Foundations of Resource Stewardship

Annotated Bibliography

Part of the CanMEDS Resource Stewardship Curriculum Toolkit Series

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Alliance for Academic Internal Medicine. *High Value Care Learner Assessment Tools*. Last retrieved August 18, 2017 from AAIM's website*:* http://www.im.org/p/cm/ld/fid=1532

Mount CA, PA Short, GR Mount and CM Schofield. 2014. An End-of-Year Oral Examination for Internal Medicine Residents: An Assessment Tool for the Clinical Competency Committee. *Journal of Graduate Medical Education*. **6**(3): 551-554.

BARRIERS TO RESOURCE STEWARDSHIP/DRIVERS OF OVERUSE

Morgan DJ, S Brownlee, AL Leppin, N Kressin, SS Dhruva, L Levin, BE Landon, MA Zezza, H Schmidt, V Saini and AG Elshaug. 2015. Setting a research agenda for medical overuse. *BMJ*. **351**:h4534.

Parmar MS. 2016. A Systematic Evaluation of Factors Contributing to Overdiagnosis and Overtreatment. *Southern Medical Journal.* **109**(4):272-276.

EDUCATIONAL STRATEGIES FOR REDUCING UNNECESSARY CARE

Huang GC, CD Tibbles, LR Newman and RM Schwartzstein. 2016. Consensus of the Millennium Conference on Teaching High Value Care. *Teaching and Learning in Medicine.* **28**(1):97-104.

This article reports on the outcome of a consensus conference at which seven medical school teams met to discuss strategies in promoting and educating trainees on 'high value care' (HVC). HVC is described as care that takes into account the optimal balance of both clinical benefit with costs and harms, and whose ultimate goal is to improve patient outcomes. First, the authors emphasize that communication with patients is a cornerstone of HVC through informed decision-making, building trust, and supporting statements with evidence. The article also discusses the need for assessment and educational tools in HVC and suggests interactive online modules and the benefit of teaching costs during medical training. The barriers described include time constraints, lack of control over tests requested by consultants, and insufficient support for decisions; however, there is optimism for the newer generations of trainees to implement HVC into their practice. This article clearly outlines the importance of this topic, summarizes the consensus from the meeting, and discusses practical tools for implementing HVC.

Other recommended reading:

- Detsky AS and AA Verma. 2012. A new model for medical education: celebrating restraint. *JAMA*. **308**(13):1329-1330.
- Korenstein D. 2015. Charting the route to high-value care: The role of medical education. *JAMA*. **314**(2): 2359-2361.
- Lakhani A, E Lass, WK Silverstein, KB Born, W Levinson and BM Wong. 2016. Choosing Wisely for Medical Education: Six Things Medical Students and Trainees Should Question. *Academic Medicine.* **91**(10): 1374-1378.
- Leep Hunderfund AN, LN Dyrbye, SR Starr, J Mandrekar, JM Naessens, JC Tilburt, P George, EG Baxley, JD Gonzalo, C Moriates, SD Goold, PA Carney, BM Miller, SJ Grethlein, TL Fancher and DA Reed. 2016. Role Modeling and Regional Health Care Intensity: U.S. Medical Student Attitudes Toward and Experiences With Cost-Conscious Care. *Academic Medicine.* **92**(5):694-702.
- Moriates C, D Dohan, J Spetz and GF Sawaya. 2015. Defining competencies for education in healthcare value: recommendations from the University of California, San Francisco Center for Healthcare Value Training Initiative. *Academic Medicine.* **90**(4): 421-424.
- Rosenbaum L and D Lamas. 2012. Cents and Sensitivity – Teaching Physicians to Think about Costs. *New England Journal of Medicine.* **367**(2):99-101
- Smith CD, WS Levinson, Internal Medicine HVC Advisory Board. 2015. A commitment to high-value care education from the internal medicine community. *Annals of Internal Medicine.* **62**(9):639-40

ETHICAL ASPECTS OF RESOURCE STEWARDSHIP

Reuben DB and CK Cassel. 2011. Physician stewardship of healthcare in an era of finite resources. *JAMA.* **306**(4):430-1

