheterization after coronary stenting: association of site-level patterns with patient characteristics and outcomes in 247,052 Medicare beneficiaries. *J Am Coll Cardiol*. 2013 Jul 30;62(5):439-46. Shah BR, McCoy LA, Federspiel JJ, Murdrick D, Cowper PA, Masoudi FA, Lytle BL, Green CL, Douglas PS. Use of stress testing and diagnostic catheterization after coronary stenting: association of site-level patterns with patient characteristics and outcomes in 247,052 Medicare beneficiaries. *Journal of the American College of Cardiology*. July 2013. 62(5):439-46.

¹⁴ Allen L, Smoyer T, Wilson K, Smith D, Agodoa I. The Inpatient Experience and Predictors of Length of Stay for Patients Hospitalized with Systolic Heart Failure: Comparison By Commercial, Medicaid, and Medicare Payer Type. *Journal of Medical Economics*. 2013;16(1):43-54.

¹⁵ *Bundled Payments for Care Improvement (BPCI) Initiative: General Information*. CMS. <http://innovation.cms.gov/initiatives/bundled-payments/>

¹⁶ Willet WC, Kaplan JP, and Nugent R. Prevention of Chronic Disease by Means of Diet and Lifestyle Change. *Disease Control Priorities in Developing Countries, Second Edition* (2006).

ORTHOPEDIC SURGERY:

Part B spending in 2010: \$2,867,715,865

Hip fracture¹⁷ is a promising area for reform because it is a high spending area for Medicare with considerable variability in treatment. Out of 302,000 hospital inpatient discharges for hip fracture in 2010, 85 percent were Medicare beneficiaries.¹⁸ The total amount of hospital charges for hip fracture in 2010 was \$15.5 billion, with \$13.2 billion incurred by Medicare beneficiaries.¹⁹ Due to the significant health impact for patients, the high cost of hip fracture for the health care system, and the inconsistency in treatment for many hip fracture patients, it is a potential area to test and implement an APM.

One opportunity is to create a bundle for hip fracture across specialties, such as primary care and anesthesiology. A potential bundled payment for hip fracture care could include paying for a defined period of care during or after an inpatient stay. Payments for care coordination or for continuity of care that could reduce overall costs by avoiding preventable complications and readmissions could also be part of the bundle.

Additionally, there are already efforts underway, including the development of clinical practice guidelines and quality measures. These guidelines along with outcome reporting could be tied to payment, thus creating an incremental step to a more significant shared savings model. The measures, however, are still in the development phase.

One professional organization interviewed for this report also emphasized that significant cost savings could be achieved by avoiding hip fractures. Focusing on patients with a prior fragility fracture is a good group to start with, and the model they proposed was similar to a medical home with a care manager or a fracture liaison service (FLS) coordinating care for fracture patients. This coordinated, preventive care model would operate under the supervision of a bone health specialist and collaborate with the patient's primary care physician. An FLS coordinator could be a nurse or other health professional who would work to ensure that the patient receives appropriate diagnosis, treatment, and support. In addition to this coordination, the model would track patients with recent fractures through a population registry and establish processes and timelines for patient assessment and follow-up. Having an FLS could reduce secondary fractures and achieve cost savings. An accountable care organization (ACO) could also incentivize this type of care management change.

One orthopedic specialist we spoke with also identified **total joint arthroplasty**²⁰ as another area for a potential model since there are some initial programs around the country. The Medicare Acute Care Episode (ACE) demonstration, which ran from 2009 to 2012, tested

¹⁷ BCPI Models 2-4 includes a hip fracture episode that includes the costs for a defined period of care during or after an inpatient stay.

¹⁸ Wheeler, A., American Academy of Orthopedic Surgeons (AAOS) White Paper: "Burden of Hip Fracture in the United States," August 2013.

¹⁹ Ibid.

²⁰ BPCI Models 2-4 includes a total joint arthroplasty. The Models 2 episode bundle includes acute and post-acute care costs for 30-60-and0-day episode lengths.

bundled payments acute care episodes in Medicare FFS for hip and knee replacements.²¹ The goal for the ACE demonstration was to improve quality for beneficiaries, produce savings, and increase collaboration among providers. CMS' current Bundled Payments for Care Improvement Initiative (BPCI) builds upon the work of the ACE demonstration and includes an episode for major joint replacement of the lower extremity.²² A model for total joint arthroplasty could include payments to the orthopedic surgeon, surgical assistant, anesthesiologist, radiologist, and consulting physicians. Thus, further work in this area could focus on helping joint replacement providers transition to episode-based payments.

There has also been work on developing a registry for orthopedic surgery. The American Academy of Orthopedic Surgeons has developed the American Joint Replacement Registry (AJRR), which collects data on patients undergoing joint arthroplasty at member hospitals. The AJRR has gathered information and data on over 19,000 procedures through pilot hospitals. Since there is less variability in total joint arthroplasty, it is a less promising short-term model than hip fracture for physician payment reform, though potentially a good candidate for reforms to support the transition to fully bundled payments.

OPHTHALMOLOGY:

Part B spending in 2010: \$5,135,417,048

One ophthalmology specialist interviewed discussed four conditions that offer possible opportunities for APMs: cataracts, macular degeneration, glaucoma, and diabetic retinopathy.

This physician thinks it should be relatively easy to design a bundle around the treatment of **cataracts** and that this could address the large variation in cost of treatment that is dependent on site of service, by promoting effective cataract treatment in less costly settings. CMS pays roughly 35 to 40 percent more for cataract procedures if done in the outpatient department rather than a free standing ambulatory surgery center (ASC), despite similar outcomes.²³ A hypothetical bundle could include: pre-operative evaluation done within 30 days of the procedure including pre-operative lab tests; surgical fee; facility payment; anesthesia fee, post-op care, drugs, and re-operation. To achieve significant savings, the payment reform pilot would have to be implemented in a way that addresses the site-of-service payment differential and thus supports moving procedures to lower-cost, clinically appropriate settings. The re-operation rate is low (2 to 5 percent) for cataracts. At present, the data is not available for Part D drug costs, but these will be important to examine in the future.

Macular degeneration is a leading cause of blindness, and much of the cost is dependent on Part B drugs that have the same efficacy with highly variable costs (between \$46 and \$2000).

²¹ *Medicare Acute Care Episode Demonstration for Orthopedic and Cardiovascular Surgery*. Centers for Medicare and Medicaid Services. http://www.cms.gov/Medicare/Demonstration-Projects/DemoProjectsEvalRpts/downloads/ACE_web_page.pdf

²² *Bundled Payments for Care Improvement (BPCI) Initiative: General Information*. Centers for Medicare and Medicaid Services. <http://innovation.cms.gov/initiatives/bundled-payments/>

²³ See: Medicare Payment Advisory Commission, March 2013 Report to Congress. http://www.medpac.gov/documents/Mar13_entirereport.pdf; and Medicare Payment Advisory Commission, March 2012 Report to Congress. http://www.medpac.gov/documents/Mar12_EntireReport.pdf.

The use of expensive drugs is similar to the situation in oncology. The price of drugs could be addressed by paying a care coordination or care management fee that would be linked to adherence to guidelines and certain practice improvement activities (similar to what some oncology models do). CMS could also examine variations in spending for in-office exams and imaging by paying for a time defined episode of care. The physician interviewed thinks a year-long episode that includes the annual costs for treatment could be easily modeled.

An additional area of opportunity is the development of an episodic payment around the treatment of **glaucoma**. There are potential savings from appropriate use of drugs, standardizing the use of diagnostic testing in the office, and possibly including optometrists as well as primary care providers in care coordination. Since currently there does not seem to be overutilization of major procedures for glaucoma treatment, a time defined episode rather than a bundled payment that includes a procedure may be most appropriate.

Lastly, **diabetic retinopathy** is a promising area, partially due to the robust interaction with primary care that it requires. Important drivers of outcome improvement include control of Hemoglobin A1C, blood pressure, and lipid levels that are not adequately controlled in many diabetics. Clinical decision tools could be used to decide between treatment options, such as the use of repeated drug injections or laser surgery. The model could include education of and coordination with primary care providers by ophthalmologists to support proper management of non-complicated cases and specialist referral at the appropriate time.

The professional organization interviewed for this report has developed 18 quality measures, although none of these have been accepted by the National Quality Forum (NQF). However, there are guidelines and standards for comparative effectiveness. This organization currently has active patient registry and quality measure development initiatives and anticipates that in excess of 2,000 physicians will be participating by 2015.

UROLOGY:

Part B spending in 2010: \$2,130,148,076

One professional organization interviewed for this report has considered APMs for a number of genitourinary conditions, including urinary tract infection (UTI), urinary calculi, prostate cancer and Benign Prostatic Hyperplasia (BPH). To date, however, they have not actually designed or implemented a model.

A leading specialist in genitourinary care interviewed believes the clinical condition that holds the most potential in terms of developing an APM is **Benign Prostatic Hyperplasia (BPH)**. BPH affects approximately 25 million men annually²⁴, and a significant proportion of them are Medicare beneficiaries.

²⁴ Rosenberg MT, Staskin DR, Kaplan SA, MacDiarmid SA, Newman DK, Ohl DA. A practical guide to the evaluation and treatment of male lower urinary tract symptoms in the primary care setting. *International journal of clinical practice*. Sep 2007;61(9):1535-1546.

