

A Proposed Framework for Supporting Physicians to be Stewards of Health Care Resources: A Report Brief

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Executive Summary

Physicians play a crucial role in the health care system. With accountability to both patients and health care payer (e.g., taxpayer), physicians may feel tension when asked to balance the needs of the individual with their role as stewards of health care resources. With the pressure to provide optimal care, and finite resources, it is vital that physicians are empowered, enabled, and engaged to act as stewards of health care resources. Through a partnership between the Physicians as Stewards Working Group and the HTA Unit at the University of Calgary, and funding provided by the SPOR Evidence Alliance and Alberta's Strategic Clinical NetworksTM, a proposal was developed with the aims to: i) identify what approaches exist for enabling and supporting physicians to be stewards of health care resources; ii) determine the impact of each approach; and, iii) identify which is most likely to support physicians to use high value appropriate care within the Alberta context.

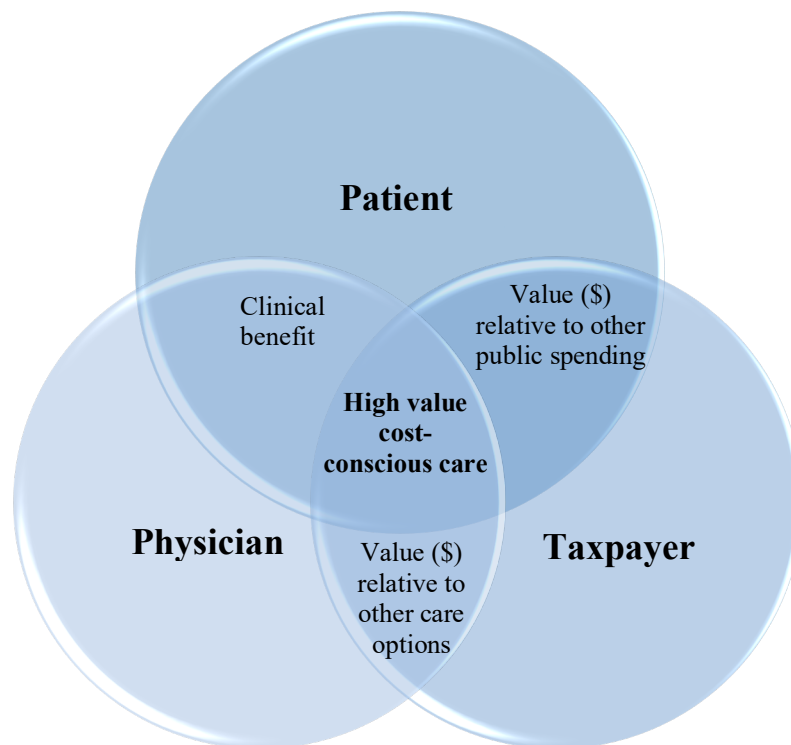
An initial search of the literature identified ten overarching strategies that could be categorized into four different levels of implementation: patient-level (e.g., shared decision making), clinician-level (e.g., education, mentorship, audit and feedback), organization-level (e.g., leadership endorsement, decision support tools and electronic prompts), and system-level (e.g., Encourage/enforce use of evidence-based data, regulations, compensation reform, restrict access based on patient criteria). Further investigation documented several implementation tactics within each strategy resulting in 18 tactics in total. In an initial exploratory phase of this work, to understand their potential effectiveness, we searched for systematic reviews of each of the 18 identified tactics. Of these 18, five tactics did not have a systematic review identified, four had inconclusive evidence, and nine tactics had systematic reviews which suggested effectiveness of the tactic including education, audit and feedback, electronic prompts, care pathways, and compensation reform.

Alberta has some unique assets within its health ecosystem that make some of the above-noted strategies more feasible than others. The goal of this report is to seek input from health system leaders about which strategies might be deemed feasible for further evidence synthesis, or may be considered for use as we enter a time of change within AHS and the broader health system to support government and AHS priorities. By narrowing the list of tactics that might be considered for large-scale use in Alberta, a more comprehensive assessment and analysis could be completed to inform implementation in Alberta.