This commentary suggests healthcare resource stewardship in the United States be addressed at three main levels: national or state policy, payer and practice to achieve benefit. National or state policies are suggested as opportunities to promote resource stewardship through funding mechanisms. The second level of stewardship should be at the 'payer level', where insurance coverage decisions are made. Changes here are key, especially since patients in the United States pay high costs for essential treatments, in addition to services that are deemed to be inessential, ineffective, or very expensive. The third level of stewardship is at the practice level, where group practices can choose to favor generic over brand names for medications of comparable effectiveness, for example. This includes the level of the individual clinician, where decision-making may be better guided by evidence-based medicine, as well as in the context of what is beneficial and medically appropriate for any given patient. Stewardship can also be at the level of the patient, where having conversations about shared decision-making for individuals may lead to larger community discussions and ultimately affect policy, legislation, and elections.

Berwick DM. 2017. Avoiding overuse-the next quality frontier. *The Lancet.* **390**(10090):102-104.

This commentary describes the quality problems of overuse of ineffective healthcare and underuse of effective healthcare. It describes effects that proper utilization of resources will have on both low and high income countries. This article is related to the Lancet 'Right Care' Series, which highlights global drivers of overuse as well as underuse. For those interested in global health and understanding the quality problem of unnecessary care, this article and series provides useful insight.

Berwick DM and AD Hackbarth. 2012. Eliminating Waste in US Healthcare. *JAMA.* **307**(14):1513-1516.

This commentary highlights innovative strategies for reducing healthcare spending in the US, not by eliminating services that actually help patients and improve care, but through reducing waste. They outline six categories of waste: (1) failures of care delivery, (2) failures of care coordination, (3) overtreatment, (4) administrative complexity, (5) pricing failures, and (6) fraud and abuse. Their discussion around a "wedges of waste" model for reducing healthcare spending predicts that incremental or fractional reductions in waste are much more beneficial than broader, more blunt cuts in care and coverage. Overall, this theoretical model is a unique one, and outlines a novel perspective on cost reduction strategies.

Brownlee S, K Chalkidou, J Doust, AG Elshaug, P Glasziou, I Heath I, S Nagpal, V Saini, D Srivastava, K Chalmers and D Korenstein. 2017. Evidence for overuse of medical services around the world. *The Lancet.* **390**(10090):156-168.

This review article focuses on evidence of the overuse of medical services, defined as instances where "…the potential for harm exceeds the potential for benefit". Evidence is provided from five systematic reviews. The authors review evidence from the peer reviewed literature to discuss overuse of medication, screening tests, diagnostic tests and therapeutic procedures. Further examples of overuse in site of care delivery and end of life care are described. The article details individual physical and psychological harms of overuse, and broader harms of overuse to healthcare systems.

Elshaug AG, MB Rosenthal, JN Lavis, S Brownlee, H Schmidt, S Nagpal, P Littlejohns, D Srivastava, S Tunis, and V Saini. 2017. Levers for addressing medical underuse and overuse: achieving high-value healthcare. *The Lancet.* **390**(10090):191–202

This review article outlines the measures to improve the value of healthcare globally. Improving value is described as the right care, for the right patient, carried by the right

individual at the right time in the right setting. Two strategies, top down and bottom up are described as potential levers. Various stakeholders and groups are discussed, and both strategies are considered for these groups. Patients, communities and civil organizations are described as vital to be included in decision-making because they are both the recipients and ultimate payers of healthcare. Additionally, actively engaging these individuals can increase the legitimacy of efforts to determine the relative value of various investments in healthcare. Clinical practice guidelines (CPG) are discussed as tools to assist in practitioner and patient decisions about appropriate healthcare. This article also outlines the role of systems and government policy makers in improving the value of healthcare, specifically touching on the implementation of public policy to address important factors that drive health, including social determinants. Government and policy makers must enact policies that emphasize primary care to reduce high cost care such as in-hospital care.

Hofmann B. 2014. Diagnosing overdiagnosis: conceptual challenges and suggested solutions. *European Journal of Epidemiology*. **29**(9): 599-604.