There is also a considerable amount of variation in how patients with BPH are evaluated and managed. There are a number of decision points in the management around testing and around medical versus surgical treatment that provide an opportunity for payments that are better aligned with evidence-based care and patient preferences, and that could result in significant savings to Medicare. There is also a mechanism to track outcomes through the use of a symptom score based on quality of life that has a very specific endpoint. In addition, the professional organization interviewed has developed specific clinical guidelines that incorporate reliable evidence that could easily be used as quality measures.

Coordination among primary care, urologists and, if needed, other specialists is generally limited to the decision about when the PCP should hand the patient off to the urologist. However, the genitourinary specialist we spoke with feels that coordination around this key decision could be improved. Also, as mentioned, there are important decision points about the use of testing and how long to treat medically and when to intervene surgically. These critical decision points could be addressed through the use of clinical decision tools and/or clinical guidelines.

In terms of an appropriate model for BPH, payment for a time limited episode of care would seem to be most appropriate. This could encourage the use of clinical guidelines and/or clinical decision support tools. Since management of BPH (co-morbidities notwithstanding) usually involves only primary care and urologists, it may be unnecessary to make payment changes involving primary care to promote care coordination.

Prostate cancer was also discussed as a possible condition. Although prostate cancer has many of the features that were considered favorable to model development (high Medicare spending impact, variability in care and costs, a number of treatment decision points, existing guidelines for localized and metastatic disease, well defined risk factors), it was thought that this area was less appropriate for this project. For one thing, the treatment of prostate cancer includes a broad array of treatment options, which would require agreement and coordination among many specialists as to proper treatment. It is also harder to measure outcomes, since the disease tends to be indolent. In order to fashion a model around prostate cancer, it may be necessary to be more granular, i.e. to consider only localized or metastatic disease or consider payment around an episode of care, such as surgery or radiation. In addition, the Specialty Payment Model Opportunities project is already pursuing model development in oncology.

In addition to the interview, the physician we spoke with referred the team to a discussion of how urology practices possess the infrastructure and working time needed to serve as medical homes for patients requiring follow-up care for certain GU-related cancers.²⁵ The models under development in oncology might be applied here.

Another condition cited by the professional organization interviewed was **urinary tract infection (UTI)**. The team felt that this provided less opportunity due to the patient demographics because there is not likely to be the significant Medicare impact as there is with, for example, BPH. The same is true for **urinary calculi**.

²⁵ Sakshaug JW, Miller DC, Hollenbeck BK, Wei JT, Hollingsworth JM. Urologists and the Patient-Centered Medical Home. *The Journal of Urology*. 2013.

Thus far, this organization does not have a registry due to the significant expense of creating one. Other than a few prostate cancer related measures that have been accepted by NQF, their measures development work is not very mature, they cited the difficulty of the current measure approval process. However, they do have a few prostate cancer guidelines that could be used for measure development.

CARDIOTHORACIC SURGERY:

Part B spending in 2010: \$598,234,517

One specialty society interviewed discussed the success of the Virginia Cardiac Surgery Quality Initiative (VCSQI). The VCSQI is a consortium of 17 hospitals and 13 cardiac surgical practices providing open-heart surgery. They perform nearly all of the state's open-heart procedures.²⁶ The group works to compare and exchange data and information to improve the quality of thoracic surgery care and reduce costs by eliminating complications, improving efficiency, and lowering resource use. The collaborative model includes protocols for data collection and testing of key indicators, incentives (e.g., agreed-upon benefits and rewards) for the hospitals and surgery practices involved, and a dashboard for tracking outcomes.

VCSQI has worked to develop several alternative payment arrangements for cardiac surgery. In 2002, VCSQI submitted an unsolicited demonstration proposal to CMS for a global pricing model for hospitals and surgical providers, specifically for **coronary artery bypass procedures**²⁷ and for **valve replacement/repairs**²⁸ (both with and without cardiac catheterization). Although CMS did not implement the proposed demonstration project, the global payment concept was used during the acute care episode (ACE) demonstration for cardiac surgery and joint replacement. VCSQI has also promoted a pay-for-performance arrangement that would provide initial payments to surgeons and hospitals for participating in a clinical data registry followed by payments for improvement on both process and outcomes measures.

The VCSQI created a clinical tool by blending the interviewed organization's database with CMS claims data. They have since used this tool successfully to identify high risk and high cost areas and then focused on reducing complications and wasteful resource utilization in these areas. In both atrial fibrillation and transfusion reduction they were able to initiate new programs with significant savings and improved quality. Currently, there is no shared savings arrangement built around the use of the database, but it is a first step towards using clinical risk adjusted data with administrative cost data to drive savings.

The next step for a model in thoracic surgery is to develop an incentive plan to use the system appropriately. Options would be to tie payment to registry participation and implementing practices to reduce complications and wasteful resource utilization in high risk and high cost areas, with the option of moving to a shared savings model. This payment reform could also

²⁶ Speir A, Rich J, Crosby I, Fonner Jr E. Regional Collaboration as a Model for Fostering Accountability and Transforming Health Care. *Seminars in Thoracic and Cardiovascular Surgery*. Spring 2009. 21(1):12-9.

²⁷ BPCI Models 2-4 includes a coronary artery bypass graft episode.

²⁸ BPCI Models 2-4 includes a cardiac valve episode.

provide a mechanism to help thoracic surgeons and other providers transition to more fully-bundled payments for major thoracic procedures. The organization interviewed feels the ideal financial arrangement would be to have a third party committee determine the income stream.

Applying this model to all cardiac surgery may not be workable and initially, the organization involved would need to decide on the component of cardiac surgery that is most appropriate (for example, Coronary Artery Bypass Grafting, valve replacement, etc.). Then, the organization would need to assess which providers would be willing to participate (just surgeons, anesthesia, cardiologists, cardiac rehab, etc.) They would then need to decide on appropriate quality measures. (Their data infrastructure should facilitate this.)

VASCULAR SURGERY:

Part B spending in 2010: \$591,194,286

One vascular surgeon interviewed for this report discussed the nature of vascular disease: patients are generally complex and tend to have co-morbidities. Because of this, treatment can vary considerably depending on patient complexity and what is in the specialist's armamentarium. **Lower extremity peripheral vascular disease** is one example. Conservative management of **claudication** with exercise is often equally as effective as more invasive measures such as angioplasty, stents or surgery. However, under the current payment system, there is little support for conservative management. He thinks that although it is possible to bundle conservative management into a larger bundle, this would be challenging and would likely take longer than the timeline for this project. He suggested that a procedure-based model may be more achievable.

In terms of a procedure-based model, the professional organization associated with this interview has discussed the possibility of developing an episode payment for advanced **chronic kidney disease (CKD Stage 5)** that would include hemodialysis access for end stage renal disease (ESRD). Since percutaneous catheter placement for hemodialysis carries a much higher complication rate, results in a lower quality of life, and is more costly, patients with advanced CKD should generally have fistula creation at the appropriate time to avoid catheter placement. This could be addressed through a payment reform that bundles payment between nephrologists and vascular surgeons to support better care coordination.

However, not all CKD patients progress predictably into ESRD, so some will need catheter placement. The surgeon interviewed believes that this could be averaged into a bundle.

There are a number of reasons why **advanced CKD** may have the potential for model development. There is a well-defined population with a large impact on Medicare spending. There are a number of treatment decision points (timing of fistula creation, avoidance of catheter placement, use of synthetic vs. vein grafts). The outcome (graft patency with minimal intervention) is well defined. There is the possibility of including this in an expansion of the existing dialysis bundle. The bundle could be time-limited and include advanced CKD patients. The provider (PCP/nephrologist) would watch the parameters and see how disease progresses. At the proper time, the provider would put in the graft and avoid catheters.

For patients on the edge of needing access acutely (e.g., CKD Stage 5), the provider cares for them for the first 90 days and provides the very best access (e.g., procedure, monitor, balloon angioplasty; and at the end of 90 days, do the functional access). The goal would be to continue the access with minimal intervention and to avoid angioplasty, stent, percutaneous interventions, etc. where possible. A model would include providers with capabilities in the catheter, surgical hemodialysis, and percutaneous intervention areas. The group of providers would have (hypothetically) 100 CKD5 patients with access and capitate 90 days of care and 90 percent must have functional hemodialysis access (quality threshold). Challenges to developing an APM include lack of clarity for designing an appropriate bundle and the need to analyze the data to determine the average patient costs to assess the fiscal ability of a 90-day capitated bundle. And yet, there are many high cost and sick patients that are treated by vascular surgeons and therefore this specialty could potentially benefit from improved payment and delivery reforms.

In terms of data and quality measures, the professional organization for this specialty has operated its own clinical registry since 2005 and has over 200 facilities participating. They have also created a Patient Safety Organization to house the data and they have a number of modules for registry-based quality improvement projects (e.g., aortic aneurysms, lower extremity bypasses, carotid stenting; thoracic aortic endografts). Therefore, the available infrastructural platform would support bundling initiatives. In addition, this organization has a robust set of quality measures (including measures around functional hemodialysis access) and believes the specialty could readily develop and adopt supporting quality measures for a model.