Introduction

As with all health care systems, Canada's health care resources are finite. It is impractical to provide unlimited health care resources to all users and as such, decisions must be made on where resources are best used. As gatekeepers to care, physicians' decisions are particularly critical in influencing the scope and nature of resource utilization. Both collectively and individually, physicians have a unique opportunity to influence how health care resources are used and therefore, also have opportunity to improve the value of health care spending (e.g. outcomes achieved relative to the resources required). Physicians may be considered to have not one, but two accountabilities when making health care decisions; to the patient in front of them as well to other patients requiring care within the system (and more broadly to health care payers/taxpayers). (Figure 1). This dual accountability may lead physicians to feel tension when asked to balance the needs of the individual with their role as stewards of health care resources. However, in many health care systems, physicians are not empowered, or engaged to act as stewards of health care resources, or consider how their individual decisions may impact resource use within or beyond the health system. In a system of limited resources, poor resource allocation decisions can result in the inability to provide other health services for broader societal benefit.

Figure 1. Considerations of care decision by physician, patient, and taxpayer



This concept is not new; there have been many lenses used to look at physician stewardship including appropriateness, high/low value care, and cost-conscious care. *Appropriateness* is a concept of providing “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”.¹ *High/low value care* and *cost conscious care* describe care that balances clinical benefit with costs, with the goal of improving patient outcomes.^{2,3} All of these terms center around the idea of overuse, underuse and misuse of health care resources.

Physician stewardship can be accomplished by: *enabling* behaviour change; and *enforcing* behaviour change. Enabling behaviour change is accomplished by providing the appropriate resources and infrastructure to support stewardship. For example, implementing electronic prompts at point-of-care provides the physician with the opportunity to utilize information on cost and clinical effectiveness of care. Enforcing behaviour change is typically accomplished by organization- or system-level strategies, and creates behavior change by either incentivizing or deterring certain choices. For example, shifting from a volume-based (e.g., fee-for-service) to a value-based (e.g., compensation relative to quality of care) compensation model.

Partnering with the HTA Unit, a research proposal was developed by the Physicians as Stewards Working Group^a; a working group assembled by the Institute of Health Economics with members from the Alberta Medical Association, Alberta Health Services (Associate Chief Medical Officer SCN, and Senior Medical Director of Improving – Health Outcomes Together), the College of Surgeons and Physicians of Alberta and Alberta Health. The proposal was funded by the SPOR Evidence Alliance, with co-funding by the SCNs. The overarching objectives of this project are to:

- i. identify what approaches exist for enabling and supporting physicians to be stewards of health care resources,
- ii. determine the impact of each approach, and
- iii. identify which is most likely to support physicians to use high value appropriate care within the Alberta context.

This brief provides an overview of the project progress to-date and identifies strategies that could be considered as Alberta continues initiatives to achieve more value from health care resources.

^a The Physicians as Stewards of Resources Working Group has been an ongoing collaboration of partners, hosted by the Institute of Health Economics (outside of formal negotiation or regulatory processes) to discuss and advance policy work in this important area.

Overview of Research Approach

Recognizing the breadth of tools and synthesis literature already available on the various components of physician stewardship, the “Foundations of Resource Stewardship (Annotated Bibliography)” written by the Royal College of Physicians and Surgeons of Canada formed the foundation of a literature review. Citations within this resource were searched and all identified strategies were compiled into a list and categorized as to level of policy focus: clinician/patient specific (micro-level), organizational (meso-level) or system-level (macro-level). Over the course of several meetings, this list was then validated by the committee members to ensure that it was comprehensive and inclusive.

The purpose of conducting a search of systematic reviews of strategy effectiveness was to provide a broad overview; therefore, a non-systematic search strategy was employed. Systematic reviews on each of the identified strategies were hand searched using the Cochrane database for systematic reviews. If data were not identified for all relevant strategies using the Cochrane database for systematic reviews, other platforms were hand searched for relevant literature. When more than one systematic review was captured in the search, priority for inclusion was based on hierarchy of evidence (e.g., randomized controlled trials (RCT) versus observational studies), and publication date. Effectiveness data for each approach identified in the literature review were synthesized narratively and in tabular form.

Key Findings

Literature Review of Strategies

The literature review yielded ten broad strategies, or overarching approaches, that could be used to encourage physician stewardship of health care resources (Figure 2, Table 1). Within each strategy there were a variety of tactics, which refers to the specific action by which the strategy was implemented (Table 1). Strategies were categorized into micro (patient- and clinician-level), meso (organization-level), and macro (system-level) levels of implementation.