There is a lack of a common definition or understanding of the term over diagnosis. This contributes to challenges related to research and measurement of the problem of over diagnosis. This commentary analyses and specifies the concept of over diagnosis. In analysing the concept, the author argues that there are four basic problems with the common definition of over diagnosis and suggest nomenclature to divide this complex concept into several more explicit concepts to simplify measurement and to address the challenges that are related to clinicians' approaches to diagnostics.

Morgan DJ, SS Dhruva, SM Wright and D Korenstein. 2016. 2016 Update on Medical Overuse: A Systematic Review. *JAMA Internal Medicine.* **176**(11):1687-1692.

This systematic review focuses on ten of the most influential articles published in 2015 addressing the overuse of medical care. These articles discuss overuse of testing (e.g. imaging for headaches), overuse of treatment (e.g. inappropriate testosterone replacement therapy), and medical practices to question (e.g. serial follow-up of benign thyroid nodules). These studies demonstrate that overuse is common in medical practice and exists in all healthcare sectors. This article invites the reader to reflect on inappropriate medical care in daily practice, in the hopes that this awareness will foster changes in practice to reduce inappropriate care and improve quality. The article provides an overview of key clinical areas of overuse and can be used to teach healthcare workers in training, in addition to aiding in quality improvement projects.

Saini V, S Brownlee, AG Elshaug, P Glasziou and I Heath. 2017. Addressing overuse and underuse around the world. *The Lancet.* **390**(10090):105-107

This commentary delves into the complex causes and drivers of overuse and underuse in healthcare globally. It concludes that this issue exists in both low income and high income countries and prevails despite differences between how professionals are paid (eg. salaried,

fee-for-service-) or system funding models (eg. public, private). The authors conclude that efforts to improve quality and reduce overuse need to take account the multiple drivers of this problem and that no one approach can solve this complex problem.

Saini V, S Garcia-Armesto, D Klemperer, V Paris, AG Elshaug, S Brownlee, JPA Ioannidis and ES Fisher. 2017. Drivers of poor medical care. *The Lancet.* 390(10090):178–190.

This commentary outlines three domains contributing to poor medical care, which is described as both of inappropriate overuse and underuse: (1) money and finance; (2) knowledge, bias, and uncertainty; and (3) power and human relationships. First it summarizes the impact of finances and economics on medical care, including the impact of socioeconomic status, financing of health systems, and economic incentives influencing patients, providers, and systems. Next it touches on research and how that influences medical care; specifically, research that fails to produce meaningful results that impact patient care due to impracticalities in its application to clinical practice or from being too underpowered to have generalizable results. Lastly, power and human relationships and the dynamics between physicians and patients can often lead to poor medical care. Policies can be subject to the demands of competing stakeholders leading to strategies that may have unintended harm. For example, in the USA and New Zealand where direct-to-consumer advertising is legal, there appears to be a higher percentage of consumers who demand certain drugs and other services because of increased awareness and often unfounded concerns about diseases. The net sum of these influence and drive poor medical care.

Other recommended reading:

- Emmanuel and A Steinmetz. 2013. Will Physicians Lead on Controlling Healthcare Costs? *JAMA*. **310**(4):374-5.
- Owens DK, A Qaseem, R Chou and P Shekelle, for the Clinical Guidelines Committee of the American College of Physicians. 2011. High-value, cost-conscious health care: concepts for clinicians to evaluate the benefits, harms, and costs of medical interventions. *Annals of Internal Medicine.* **154**(3):174-180
- Rao VM and DC Levin. 2012. The Overuse of Diagnostic Imaging and the Choosing Wisely Initiative. *Annals of Internal Medicine.* **157**(8):574-6.
- The Lancet. *Right Care Series.* Last retrieved August 18, 2017 from The Lancet's website: http://www.thelancet.com/series/right-care.

RESOURCE STEWARDSHIP IN RELATION TO PATIENT EXPECTATIONS

Sabbatini AK, JC Tilburt, EG Campbell, RD Sheeler, JS Egginton and SD Goold. 2014. Controlling health costs: physician responses to patient expectations for medical care. *Journal of General Internal Medicine.* **29**(9): 1234-1241.