GASTROENTEROLOGY:

Part B spending in 2010: \$1,438,790,464

In 2012, one professional association convened a workgroup to discuss how bundled payments could be developed for gastroenterology and identified **colonoscopy for colorectal screening** and surveillance as a high priority target for a bundled payment. The regional variation in the cost of the procedure, according to geographic region, as well as site of service, along with a defined starting and end point for the episode make colonoscopy a strong candidate for bundled payments. Further, some private payers have already implemented episode-based payments for screening colonoscopies. Gastroenterologists also face potential future reimbursement cuts for colonoscopy services, a major source of their reimbursement, potentially creating more support for payment reform.

This professional organization is developing a colonoscopy bundled payment model that would have a 14-day episode that includes the 3 days before the procedure, the day of the procedure, and the 10 days after the procedure. The bundled payment framework would be restricted to the following colonoscopy procedures: screening (patient has no signs or symptoms), diagnostic (patient has undergone a screening for colorectal cancer), and surveillance (patient has had a previous negative screening colonoscopy or had a previous colonoscopy with adenomas, serrated polyps, or polyps).²⁹ Exclusions to the bundle include patients receiving a therapeutic

²⁹ *Bundled Payments: What You Need to Know and Why*. American Gastroenterological Association. http://www.gastro.org/practice/quality-initiatives/Bundled_Payments.pdf

colonoscopy, patients under the age of 18, and asymptomatic patients with a history of pre-malignant conditions.³⁰ The pre-operative services would include a pre-procedure evaluation, bowel preparation, prophylactic antibiotics, and pre-procedure bloods tests if they are required by the facility. The organization noted that it is important to give patients clear instructions on the preparation for a colonoscopy, which can go a long way toward improving procedural quality and accuracy, and reduce the need for patients to undergo a second procedure. The day of the procedure would include fees for the facility, the colonoscopy, the sedation, pathology specimen, and intra-procedure devices. Finally, the post-operative period of the bundle would include a post-procedure evaluation and management follow-up, warranty services, and reporting services. If a physician practice took responsibility for this type of bundled payment, it could include the endoscopist, pathologist, anesthesiologist, and other specialists involved in the colonoscopy.

The organization noted that there are limitations to the data and payment systems and these may not be as mature as they need to be for this bundle. In the commercial world, McKesson has developed claims logic around how a claim would be adjudicated. Medicare would need to build a similar type of logic to identify a bundled claim. This organization has not engaged with other specialties on a model yet, and pathology and anesthesia services would need to be included in the model. Next steps to further develop the bundle include collecting more data and further data analysis to refine the specification of the model, followed by engagement of other providers in the bundle.

The organization is also exploring the possibility of designing an intensive medical home project with a large insurer in Illinois for **Inflammatory Bowel Disease (IBD)**, often a poorly managed illness with many associated complications. More than 50 percent of spending is for complications and avoidable disease exacerbations. This project would be more population-based than the bundle and would engage patients about their condition. Providers would get a care management fee and a shared savings program could be built into the intensive medical home, and could conceivably involve multiple providers, including primary care, gastroenterology, surgery and imaging services. Given that the demographic makeup of this population is generally younger (25 to 45), the impact on Medicare may make this model less appropriate for this project.

The organization has developed the Digestive Health Outcomes Registry³¹, which is a national outcomes-driven registry that allows physicians to monitor the care they provide to patients and collect data that can be used for improving the quality and efficiency of treatments. The Registry includes NQF-endorsed measures for gastroenterology that can be included in quality incentive programs and linked to electronic health records. In 2012, the organization and a large insurance group announced collaboration on the Registry that would allow the insurer to use the registry data in its physician performance measurement programs, specifically for its programs on colorectal cancer prevention and IBD. The professional organization has also considered

³⁰ Brill J and Jain R. Bundled Payments in Gastroenterology. *American Gastroenterological Association*. April 2013. <http://www.gastro.org/journals-publications/news/bundled-payments-in-gastroenterology-time-for-a-colonoscopy-bundle>

³¹ AGA Digestive Health Outcomes Registry. American Gastroenterological Association. <http://www.gastro.org/practice/digestive-health-outcomes-registry>

expanding its registry topics to include topics such as viral hepatitis, advanced endoscopy procedures, and irritable bowel syndrome.

RHEUMATOLOGY:

Part B spending in 2010: \$1,069,549,669

One rheumatologist interviewed for this report discussed **Rheumatoid Arthritis (RA)** as a condition that would be a good opportunity for a new payment model. RA including complications of the disease represents a significant cost in the Medicare population with total annual health care costs of \$19.3 billion. RA also presents a good opportunity because early diagnosis and treatment is critical to prevent permanent joint damage, avoid costly joint replacement surgery, and preclude long term disability. The key to early diagnosis is recognition of signs and symptoms and confirmation by testing. Usual lab tests are often not sufficient to make the diagnosis and a model which encourages earlier proactive testing and patient education could help prevent more serious symptoms from developing. The most important complications to manage are joint deterioration and cardiac risk from medications.

A potential model aimed at encouraging earlier intervention could be a partnership with primary care to accelerate appropriate referral of patients who may have RA. With increased electronic medical record (EMR) use combined with claims, problem lists and notes, a more effective population management strategy could be developed. A medical home around RA could also help to manage symptoms more closely. For patients who already have a diagnosis of RA, they often do not have access to biologics, or other expensive medications, or are not treated appropriately. Guidelines of the professional organization associated with this interview could be used to develop appropriate quality measures. These changes could lead to significantly better patient outcomes, and potentially avoid costly complications and inappropriate testing and treatment.

The model of a medical home for patients with advanced RA, remains purely conceptual at this point. It is also unclear whether this professional organization has the data infrastructure to support model development.

ANESTHESIOLOGY:

Part B spending in 2010: \$1,532,524,467

Two specialists in anesthesiology interviewed for this report discussed the work of their professional organization's Committee on Future Models of Anesthesia Practice. This committee is charged with evaluating the changing health care system and developing ways for anesthesiologists to adapt the care they provide. This committee has developed, but not yet implemented, the Perioperative Surgical Home (PSH) model, a physician-led multispecialty team model. The goal of the PSH is to make surgical care more patient-centered by improving coordination of pre-operative, surgical, and post-operative care.

Anesthesiologists are in a unique position to improve the quality of surgical care because of the variety of patients they treat and their involvement with the patient throughout the perioperative

period. The goal is to have an anesthesiologist oversee all parts of the perioperative period from pre-operative assessment to post-operative work and pain relief. Increased coordination and the involvement of the anesthesiologist from the time the decision regarding surgery is made could reduce waste in duplication or unnecessary tests, standardization in the operation room, pain management, standardization of supplies and devices, post-operative medical management, and enhanced recovery protocol. Earlier involvement of the anesthesiologist with the patient would also allow the anesthesiologist to explain more options for anesthesia and postoperative management which increases patient satisfaction and allows for improved planning and efficiency. In the post-operative phase, the PSH could improve patient experience and reduce costs through patient education, pain management, earlier removal of unnecessary devices, and general reduction of complications leading to earlier discharge. Increased communication and coordination among providers would also improve transitions of care between all health care settings. Areas of hospital protocol that could benefit from increased anesthesiologist involvement include transfusion and anticoagulation guidelines, administration of antibiotics, resuscitation protocols, and others.³²

The PSH model could differ in various settings to allow for flexibility based on the organization. It could be led either by a surgeon or an anesthesiologist with a physician assistant (PA) or nurse practitioner (NP) functioning as the main coordinator and contact for the patient. The payment model which would accompany the PSH is not yet well defined, and there are a number of payment models that could be arranged to support this delivery system. Options range from a management fee on top of FFS to a bundled payment beginning with the decision to operate through 30 days after surgery. These reforms in anesthesia payment could fit well with the episode-based payment reforms discussed for some of surgical services and common procedures, including orthopedic surgery, cardiothoracic surgery, and possibly screening colonoscopy services. The ultimate goal would be to incentivize coordination through a bundled payment covering the entire episode of care with savings shared among all providers contributing to reducing costs.

NEPHROLOGY:

Part B spending in 2010: \$1,694,244,274

Two physicians specializing in nephrology interviewed for this report identified a bundled payment for advanced **Chronic Kidney Disease (CKD) with End Stage Renal Disease (ESRD)** as the most promising area for a new payment model in Nephrology. Currently, CMMI funds ESRD Seamless Care Organizations (ESCOs), the only funded subspecialty ACO. The ESCO includes a dialysis provider and a nephrology group and is exclusively for Medicare beneficiaries with ESRD. It does not change financial incentives for late stage CKD, which is why the physicians interviewed emphasized development of a payment model that would combine CKD with ESRD and incentivize slowing the progression of disease, and onset of ESRD within the course of the disease process, to maximize outcomes and minimize complications.

³² *The Perioperative Surgical Home: An emerging draft proposal for pilot innovation demonstration projects.* American Society of Anesthesiologists. May 2011.

Another example of where incentives need to be modified for CKD patients is in decreasing vascular access-related infections. There is broad consensus in the nephrology community that patients should have a mature vascular access when they begin hemodialysis and avoid the use of catheters whenever possible. According to one professional organization, CMS convened a technical expert panel in March 2010 to provide recommendations on hemodialysis management. The panel concluded that the most important thing to change is CMS reimbursement policies, which create financial barriers to placement of hemodialysis fistulas. By removing these barriers to performing vascular access procedures, economic incentives will be more appropriately aligned to reduce catheter use in new hemodialysis patients and, as a result, reduce access-related infections. (This payment reform was discussed above in the section on Vascular Surgery.)