Figure 2. Overview of Proposed Framework of Strategies, by level of implementation

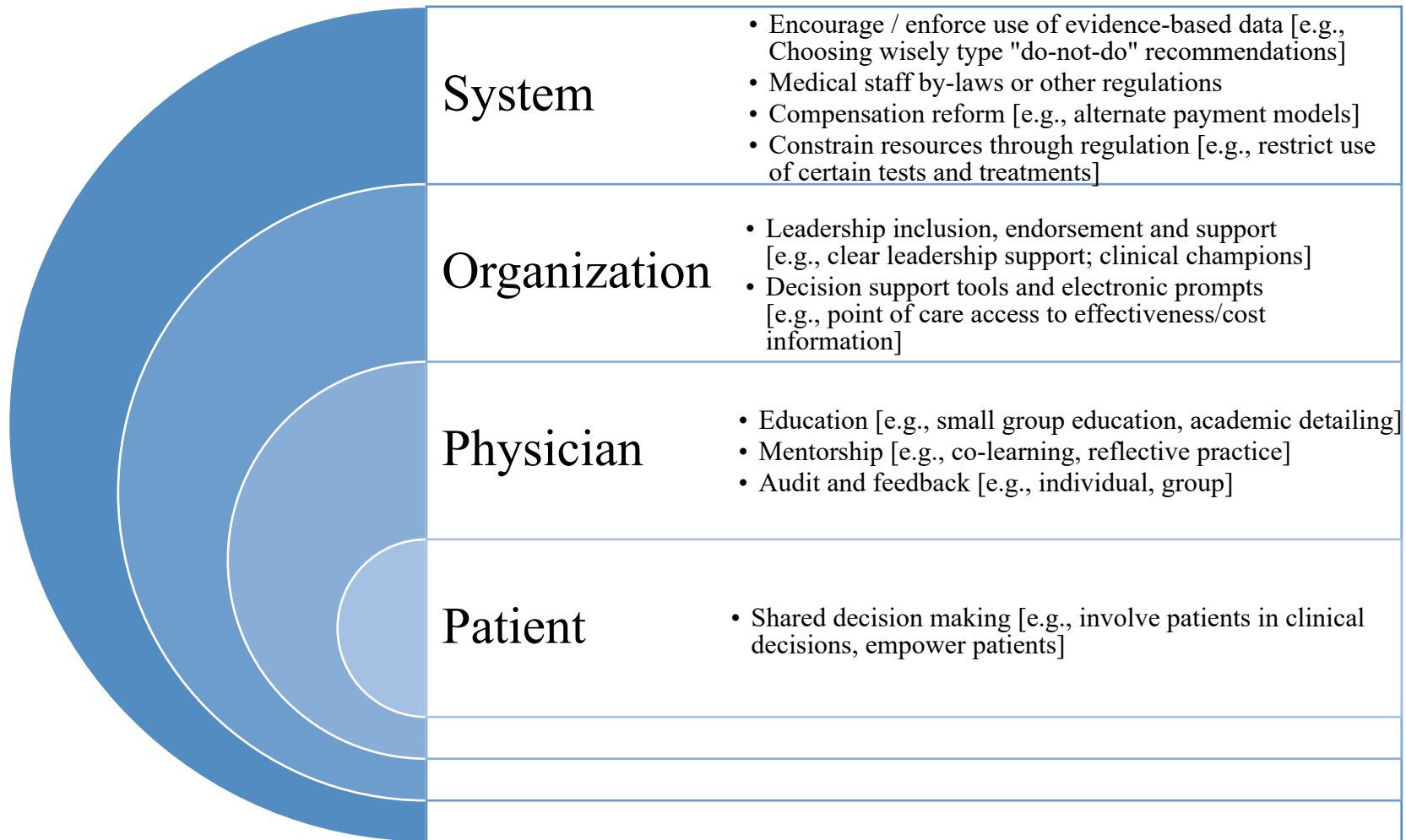


Table 1. Proposed Framework of Strategies and Tactics for Physician Stewardship of Resources