Physicians are gatekeepers of medical resources. This study examines how physicians consider healthcare resources and the strategies they use to exercise cost-consciousness in response to patient expectations and requests for medical care. The study reports results from focus groups of 62 physicians from a wide range of backgrounds and specialties. Physicians report making trade-offs between a variety of resources, and consider not only the relative cost of medical decisions and alternative services, but also the time and convenience of patients, as well as their own time constraints. The essential role of the patient in the decision-making process was acknowledged, although challenging when cost-conscious practice conflicts with patient expectations. They describe strategies and techniques to educate patients, build trust, or substitute less costly alternatives when appropriate, often adapting their management to the individual patient and clinical environment. Overall this study provides insight into policy measures that will address physician's roles in resource stewardship, and prompt further research into the complex interactions between patients and physicians.

RESOURCE STEWARDSHIP TERMINOLOGY

Canadian Medical Association. *CMA Policy: Appropriateness in Healthcare.* Last retrieved August 18, 2017 from CMA's website: http://policybase.cma.ca/dbtw-wpd/Policypdf/PD15-05.pdf

The Canadian Medical Association (CMA) policy document on improving healthcare sustainability through appropriateness defines appropriateness as: the right care, provided by the right providers, to the right patient, in the right place, at the right time, resulting in optimal quality care with the most effective cost. It emphasizes how quality of care should not be compromised while doing so. Barriers to appropriateness such as political influence and patient expectations, and promoting evidence-based conversations, is one strategy presented to overcome this. The report recommends each jurisdiction provide a framework for potentially inappropriate care, including a means to convey the information and results.

ROLE OF EDUCATIONAL TRAINING EXPERIENCES IN SHAPING FUTURE PROVIDER RESOURCE STEWARDSHIP BEHAVIOUR

Chen C, S Petterson, R Phillips, A Bazemore and F Mullan. 2014. Spending patterns in region of residency training and subsequent expenditures for care provided by practicing physicians for Medicare beneficiaries. *JAMA.* **312**(22):2385-2393.

This study looks at the impact of training on family and internal medicine residents trained in various hospital referral regions (HRRs) in the United States, categorized into low, average and high spending groups. Data analysis revealed that physician spending patterns were associated with regional spending patterns during residency training. A 29% difference in spending between physicians of the high and lows spending training regions was noted within 7 years of completing training. However, within 16-19 years of training, there was no statistically significant difference. The limitations of the study include the fact that location of training and average Medicare spending per individual in a HRR were used as proxies for training experience. Additionally, the study doesn't account for the fact that within a single HRR, spending variation exists among residents and practicing physicians. Lastly, clinical outcomes were not measured. Accounting for these limitations, the results of this study shows an association between the spending patterns in the HRR in which residents train and healthcare resource use early in practice.

Sirovich BE, RS Lipner, M Johnston and ES Holmboe. 2014. The association between residency training and internists' ability to practice conservatively. *JAMA Internal Medicine.* **174**(10):1640-1649.

This study assessed whether graduates of residency programs characterized by low-intensity practice patterns manage patients' care conservatively, when appropriate, and whether graduates of these programs are less likely to provide appropriately aggressive care. Here, intensity of practice was measured using the End-of-Life Visit Index, which is the average number of physician visits within the last 6 months of life among Medicare beneficiaries 65 years and older in the residency programs' hospital referral region (HRR). They found that trainees from regions with lower intensity medical practice were more likely to recognize when conservative management is appropriate, and this was irrespective of differences in knowledge base. The study also found that physicians trained in lower intensity regions were still capable of choosing an aggressive approach when indicated.

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Stammen LA, RE Stalmeijer, E Paternotte, A Oudkerk Pool, EW Driessen, F Scheele and LPS Stassen. 2015. Training Physicians to Provide High-Value, Cost-Conscious Care: A Systematic Review. *JAMA*. **314**(22):2384-2400.