Another area for significant savings in late stage CKD is pre-emptive transplantation. Kidney transplantation is the best treatment option for the majority of ESRD patients. A remodeled payment system should modify payments to help providers work with CKD patients to consider pre-emptive transplantation, which would prevent them from progressing to ESRD.³³ Our current system does not focus enough on slowing the progression of CKD. According to one analysis, the savings resulting from earlier coordination of care for CKD patients would easily cover the additional costs of new reimbursement policies and result in improved quality of care.³⁴

Key to development of a model bundling treatment for advanced CKD with ESRD will be defining at what stage of the disease patients should be included. Defining the line between people who are likely to progress to dialysis and those who are not poses a significant challenge. Additionally, many patients who would be covered by this model should begin treatment prior to becoming Medicare beneficiaries, which poses a challenge to CMS as the appropriate payer to create this model. There are a number of different payment models that could promote coordination of care prior to the progression from CKD to ESRD, but the most important thing will be defining who is likely to progress to ESRD and when they should be included in this new model.

NEUROLOGY:

Part B spending in 2010: \$1,288,215,625

One large health care system just submitted a combined project to CMMI for a clinical and payment model around **Alzheimer's disease** and dementia that is currently under review. *The physician interviewed for this report did not want to jeopardize that application by discussing it in this initiative.*

This physician and colleagues noted that many neurologists do not understand value-based care arguments because most of the shared savings or bonuses from accountable care organization

³³ Hamm LL, Hostetter TH, Shaffer RN. Considering an Integrated Nephrology Care Delivery Model: Six Principles for Quality. *Clinical Journal of the American Society of Nephrology*. 2012. 8(4):682-6.

³⁴ Allon M, Dinwiddie L, Lacson Jr E, Latos DL, Lok CE, Steinman T, Weiner DE. Medicare Reimbursement Policies and Hemodialysis Vascular Access Outcomes: A Need for Change. *Journal of the American Society of Nephrology*. 2011. 22:426-430.

(ACO) like arrangements or other health reform efforts benefit primary care providers. Neurologists can play a role in potentially offering services that would reduce the cost of care through their ability to take care of patients as consultants and as the principal care providers for patients with neurological disease as the major manifestation of their illness. A large professional organization is working on developing the framework for an episode of care to provide neurologists the information they need to evaluate outcomes.

A potential episode-based payment could be built around **stroke**³⁵ that would cover the continuum of care from the initial contact with emergency medical services (EMS) through communication with the emergency department (ED) and the initiation of treatment en route. Stroke care also extends to post-discharge rehabilitation and follow-up, so it is important to include the neurologist in all of these stages of care. This bundled payment could include all stroke events or specific events such as transient ischemic stroke (TIA), ischemic stroke, or cerebral hemorrhage.³⁶ This episode should include both the inpatient and outpatient settings, and both clinical and claims data will be necessary to assist in the bundled payment development. The organization also recommends that post-acute care, such as skilled nursing facility and home health services, is included in the bundled payment. While stroke patients typically have multiple chronic conditions, the prevention of secondary complications may be outside the scope of a bundle that is focused on the management of the stroke. A key part of the bundled payment would be quality and outcomes measures that are well defined for the different phases of stroke care, such as acute hospitalization and skilled nursing care. It is also important to have the appropriate cost and quality data in a timely fashion that would help lead to improved care and cost savings.

This organization has proposed a clinical decision-support (CDS) intervention framework to diagnose, prepare, and execute acute stroke therapies such as tissue plasminogen activator (t-PA).³⁷ Increased t-PA administrations could result in reduced stroke-related mortality, more organized stroke care and better outcomes for patients, and reduced lengths of stay in hospitals. Many patients, however, do not receive t-PA for multiple reasons in part because neurologists often act as final decision makers for the administration of t-PA. By developing an intervention framework that could be used by other members of the care team (e.g. dispatchers, EMTs, physicians), the organization could increase the use CDS-related tools, increase patient access to trained providers of care, and increase acute stroke treatment rates. By training dispatchers, EMTs, and physicians to accept and use CDS intervention tools, appropriate triaging and stroke treatment time could be reduced. Under this type of model, there would be a stroke center led by a stroke neurologist that would ensure quick treatment, and the appropriate use of t-PA, and transfer of the patient when appropriate. A payment structure would support the CDS-related model by including reimbursements to the care team for care coordination activities from the time when the patient calls 911 to the time they receive a diagnosis of acute ischemic stroke.

³⁵ BPCI Models 2-4 include a stroke episode.

³⁶ *Stroke Episode of Care: A Guide for Bundled Payments*. American Academy of Neurology.

³⁷ *American Academy of Neurology (AAN) Proposal to the Center for Medicare and Medicaid Innovation: Clinical Decision Support-related Interventions to Cost-effectively Diagnose, Prepare, and Execute Acute Stroke Therapies such as t-PA*. American Academy of Neurology. January 2012.

This organization is also considering an episode model for **multiple sclerosis (MS)**. There are a number of new MS drugs coming onto the market that are more effective than the traditionally used medications. However, some of these drugs are associated with increased risk and may be more expensive to administer. Thus, MS could be a target area for tiered bundled payments as some patients require a more advanced level of therapy compared to others. In addition, since some physician groups have their own infusion practices while others partner with agencies to do the infusions, different bundled payment models may be required for different types of practices. At this time, however, there is no model in development around MS.

RADIOLOGY:

Part B spending in 2010³⁸: \$4,154,743,596

Radiology is a very important specialty to consider in designing APMs, since the use of imaging is often a critical decision point in any episode of care or clinical condition. However, specialty specific models based primarily in radiology are less well developed for multiple reasons. Imaging is often ordered by varying providers from different specialties and radiologists' recommendations are often carried out by other providers, thus they do not have the same ability as other providers to control resource utilization and costs. However, the physician interviewed for this report emphasized that radiologists want to show their commitment to working on new models and coordinating with other specialties.

Additionally, there is a potential for radiologists to have a role in population screening that goes beyond FFS with new innovative payments. One professional organization is beginning to develop potential models, more specifically bundled payments for **breast cancer** and **lung cancer** screening and the evaluation and follow up of **pulmonary nodules**. In these areas, variability in care from the time of the screening until the definitive diagnosis is in large part controlled by the radiologist, as opposed to other non-screening procedures. A number of other areas which are similar to screening mammography in that it is the imaging findings rather than the clinical findings that drive resource utilization and cost may also be ripe for developing new payment models.³⁹ In addition to screening, the physician interviewed discussed opportunities to incentivize appropriate use of imaging in **stroke** to streamline care and reduce time to eventual diagnosis and treatment through payment for using clinical decision support tools.

This physician emphasized the unique challenges that radiologists face in participating in APMs. First and foremost they do not have control over the patient's care. Nor do they usually have control over what imaging tests are ordered. These considerations might suggest that payment incentives and bundled payments for other providers might lead to more appropriate use of radiology services – e.g., oncology medical homes or oncology payment bundles that give oncologists some financial accountability for radiology services may be a more effective way to promote appropriate use of radiology services. However, the organization has also discussed addressing appropriate test ordering through programs that would educate and engage with

³⁸ Part B spending includes only diagnostic and not interventional radiology.

³⁹ Hughes DR and Duszak R. Beyond Fee-For-Service: Emerging Payment Models in Radiology. *Harvey L. Neiman Health Policy Institute Brief #3*. June 2013.

referring providers on the use of imaging guidelines – and which might be supported by bundled payments involving radiologists and the ordering specialists.

EMERGENCY MEDICINE:

Part B spending in 2010: \$2,146,383,099

Emergency medicine specialists interviewed from one professional organization expressed the unique challenges in emergency medicine for changing incentives to care delivery through APMs. Emergency medicine physicians care for a uniquely vulnerable population including many dual eligible beneficiaries (individuals who are eligible for both Medicare and Medicaid). This population generally experiences very acute illness and lacks a social safety net beyond the emergency department (ED). They are also among the most costly patients.

They stressed the point that much of the work in creating an APM revolves around managing care of the patient based on a diagnosis, having access to the patient’s medical record and history, and increasing coordination among various providers. One problem with trying to come up with an episode of care in the ED is the lack of correlation with the complaint and diagnosis. This also makes it difficult to measure outcomes. Emergency medicine physicians also do not manage a patient load or the total care of their patients as other physician specialties do. Since most of their work occurs before patient diagnosis, their work lacks the attributes necessary for creating a defined payment such as having a diagnosis, having access to patient medical records and history⁴⁰, and increased coordination. Finally, emergency medicine physicians practice in a variety of settings and employment arrangements which influence their financial incentives and make it difficult to implement one type of payment model. They are also mandated by the Emergency Medical Treatment and Labor Act (EMTALA) to provide at least an assessment and stabilization to any patient that presents to the emergency department.

Nevertheless, the emergency medicine organization is examining APMs in various taskforces, and although they have not attempted to design any models, they believe that could be incentivized in terms of better communication with other providers. One example could include better coordination between skilled nursing facilities (SNFs) and hospitals to reduce the revolving door and avoid preventable visits back to the ED. *However, they feel this cannot occur without an adequate health information exchange infrastructure.*

There are things that could be done in the ED to improve quality and the patient experience, such as emphasis on throughput times. However, it is unclear whether this will have a significant impact on spending.

One potential area that could result in reduced costs is around the decision whether or not to hold or admit a patient, especially for minor head and neck trauma, pneumonia, and chest pain or “ruling out” a heart attack. The biggest challenges are receiving the proper information and having good care coordination. Often there is no provider on the other end to coordinate care.

⁴⁰ Emergency physicians do not have access to a patient’s medical record and cannot guarantee that the patient will have another provider to manage their care after their ER visit.

It is likely that in terms of APMs, the best opportunities for EM may be through larger care coordination reforms, such as ACOs or bundled payment arrangements. One possible option could include a “coordination payment” for EDs and their physicians that could be implemented in conjunction with a medical home or ACO, provided the ED has the medical record interoperability in place and there are useful measures for ED physicians to support better outcomes and savings. However, this model remains speculative at this stage.

LOWER PRIORITY SPECIALTIES

DERMATOLOGY:

Part B spending in 2010: \$2,130,148,076

While the professional organization interviewed wants to be a part of the general payment reform discussion, the organization is still in the infancy of thinking about these models. *The organization generally supports maintaining FFS payments*, given the nature of diseases that dermatologists treat, and the fact that many dermatologists’ practices are freestanding and located in out-patient settings. However, this organization did submit a proposal to CMMI for a payment model regarding skin cancer (which is one of their discreet provisions of care that is the most amenable to modeling in dermatology). *Since they have a proposal currently before CMMI, they were reluctant to go into detail about the model.*

The organization also has had workgroups on innovative payment and delivery models, but they are still in the early stages of thinking about specific alternative payments.

In terms of quality metrics, the organization has worked with Physician Quality Reporting System (PQRS) to develop measures but this has been challenging because there are many rare diseases in dermatology and they are still early in the process of developing the evidence-base to create relevant measures. Outcomes are not well-defined, but still of real concern to patients (i.e. if someone is itchy and they become less itchy—how do you equate that to risk of mortality?) Currently, the organization does not have a clinical registry. As is, the state of quality measurement and data infrastructure are not ready to support APMs. Dermatology is probably not ripe for model development in the scope of this project.

GENERAL SURGERY:

Part B spending in 2010: \$1,808,028,815

The surgeon interviewed limited much of the discussion to the development of quality metrics and their relevance to the development of APMs. This physician did not go into detail on specific models of care or payment. He discussed concerns about the availability of the right kind of data and the challenge of variability in the way that physicians care for patients that could impede the development of an APM.

This physician made the point that if physicians can logically justify to themselves why they cared for a patient in a certain way (e.g., giving both an MRI and CT scan), there is the impression that it is okay to do more procedures. The physician indicated it may be very hard to

change this mindset. Training programs are still teaching residents and training fellows to think like this. Although some decisions are evidence-based, some are still based on experience of individual providers.

Much of the motivation for data in the surgery specialty is intended for research purposes, rather than the intention of improving patient care. This push for data creates pressure on registries to add a greater number of variables, which becomes difficult to sustain over time and does not necessarily lead to improvements in care. The physician made the distinction between real quality and quality measurement. Quality measures can be helpful but the physician cautioned that they have to be used in a system that minimizes unintended consequences so that manipulating the system in order to simply improve quality measure scores does not affect care.

One professional organization is in the process of developing a conceptual payment model, the Value Based Update (VBU) as a possible replacement for the sustainable growth rate (SGR). It is a comprehensive concept whereby physicians would self-assign to Clinical Affinity Groups (CAG). The CAGs are patient centric groups focused on specific diseases or conditions (e.g., a cancer CAG, a musculoskeletal CAG, chronic care CAG, perioperative CAG, rural CAG, etc.) The proposal maintains the current fee schedule and updates to the fee schedule are based on compliance with the existing incentive programs (PQRS, HER and e-Rx), as well as the CAG's ability to reach certain performance goals. In creating the CAGs and establishing quality and efficiency targets within the groups, this proposal attempts to promote coordination among different specialties that treat certain conditions. However, the proposal is only conceptual, not very comprehensive and would require significant modification to help move away from the current FFS system (for example, the CAGs would need to be reformulated as the basis for episode payments rather than as adjusters to FFS payments). Therefore, it is not a model that could easily be incorporated into this project.

NEUROLOGICAL SURGERY:

Part B Spending in 2010: \$523,059,799

The professional organization interviewed for this report noted that providers and societies will be interested in making sure that new payment models do not compromise outcomes. However, it is difficult to define a bundle when there has not been agreement on what constitutes reasonably expected outcomes for common disorders, as is often the case in neurosurgery. Specialties such as oncology are complex and would require episodes that may be difficult to define. This organization suggested looking at episodes where there are extreme variability and thus opportunity to reduce waste.

It is easier to think of designing a model around a procedure-based episode of care. For neurosurgery, this might include an alternative way to pay neurosurgeons for a defined episode (e.g., have MET in brain, have surgery) within the larger continuum of patients' overall care team (PCP, oncologist). A major difficulty they cited is that no one has done a good job of linking intervention to outcomes that any reasonable group would think are of value.

A cooperative registry could produce information that both informs the construct of episodes and provides valuable information that is both robust and systematic. The organization emphasized

that there is no better way to define a payment model as “benefit over cost” than through larger scale, real world prospective data collection registries. In the organization’s registry, which includes 6,000 to 7,000 patients, they are developing outcomes and safety data across continuum on spine surgery.

The organization noted that they would be willing to participate in helping to define episodes related to stroke and back pain, which are both areas of high cost and variability.

Additionally, this organization is looking at developing a cooperative registry project with the American Society for Radiation Oncology (ASTRO) that would focus on stereotactic radiosurgery. Stereotactic radiosurgery is an area with high variability in care and outcomes measures may be fairly basic- e.g. survival, basic quality of life indices. There could be a fairly well-defined risk population (Stage IV lung cancer). There are certain decision points: e.g., does treating patients with asymptomatic lesions add value to their quality of life. Since patient survival is generally not long (12 to 18 months), you could have robust information that might inform some of these decisions.

PATHOLOGY:

Part B spending in 2010: \$952,622,333

When considering specialty payment models, pathology is similar to radiology and anesthesiology in terms of providing needed services in a number of clinical conditions or episodes of care. Therefore, like these other specialties, the most likely role for pathologists is to be part of a bundled payment around a clinical condition or episode of care. While the professional organization associated with this interview would like to be involved with payment reform efforts, past work with CMS regarding episodes of care involving pathology (around prostate cancer, breast cancer, and hematologic malignancies) suggests that the part of the episode where pathologists are in control is a small piece of health care costs and that pathology spending varied little relative to the other parts of the health care system.

However, there are places where pathologists feel they can add value directing cancer treatment in collaboration with oncologists. There is current work underway looking at where pathologists could contribute value on coordinated care, e.g. regarding use of molecular testing or interpreting the results of a biopsy. This coordination could help inform decisions such as whether or not to use chemotherapy. The organization is actively pursuing a more active role in ACOs, especially in influencing what tests are ordered.⁴¹

OTOLARYNGOLOGY:

Part B spending in 2010: \$759,597,621

One research expert in otolaryngology emphasized the work that its professional organization has done to establish clinical practice guidelines. Currently, there are close to 11 published clinical practice guidelines. This organization has established a rigorous process for creating

⁴¹ Gross DJ. Contributions of Pathologists in Accountable Care Organizations: A Case Study. *College of American Pathologists*. May 2012.

guidelines which includes a process for receiving public comments. Their next project is to develop performance measures from the guidelines. Their biggest challenge in their payment reform efforts has been getting access to data since they have not created disease registries due to the significant cost. Lastly, the organization is still at the early stages of identifying a priority list of areas for payment reform. The areas they are considering in terms of episodes of care are: **upper respiratory infection, sinusitis, tonsillectomy, and otitis media with tympanostomy tube placement**. None of these are likely to be appropriate for this project.

ENDOCRINOLOGY:

Part B Spending in 2010: \$372,232,545

An endocrinology specialist interviewed from one professional organization mainly discussed potential bundled payments for diabetes patients. Although endocrinologists are the primary specialists for patients with *complicated diabetes*, there are not enough endocrinologists to handle the influx of patients that will be diabetics in the next 10 to 15 years.⁴² Endocrinologists could serve as the general physician for people with diabetes but they need to have ability to be paid for caring for the patient outside of the office (i.e., telephone, email consultations), which the current payment system does not reimburse. Many endocrinologists are not treating complicated diabetes patients because they feel they are not being paid appropriately for the care they provide.

For endocrinology, CMS could consider a bundled payment (time-related, not activity-related) for 30 days based on the complexity of care – a sort of “medical home” for patients with complex diabetes. Physician payment might be dependent on a points system that tracks the control of the patient’s disease and the amount of time required to treat the patient. Patients with less complicated cases would have fewer points, while more complicated patients (such as those with other conditions or greater insulin/medication needs) would receive more points. The bundle could include an office visit. However, the bundle would need to include non-physician costs, since the number of endocrinologists is not sufficient to treat the number of diabetics. In order to preserve access to care for complicated patients, non-physician services (that are not currently reimbursed in FFS) would need to be included. The bundle may result in higher costs of care per patient but it could reduce total costs by reducing avoidable complications and decreasing unnecessary ED visits and hospitalizations. Performance measures related to these outcomes could be included in the payment system.