This systematic review evaluates how to deliver high value, cost-conscious care. Three general areas were identified as aiding in successful learning: (1) knowledge transmission, (2) reflective practice, (3) supportive learning environment. Knowledge transmission includes the ability to understand scientific evidence, patient preferences and pricing and health economics, and the applicability of each to medical decision making. Reflective

practice includes feedback on ordered tests and treatments which can be directed towards individual physicians on their practice, and more broadly around questions regarding reflections on medical decision-making and quality. A supportive learning environment includes macro level support to incentives and support to improve practice, clinical role models to teach and demonstrate high value care and a culture of interprofessional collaboration.

Other recommended reading

- Aror A, A True and the Dartmouth Atlas of Health Care. 2012. *What kind of physician will you be? Variation in healthcare and its importance for residency training.* Hanover, New Hampshire: The Dartmouth Institute for Health Policy and Clinical Practice.
- Asch DA, S Nicholson, S Srinivas, J Herrin, AJ Epstein. 2009. Evaluating obstetrical residency programs using patient outcomes. *JAMA.* 302(12):1277–1283.
- Dine CJ, LM Bellini, G Diemer, A Ferris, A Rana, G Simoncini, W Surkis W, C Rothschild, DA Asch, JA Shea and AJ Epstein. 2015. Assessing Correlations of Physicians' Practice Intensity and Certainty During Residency Training. *Journal of Graduate Medical Education.* **7**(4):603-9.
- Monette J, RM Tamblyn, PJ McLeod and DC Gayton. 1997. Characteristics of physicians who frequently prescribe long-acting benzodiazepines for the elderly. *Evaluation & the Health Professions.* **20**(2):115-130.
- Moriates C and BM Wong. 2016. High-value care programmes from the bottom-up… and the top-down. *BMJ Quality and Safety*. **25**(11):821-823
- Patel MS, DA Reed, C Smith and VM Arora 2015. Role-Modeling Cost-Conscious Care-A National Evaluation of Perceptions of Faculty at Teaching Hospitals in the United States. Journal of General Internal Medicine. **30**(9):1294-1298.
- Weinberger SE. 2011.Providing High-Value, Cost-Conscious Care: A Critical Seventh General Competency for Physicians. Annals of Internal Medicine. **155**(6):386-388.

STRATEGIES FOR REDUCING UNNECESSARY CARE

Chen CL, GA Lin, NS Bardach, TH Clay, WJ Boscardin, AW Gelb, M Maze, MA Gropper, and RA Dudley. 2015. Preoperative Medical Testing in Medicare Patients Undergoing Cataract Surgery. *New England Journal of Medicine.* **372**(16):1530-1538.

This study investigated the frequency and patterns of preoperative medical assessments in data collected from over 440,000 patients undergoing cataract surgery. Evidence suggests that for a low risk surgery such as cataract removal surgery, preoperative tests offer no clinical value to patients. The study found significant variations in practice, and this mainly differed by ordering physician rather than by patient characteristics. This study highlights how physicians may have testing and practice patterns that are rooted in routine rather than evidence and it should encourage physicians to reflect upon their own ordering

practices and consider whether these are evidence-based, and offer clinical value to patients.

Waxman DA, MD Greenberg, MS Ridgely, AL Kellermann and P Heaton. 2014. The Effect of Malpractice Reform on Emergency Department Care. *New England Journal of Medicine.* **371**(16):1518-1525.

This study is a quasi-experimental analytic approach to evaluate the effect of legal reform on the treatment of Medicare patients in the emergency department. They hypothesized that adjusting definitions of malpractice could change healthcare resource use in the emergency department, as studied in three states (Texas, Georgia, and South Carolina). Malpractice concerns are commonly cited by physicians as a reason for overuse. These states had recently changed in their defined liability standards for emergency care to gross negligence (meaning proof of quite severe negligence by physician is required), and measured healthcare expenditure by the rates of advanced imaging or hospital admission. The results showed little difference in these parameters before and after the reform, suggesting that use of emergency department imaging is unlikely to be affected by physicians perceived risk of malpractice claims alone. The study also proposes that physicians appear to be less motivated by legal risk than they believe themselves to be. Other factors that may play a role in defensive decision-making include risk-aversion in general, and the inherent, unique challenge facing physicians as gatekeepers of medical resources. Further studies could expand upon concepts raised in this article.