The organization also promotes the idea of a co-team payment process whereby endocrinologists can become coaches to PCPs, who can then be educated and do more for *non-complicated* diabetics. The organization suggested that CMS also consider changing the coding for existing payment models, such as ACOs, under which specialists are considered the same as PCPs. This coding issue means that endocrinologists can only join one ACO and thus are limited in their scope.

⁴² There are 27 million diabetics; 50 million more are glucose intolerant— this will most likely double in next 10-15 years due to aging of the population and obesity. Also, the incidence of Type 2 diabetes in adolescent population is increasing rapidly.

OTHER STAKEHOLDERS

PAYERS

Brookings spoke with several large payers about APMs for specialties. Each payer has different model development opportunities within member plans or provider groups.

One physician associated with a large payer expressed an interest in CMMI exploring a model around the *inpatient* management of diabetes, as it is a target area for the management of specialized care and represents a high cost area. An episode for diabetes that measured 30 to 60 days for the Medicare population could have a substantial impact. One large insurer in North Carolina has tied a diabetes management model to a payment model. The insurance group would be interested in the creation of a bundled payment not just around specialty care but around the management of a chronic condition such as diabetes. One large insurer in Massachusetts is examining the impact of health reform and a care management model that would align with different methodologies for work on behavioral health. The physician interviewed could provide further information in relation to the insurer's direct oversight of the Federal Employee Plan (FEP) and its 37 plans and any opportunities for model development as the project progresses and once additional specialty areas are identified.

Another physician associated with a different payer group discussed their payment structure and how they are moving forward with capitated payment as opposed to FFS payments. This large payer is one entity but one in which many corporations work together, including hospitals, health plans, and independent group practices. This insurer has a mutual exclusivity agreement that the health plan will only contract with this insurer's physicians and vice versa. All of the groups that work for this payer are under a joint economic umbrella that does not pay physicians based on the volume of services they deliver.

Since this insurance company's physicians and specialists are salaried employees, there is joint accountability between the medical group, health plan, and hospitals, which facilitates care coordination and follow-up with patients. Since PCPs and specialists are paid by salary (with some performance bonuses), it sets up a different dialogue around model development. It is possible to put some of physicians' income at risk, but the interviewed physician's bias is that a better approach may be to move providers into a stabilized salary arrangement and away from FFS. Therefore, the payer suggests moving toward a system where PCPs and specialists are linked in a multi-specialty practice and where there is an economic exclusion zone to protect them. However, the physician also recognized the fact that although this model works well in certain geographic areas and certain markets, it may not be the solution everywhere.

One physician associated with a large insurer discussed the potential for optimizing specialty care, citing the high cost burden of specialty care and the considerable variation in care management and consequently costs of treating patients with the same condition. This insurer sees opportunities in the private sector for focusing efforts on the specialty areas of cardiovascular, musculoskeletal, oncology, and gastroenterology, which are prevalent conditions with high variation and spending. In musculoskeletal disease, there is a rising incidence and prevalence in spine, hip, and knee problems among all populations (not just the elderly). Current efforts have consisted of analytics that focus on broader episodes of care, typically anchored around a procedure (e.g., hip surgery). Before starting on payment and delivery reform, it is important to have a basic understanding of the work underway in specialty areas and how providers within specialties compare to their peers and to the specialty's clinical guidelines. This insurer has explored the use of tools to analyze and look for variations in care.

The insurer is developing a pilot for bundled payment of common oncological conditions where practices are paid a fixed payment based on their adherence to a clinical pathway for the treatment of common conditions e.g., breast, lung, and colon cancer. This model has already been considered in the oncology phase of this project.

This payer did some earlier work on episode payments for cardiologists, who were asked to be accountable for a defined population's cost trends. However, the payment system did not work well because the cardiologists did not have the leverage to influence how their patients behave or how other specialties treat these patients. The insurer suggested that CMS may want information on whether a model actually achieves cost savings (compared to the effort required to launch the model) to help inform decision making.

The insurer also discussed the concept of a specialty medical home that might lend itself to specialty care (more complex chronic medical conditions rather than procedural conditions—sickle cell anemia, rheumatoid arthritis, MS), where there is considerable variability in care and costs. The idea is that rheumatologist or neurologist would be a medical home for people with RA or MS. Possible models would be to pay a care management fee, or design a performance-based gain sharing arrangement, etc. This insurer is not currently doing anything around a specialty medical home but the idea is being considered.

The physician interviewed discussed some of the challenges in creating payment and delivery models for specialty care. There is a definitional problem around new payment models because there are no consistent definitions of an episode or bundled payment. Specialty groups have to construct the models themselves rather than work from a standard model. There is also the need to come to consensus around delineation of bundle (what is included and excluded).

There is also an administrative problem because physicians need to decide how to administer the payment in a global payment model or fee-based model. It is technically difficult and very complicated to get these models started. Providers and insurers need the right data—including better data on the amount of variation, the impact of behavioral changes by providers, and the resulting reduction in costs. Care management support is also important for aggregating payment with the goal of providing higher quality, more cost effective care. The next step is to move to

gain sharing that benefits both the provider and payer. The physician interviewed cautioned that so far this is a hypothesis without strong evidence, so it is often difficult to know how robust the model should be.

This physician feels that although FFS has a tendency to promote volume and intensity of service, it will most likely remain in some capacity for a long time. Evidence exists (from groups in California working on global payments) that even though it is possible to switch to capitation, it takes years for a practice to learn what to do.

THOUGHT LEADERS

One large professional organization interviewed for this report has been examining more *specific* conditions or episodes that would lend themselves to new payment models. For example, this organization considers oncology too broad of a specialty for developing a model. However, there could be conditions or episodes in oncology that would be feasible, such as a bundled payment for radiation oncologists for the palliative treatment for bone metastases. An episode-based approach to breast cancer surgery could involve both the surgeon who removes the patient's cancer and the surgeon who does the reconstructive surgery working together as a team.

The organization representatives discussed the CareFirst primary care model as an opportunity to work within the current FFS system that values practice diversity (small and large practices, employed and non-employed physicians can participate) and has broad provider participation. Given that a lot of health care that people receive is not well planned, the focus of this model is to develop treatment plans for patients and then reward physicians and their staff for both developing such plans and following through on a patient's care plan. Two or more specialists involved in management of particular disease/condition/episode all working together to figure out what are the alternative treatments available for a patient, work with the patient to figure out treatment options and a plan of care and make sure everyone knows what it is. You start with the conditions that specialists themselves see as having the greatest opportunity for improvement to have better care and lower costs at the same time. CareFirst designates which patients need a treatment plan.

Nurse care managers help reinforce the implementation of each step in the treatment plan (making sure patient is taking medication, etc.). CareFirst gives \$200 for creation of a treatment plan and \$100 for ongoing maintenance. There must be significant incentives for following through on a treatment plan and the professional organization interviewed thinks that CareFirst has figured this out. This model has enormous potential to improve quality and reduce costs, and can achieve savings despite the increased incentive payments to physicians through reductions in overall costs by avoiding complications and unnecessary ED visits and hospitalizations. The model began as a private plan program that now includes Medicare Advantage patients. *CareFirst has received an innovation challenge grant to expand the model to the Medicare population.*

The organization considers team-based care as a real opportunity for specialty models and to improve outcomes for a patient's care. In order to move toward new types of payment models,

this organization suggests starting out with payments to physicians for consulting with one another about a patient's care. Physicians are currently only compensated for a face-to-face visit and not for the work they do outside of the office visit or for coordinating a patient's care. This effort could then evolve into a more episode-based payment model that resembles a bundle (e.g., payment or 30 or 90-days of care).

The movement toward new payment models will be difficult because many physicians want to change their clinical practice but the idea of a payment model other than FFS is difficult to grasp, particularly for specialists. There are also limitations in the data available to specialists, but there may be opportunities for improving the data by collaborating with private payers. Until you know what's driving the increased costs or lack of coordination for a particular group of patients, it is hard to do anything about it. The organization also stressed the importance of risk adjustment and the need for specialty input because adjusting for risk will vary by condition or specialty. They also made the point that models that are primarily within a specialty (ophthalmology, ENT, Urology) may be easier to do. They can look at their own data, they know their patients and this might make it easier to do administratively and get buy-in from physicians.

In addition, the discussion revealed regulatory barriers to model development, such as Stark laws and State issues with Medicaid. It is also important to consider the implementation of new models, and the fact that there might be a need for some sort of implementation support if physicians are not part of a large integrated system. Current specialties that might be able to move forward with a payment model soon due to their knowledge of their data and patients include urology and ophthalmology.

Another leader of a professional organization recommended cardiology, as the next specialty to move forward with payment reform. He feels that the SMARTCare model is a particularly good model since it is condition based and not limited to episodes, but is also not jumping all the way to a global payment while taking accountability for the cost associated with management of a condition over time. This stakeholder feels that one problem with episodes is that if you make the episode lucrative, you will likely get more episodes. Cardiology is also promising as a specialty because heart disease has a big impact on society and Medicare, cardiologists have a good data base and cardiologists are generally engaged with reform efforts. They want to be involved.

This stakeholder also suggested gastroenterology as another promising specialty, although he has less of a sense of how it impacts Medicare. The stakeholder thinks there is a lot of interest in the profession and from Medicare *and* private payers, especially around preventing colon cancer, to colonoscopy bundles, to managing Hepatitis C and Inflammatory Bowel Disease, and ophthalmology. The stakeholder recommended cardiology because it allows for the management of chronic conditions over time as well as specific interventions. Gastroenterology also provides an opportunity for various types of models because they have episodes, chronic conditions, and population management that they are responsible for in their associated conditions. Ophthalmology also provides opportunities for bundled or episode payments around certain conditions such as cataract surgery, glaucoma, or macular degeneration. In terms of data, the stakeholder emphasized the importance of determining where Medicare dollars go by specialty.

Currently, Medicare attributes patients to a specialist and shows all the costs attributed to the patient, not what each specialist is actually responsible for. In order to distinguish primary care spending from other specialties, the data will have to be pulled differently. This data issue is essential to determining how primary care can work better with specialists.

CONCLUSION

Based on interviews with the specialty groups and other stakeholders coupled with available Part B spending data, the Brookings team suggests that the specialties and their associated conditions or procedures that offer the most opportunity in terms of developing specialty payment models are: cardiology (SMARTCare), orthopedic surgery (hip fracture), and ophthalmology (treatment around cataract). Considerations for selecting specialties to move forward include high health and cost impact, especially in the Medicare spending, high variability of care and associated variation in spending, opportunity to change incentives to reduce variability, experience in designing or implementing models, availability of quality measures, and the existence of a data infrastructure to support model development.

These specialties can build upon their existing quality measures and clinical registries in the development of APMs and the available infrastructure enhances the feasibility for implementation of the necessary health care finance and delivery reforms.

Other promising areas are: urology, vascular surgery, cardiothoracic surgery and rheumatology. Table (2) lists the specialties and their main characteristics according to the areas of consideration. Again, it should be noted that although the list is arranged according to specialty, and certainly some of the models are limited to one specialty (e.g. ophthalmology), our approach was to try to identify models that offer the opportunity to coordinate care across different specialties.

This scan was, by design, meant to give a broad overview of many specialties and consequently is not as deep or detailed as the oncology environmental scan. We did not include statistical detail and we did not do a systematic literature review, both of which will be included in the next phase of the project once the additional specialties have been chosen.

It should also be noted that often the better developed models already have been submitted for a CMMI Health Care Innovation Award. This is especially the case with the cardiology SMARTCare model, the Neurology model around Alzheimer's disease, the AMA CareFirst model and the Dermatology skin cancer model.

CARDIOLOGY

Heart disease has a large health and spending impact on Medicare. The specialty also has a well-developed data infrastructure to support model development. In addition, cardiologists are generally engaged in health reform efforts. Within cardiology, the SMARTCare model is the most fully developed and most promising model. *However, SMARTCare has been submitted for a CMMI Health Care Innovation Award, which may affect consideration for this project.*

CMS could also consider a model around atrial fibrillation. Such a model could conceivably involve payment for a time-based episode of care for a patient diagnosed with atrial fibrillation that includes care coordination, adherence to guidelines, medications for rate or rhythm control and ablation therapy.

Heart failure is another condition for which the use of hospital care, including both admissions and readmissions, could be greatly reduced in order to improve the quality of care and reduce cost. Initial episode and bundled payment models are already in the early testing phases in this area.

Another cardiology model to consider is one limited to intervention for severe aortic stenosis that would include incentives for the appropriate use of Transcatheter Aortic Valve Replacement (TAVR) versus Surgical Aortic Valve Replacement (SAVR). In terms of designing a model, one option would be to design a bundle around the procedure including the cost of the device, or it could be folded into an episode around heart failure. Due to small numbers, this option may be limited for the purposes of this project.

Two additional areas in cardiology for further exploration are improving the appropriateness of the use of Implantable Cardioverter-Defibrillators (ICDs) and the workup of patients at low risk of Coronary Artery Disease.

ORTHOPEDIC SURGERY

Orthopedic surgery also has conditions that have a large impact on Medicare in terms of health and spending. In addition, they have ongoing efforts to develop a patient registry and there is a high level of engagement among orthopedists.

Hip fracture is a promising area for reform and it is also a very high spending area for Medicare with great variability in treatment. One opportunity is to create a bundle for hip fracture across specialties, such as primary care and anesthesiology. A potential bundled payment for hip fracture care could also include paying for a defined period of care during or after an inpatient stay. Payments for care coordination or for the continuity of care could also be part of the bundle. The bundle could conceivably be expanded to include an at risk population (people with osteoporosis or previous fracture). Additionally, there are already efforts underway, including the development of clinical practice guidelines and quality measures. Once completed, these guidelines could be used to create checklists tied to a payment, thus creating a step to a more significant shared savings model. The measures, however, are still in the development phase. Although total joint replacement is another area for a potential model, this has already been the focus of previous initiatives, such as the ACE Demonstration project.

OPHTHALMOLOGY

Ophthalmology offers several promising areas for model development. One option is to design a bundle around the treatment of cataracts that could include: the pre-operative evaluation done within 30 days of the procedure, including pre-operative lab tests; surgical fee; facility payment;

anesthesia fee; post-op care; evaluation; drugs; and re-operation. Once data on Part D drug costs are available, these could be included as well.

Another option is the treatment of Macular Degeneration where much of the cost variation is dependent on Part B drugs. A time-defined episode could be designed that could address the price of drugs by paying a care coordination or care management fee that would be linked to adherence to guidelines and certain practice improvement activities (similar to what some oncology models do).

An additional possibility is the development of a time defined episodic payment around the treatment of glaucoma that would include drugs, diagnostic testing and care coordination with primary care and optometrists.

UROLOGY

Because of the high incidence and impact on Medicare, the clinical condition that holds the most potential for developing an APM in urology is Benign Prostatic Hyperplasia (BPH). In terms of an appropriate model for BPH, payment for a time limited episode of care would seem to be most appropriate. This would incentivize proper choices around testing and medical versus surgical treatment. Another consideration could be payment that incentivizes the use of clinical guidelines and/or clinical decision support tools.

Although prostate cancer has many of the features that were considered favorable to model development, it is not highly recommended for the reasons cited above.

CARDIOTHORACIC SURGERY

Cardiothoracic surgery as a specialty has been among the leaders in data collection, quality measure development, and professional engagement in health reform. The Virginia Cardiac Surgery Quality Initiative (VCSQI) is the most promising model. The VCSQI works to compare and exchange data and information to improve the quality of thoracic surgery care and reduce costs by eliminating complications, improving efficiency, and lowering resource use. Although currently, there is no shared savings arrangement built around the use of the database, the next step is to develop an incentive plan to use the system appropriately. One option would be to start with a payment on top of FFS for using the database. Then, it might be possible to move to a shared savings arrangement, possibly using a third party committee to determine the income stream.

VASCULAR SURGERY

Advanced CKD may have potential for model development that involves both nephrologists as well as vascular surgeons. A time-defined bundle for patients with advanced CKD that optimizes care to forestall ESRD as long as possible and includes vascular access at the proper time to avoid catheter placement, complications and repeated interventions. This could be an extension of the existing ESRD bundle.

GASTROENTEROLOGY

The potential exists to design a bundle around screening colonoscopy. However, the professional organization interviewed has found the process very complex and has so far been unsuccessful.

RHEUMATOLOGY

Rheumatoid Arthritis (RA) is a condition that has promise in terms of developing a new payment model. A potential model could be a time-defined bundle that would involve primary care and rheumatology and incentivize appropriate monitoring of symptoms, judicious use of testing, coordination of care with referral to rheumatologists at the appropriate time, and appropriate drug utilization.

OTHER SPECIALTIES

Again, it should be noted that anesthesiology, radiology, and pathology are important specialties to consider in designing many models, since they provide important services for many clinical conditions and episodes of care. As previously mentioned, procedures such as cardiothoracic surgery, orthopedic surgery, and screening colonoscopy may involve some combination of these specialties. However, since they are often not responsible for the decisions to utilize those services, their main contribution will likely be as part of models involving other specialists or in outreach and education efforts about appropriate use of their services. The remaining specialties are included in Table 2. These specialties offer less potential for model development in the context of this project because of a small impact on Medicare, a lack of opportunity to affect provider practice, lack of a data infrastructure to support model development or lack of engagement within the specialty.