VIDEOS ON RESOURCE STEWARDSHIP

DocMikeEvans. *Do More Screening Tests Lead to Better Health? Choosing Wisely.* Last retrieved August 18, 2017 from Mike Evans' YouTube page: https://www.youtube.com/watch?v=8c7qTsVVxXw&index=1&list=PLo06RNEsN5xqLQVhcqjkoghaL9-zjhPHb

This video is a visual lecture which explores the utility of screening tests in primary healthcare practice. For instance, the appropriateness of mammography in asymptomatic average risk women, screening of thyroid dysfunction in low risk individuals and routine screening ECGs. Other topics covered in the video include vitamin D testing, osteoporosis and Pap smears, all of which have undergone revisions in the recommendations for screening as regular testing has not found to improve patient outcome. Dr. Mike Evans who narrates the video suggests that more testing is not always better for patient care nor does it improve patient outcomes. Dr. Evans suggests an approach that takes patient values and individual risk factors into consideration to determine which screening tests are most appropriate for patients.

Teaching Value. *Teaching Value YouTube channel.* Last accessed August 18, 2017 at: https://www.youtube.com/channel/UChhOPJF5zGlmSgRf1QRGLVA

This YouTube channel is part of the Teaching Value in Healthcare Google Group and includes recordings of various speakers hosted through online 'Hangouts'.

Other recommended videos

- Tedx Talks. *How Medical Screening Turns Healthy People into Patients: Alan Cassels at TEDxVictoria. CMA Policy: Appropriateness in Healthcare.* Last retrieved August 18, 2017 from TEDx Talks' YouTube channel: https://www.youtube.com/watch?v=k1X0CfXAo-A&index=10&list=PLo06RNEsN5xqLQVhcqjkoghaL9-zjhPHb

WEB PAGES ON RESOURCE STEWARDSHIP

To find out more information and/or become more involved in resource stewardship, visit these webpages:

- American College of Physicians. *Controlling Health Care Costs While Promoting the Best Possible Health Outcomes.* Last retrieved August 25, 2017 from ACP's website: https://www.acponline.org/acp_policy/policies/controlling_healthcare_costs_2009.pdf
- American College of Physicians. *Curriculum for Educators and Residents.* Last retrieved August 25, 2017 from ACP's website: https://www.acponline.org/clinical-information/high-value-care/medical-educators-resources/curriculum-for-educators-and-residents
- American Hospital Association. *Appropriate Use of Medical Resources*. Last retrieved August 25, 2017 from AMA's website: http://www.ahaphysicianforum.org/files/pdf/appropusewhiteppr.pdf
- Canadian Medical Association Journal. *Focus on Choosing Wisely Canada.* Last retrieved August 25, 2017 from CMAJ's website: http://www.cmaj.ca/site/pdfs/choosing-wisely.pdf
- Costs of Care. Value Conversation Modules. Last retrieved August 25, 2017 from Costs of Care's website: http://costsofcare.org/value-conversations-modules/
- Gawande, A. An avalanche of unnecessary medical care is harming patients physically and financially. What can we do about it? Last retrieved August 25, 2017 from the Annals of Health Care website: http://www.newyorker.com/magazine/2015/05/11/overkill-atul-gawande
- MDcme.ca. Canada's University eCME provider. Last accessed August 25, 2017 at: https://www.mdcme.ca/courseinfo.asp?id=155
- Otte, J. *Less is More Medicine.* Last accessed August 25, 2017 at: http://www.lessismoremedicine.com/

- *The University of Texas at Austin Dell Medical School.* Discovering Value-Based Health Care. Interactive Learning Modules from Dell Medical School. Last retrieved August 25, 2017 from The University of Texas' website: vbhc.dellmed.utexas.edu
- Workman S. *Demands for Inappropriate Treatment*. Last retrieved August 25, 2017 from The Royal College of Physicians and Surgeons of Canada's website: http://www.royalcollege.ca/rcsite/bioethics/cases/section-7/demands-for-inappropriate-treatment-e

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