Table 2: Summary of Specialty Alternative Payment Model Criteria
(Ordered from most to least promising for developing APMs)

Specialty	Opportunity	Medicare Impact	Potential Conditions/Models	Quality Measures	Data Infrastructure	Interest in exploring non-FFS Option
Cardiology	Complex Medical Management(drugs, diagnostic cath, imaging, devices (ICDs))	High	Stable Angina Atrial Fibrillation TAVR	Good measures	Have Registry Data on angina, angioplasty, MI	High
Orthopedic Surgery	Avoidance of hip fractures – ACO model?	High	Hip Fracture Total Joint Replacement	Putting together clinical practice based guideline for hip fracture, still need	Have registry to support model development	High

Specialty	Opportunity	Medicare Impact	Potential Conditions/Models	Quality Measures	Data Infrastructure	Interest in exploring non-FFS Option
				work on quality measures		
Ophthalmology	Site of Service, Complex Medical Management(drugs, diagnostic testing)	High	Cataracts Macular Degeneration Glaucoma Diabetic Retinopathy	Have submitted measures to NQF but none are approved	Actively pursuing a registry and measure development	High
Urology	Complex Medical Management	High	Benign Prostatic Hyperplasia Prostate Cancer UTI	Not well developed, could easily develop for BPH	No registry at present	Mod
Cardiothoracic Surgery		High	Open-heart surgery	Have quality measures	STS and CMS claims database	Mod
Vascular Surgery	Complex Medical Management, Procedural bundle for CKD Stage 5. Overlap with ESRD model?	High (ESRD)	Chronic kidney disease Vascular access for ESRD Lower extremity peripheral vascular disease	Should be possible to develop measures for ESRD access	Registry since 2005 PSO to store data	Mod-high
Gastroenterology	Procedural bundle. Site of Service for colonoscopy	Med-low	Colonoscopy IBD	Need better measures	Need better data	High
Anesthesiology	Procedural bundle (devices & supplies)	Med	Perioperative Surgical Home	Need to define measures	Need better data	High
Nephrology	Complex Medical Management	Med	Late stage CKD/ESRD	Measures could be developed	Need better data	High
Neurology	Complex Medical Management, Site of Service for MS	Med	Alzheimer's/Dementia/ Stroke / multiple sclerosis	Measure development immature	Need better data	Mod
Radiology	Complex Medical Management opportunities for	High	Mammography screening *Important to include with other	Unclear	Should be able to get data	High

Specialty	Opportunity	Medicare Impact	Potential Conditions/Models	Quality Measures	Data Infrastructure	Interest in exploring non-FFS Option
	imaging		specialties			
Emergency Medicine	Need HIT exchange network. Coordinate with SNF to avoid repeated ER use.	High	None	Not well defined	Will be difficult	Low
Dermatology		Low	None	Early stages of development	Early stages of development	Low
Rheumatology	Complex Medical Management	Med	Rheumatoid Arthritis	Measures need to be defined	Should be able to get data	Mod
Surgery		High	VBU	None	None	High
Neurological Surgery	Procedural bundle	Low	Bundle treatment of brain mets	None	None	Mod
Pathology	Procedural bundle, ACO influence over ordered tests	Low	None *Important to include with other specialties	None	None	High
Otolaryngology		Low	None	None	None	Low
Endocrinology	Complex Medical Management	Low	Diabetes bundle	Not well defined	Need data	Mod

Appendix A: Stakeholders by Specialty

Specialty	Organization
1. Anesthesiology	American Society of Anesthesiologists
2. Cardiology	American College of Cardiology
3. Cardiothoracic Surgery	Society of Thoracic Surgeons
4. Dermatology	American Academy of Dermatology
5. Emergency Medicine	American College of Emergency Physicians
6. Endocrinology	American Association of Clinical Endocrinologists
7. Gastroenterology	American Gastroenterological Association
8. Nephrology	American Society of Nephrology
9. Neurological Surgery	American Association of Neurological Surgeons
10. Neurology	American Academy of Neurology
11. Ophthalmology	American Academy of Ophthalmology
12. Orthopedic Surgery	American Association of Orthopedic Surgeons
13. Orthopedic Surgery	National Bone Health Alliance
14. Otolaryngology	American Academy of Otolaryngology
15. Pathology	College of American Pathologists
16. Payer	Blue Cross Blue Shield Association
17. Payer	Kaiser Permanente
18. Payer	UnitedHealth Group
19. Radiology	American College of Radiology
20. Rheumatology	American College of Rheumatology
21. Surgery	American College of Surgeons
22. Thought Leader	American Medical Association
23. Thought Leader	Center for Healthcare Quality and Payment Reform
24. Urology	American Urological Association
25. Vascular Surgery	Society for Vascular Surgery

Appendix B: Bibliography by Specialty

Cardiology

1. Allen L, Smoyer T, Wilson K, Smith D, Agodoa I. The Inpatient Experience and Predictors of Length of Stay for Patients Hospitalized with Systolic Heart Failure: Comparison By Commercial, Medicaid, and Medicare Payer Type. *Journal of Medical Economics*. 2013;16(1):43-54.
2. *Anticoagulation Initiative*. American College of Cardiology. <http://www.cardiosource.org/Science-And-Quality/Quality-Programs/Anticoagulation.aspx>
3. *A Pathway to Evidence-Driven Payment Reform in Cardiology*. American College of Cardiology.
4. *Bundled Payments for Care Improvement (BPCI) Initiative: General Information*. CMS. <http://innovation.cms.gov/initiatives/bundled-payments/>
5. *Cardiology Payment Models*. American College of Cardiology.
6. Cove CL and Hylek EM. An Updated Review of Target-Specific Oral Anticoagulants Used in Stroke Prevention in Atrial Fibrillation, Venous Thromboembolic Disease, and Acute Coronary Syndromes. *Journal of the American Heart Association*. 2013.
7. Douglas, et al, Use of stress testing and diagnostic catheterization after coronary stenting: association of site-level patterns with patient characteristics and outcomes in 247,052 Medicare beneficiaries. *J Am Coll Cardiol*. 2013 Jul 30;62(5):439-46.
8. Shah BR, McCoy LA, Federspiel JJ, Murdrick D, Cowper PA, Masoudi FA, Lytle BL, Green CL, Douglas PS. Use of stress testing and diagnostic catheterization after coronary stenting: association of site-level patterns with patient characteristics and outcomes in 247,052 Medicare beneficiaries. *Journal of the American College of Cardiology*. July 2013. 62(5):439-46.
9. *SMARTCare Abstract*. American College of Cardiology.
10. Webb JG and Wood DA. Current Status of Transcatheter Aortic Valve Replacement. *Journal of the American College of Cardiology*. 2012. 60:483-92.
11. Willet WC, Kaplan JP, and Nugent R. Prevention of Chronic Disease by Means of Diet and Lifestyle Change. *Disease Control Priorities in Developing Countries, Second Edition* (2006).

Orthopedic Surgery

12. *Bundled Payments for Care Improvement (BPCI) Initiative: General Information*. Centers for Medicare and Medicaid Services. <http://innovation.cms.gov/initiatives/bundled-payments/>
13. *Medicare Acute Care Episode Demonstration for Orthopedic and Cardiovascular Surgery*. Centers for Medicare and Medicaid Services. http://www.cms.gov/Medicare/Demonstration-Projects/DemoProjectsEvalRpts/downloads/ACE_web_page.pdf
14. Wheeler, A. Draft: Burden of Hip Fracture in the United States. August 2013.

Ophthalmology:

15. Medicare Payment Advisory Commission, March 2013 Report to Congress. http://www.medpac.gov/documents/Mar13_entirereport.pdf; and Medicare Payment Advisory Commission, March 2012 Report to Congress. http://www.medpac.gov/documents/Mar12_EntireReport.pdf

Urology:

16. Rosenberg MT, Staskin DR, Kaplan SA, MacDiarmid SA, Newman DK, Ohl DA. A practical guide to the evaluation and treatment of male lower urinary tract symptoms in the primary care setting. *International journal of clinical practice*. Sep 2007;61(9):1535-1546.
17. Sakshaug JW, Miller DC, Hollenbeck BK, Wei JT, Hollingsworth JM. Urologists and the Patient-Centered Medical Home. *The Journal of Urology*. 2013.

Cardiothoracic Surgery

18. Speir A, Rich J, Crosby I, Fonner Jr E. Regional Collaboration as a Model for Fostering Accountability and Transforming Health Care. *Seminars in Thoracic and Cardiovascular Surgery*. Spring 2009. 21(1):12-9.

Gastroenterology

19. *AGA Digestive Health Outcomes Registry*. American Gastroenterological Association. <http://www.gastro.org/practice/digestive-health-outcomes-registry>
20. Brill J and Jain R. Bundled Payments in Gastroenterology. *American Gastroenterological Association*. April 2013. <http://www.gastro.org/journals-publications/news/bundled-payments-in-gastroenterology-time-for-a-colonoscopy-bundle>
21. *Bundled Payments: What You Need to Know and Why*. American Gastroenterological Association. http://www.gastro.org/practice/quality-initiatives/Bundled_Payments.pdf

Anesthesiology

22. *The Perioperative Surgical Home: An emerging draft proposal for pilot innovation demonstration projects*. American Society of Anesthesiologists. May 2011.

Nephrology

23. Allon M, Dinwiddie L, Lacson Jr E, Latos DL, Lok CE, Steinman T, Weiner DE. Medicare Reimbursement Policies and Hemodialysis Vascular Access Outcomes: A Need for Change. *Journal of the American Society of Nephrology*. 2011. 22:426-430.
24. Hamm LL, Hostetter TH, Shaffer RN. Considering an Integrated Nephrology Care Delivery Model: Six Principles for Quality. *Clinical Journal of the American Society of Nephrology*. 2012. 8(4):682-6.

Neurology

25. *American Academy of Neurology (AAN) Proposal to the Center for Medicare and Medicaid Innovation: Clinical Decision Support-related Interventions to Cost-effectively*

Diagnose, Prepare, and Execute Acute Stroke Therapies such as t-PA. American Academy of Neurology. January 2012.

26. *Stroke Episode of Care: A Guide for Bundled Payments.* American Academy of Neurology.

Radiology

27. Hughes DR and Duszak R. Beyond Fee-For-Service: Emerging Payment Models in Radiology. *Harvey L. Neiman Health Policy Institute Brief #3.* June 2013.

Pathology

28. Gross DJ. Contributions of Pathologists in Accountable Care Organizations: A Case Study. *College of American Pathologists.* May 2012.