	Strategy and Tactics	Description
Patient-level	1. Shared decision-making	<ul style="list-style-type: none"> Show and involve patients in clinical practice guidelines⁴ Create electronic prompts for shared decision making⁵
		<ul style="list-style-type: none"> Discuss options for treatment and facilitate honest dialogue⁵⁻⁸ Promote patient-centered awareness through campaigns about appropriate use of health care resources⁵ Patients as care navigators
		<ul style="list-style-type: none"> Empower patients to engage in decision making by improving their understanding of what to expect with disease progression⁵ Co-design in decision-making Encourage patient responsibility without deterring needed care⁶ Price transparency⁶ Shape environments that encourage reduced demand for low-value care through informed consumers⁹ Social contracts
Clinician-level	2. Education	<ul style="list-style-type: none"> Provide easy access to a variety of educational products (including online) on misuse, underuse, and overuse/overdiagnosis^{8,10-12} Create educational opportunities within hospitals to highlight the importance of reducing non-beneficial care^{5,12} Emphasize complications and long term risks posed by tests and diagnostics, and implications of false positive results¹¹ Train students to deal with uncertainty Academic detailing
	3. Mentorship 3a. Reflective practice 3b. Co-learning	<ul style="list-style-type: none"> Facilitate reflective practice¹¹ Probe students and trainees to justify clinical decisions^{11,13} Encourage peer observation and feedback/coaching¹¹ Create co-learning opportunities between faculty and resident physicians^{14,15}

	4. Audit and feedback	<ul style="list-style-type: none"> • Clinician level audit and feedback/report cards (including facilitated feedback) • Physician performance measurement and management, including clear accountabilities in response to audit and feedback
Organization-level	5. Leadership inclusion, endorsement and support	<ul style="list-style-type: none"> • Local opinion leaders/clinical champions • Support from senior leadership; endorse cost-conscious care¹⁵ • Promote cost-conscious role modeling⁷
	6. Decision support tools & electronic prompts <ul style="list-style-type: none"> ○ Point of care access to effectiveness information/guidelines, or cost information 	<ul style="list-style-type: none"> • Develop point of care guidance alerting clinicians about practices that should or should not be done¹⁰ • Encourage hospitals to use clinical decision aids, and electronic prompts^{5,8} • Decision Aids – non-digital (pathways, dash boards, visual prompts) • Encourage hospitals to employ quality measures for overuse, and report findings to board and medical staff⁵
System-level	7. Evidence-based data <ul style="list-style-type: none"> 7a. Clinical guideline development and health technology assessment 7b. Do not do recommendations 7c. Computerized care pathways 7d. Revise diagnostic criteria and lower thresholds to prevent overdiagnosis 	<ul style="list-style-type: none"> • Analyze cost and benefits of new technologies before entering market⁶ • Coverage decisions that reflect appropriate utilization and clinical effectiveness⁶ • Create national entity to compare clinical and cost-effectiveness evidence for competing clinical management strategies^{6,16} • Monitor real-time administrative data to identify variation in care¹⁶ • Translate evidence-based research findings into clinical actions⁵ • Create committee to oversee appropriateness of diagnostic and lab tests in health centers⁸ • Create resource center for physicians⁸
	8. Regulations or Medical Staff By-laws	<ul style="list-style-type: none"> • Create Ministerial Directives • Clinical Rules

<p>9. Compensation reform</p> <p>9a. Reform volume-based reimbursement system</p> <p>9b. Capitation funding</p> <p>9c. Compensation reform (Well-med)</p> <p>9d. Malpractice reform/no-fault compensation</p>	<ul style="list-style-type: none"> • Reimburse physicians for care coordination⁶ • Alternate physician payment models (e.g., capitation) • Incentives (monetary and non-monetary) • Reduce defensive medicine: no-fault models, caps on non-economic damages^{4,6}
<p>10. Constrain resources through regulation</p> <p>10a. Restrict indications associated with coverage or reimbursement</p> <p>10b. Agencies to monitor overuse of diagnoses and treatment</p>	<ul style="list-style-type: none"> • Restrict later-line therapies from being recommended out of sequence⁹ • Tighten/restrict indications associated with coverage or reimbursement (permitting a set number of tests or treatments in a given timeframe)⁹ • Require certificate of need¹⁶

Strategy Effectiveness

Systematic reviews were found for 13 of the 18 tactics (Table 2). An overview of the findings are reported in Figure 3. Systematic reviews were not identified for five tactics, four reviews were unable to make firm conclusions about the effectiveness of the tactic, and nine reviews concluded that the tactic may be effective (Table 2).

Figure 3. Overview of findings from systematic reviews

No systematic review found	Inconclusive evidence of effectiveness in systematic review *	Effectiveness reported in systematic review
<ul style="list-style-type: none">• Evidence-based data (do-not-do recommendations; revising diagnostic criteria and lowering thresholds to prevent over-diagnosis)• Compensation reform (malpractice reform/no-fault compensation)• Constraining resources through regulation (restricting indications associated with coverage or reimbursement)• Regulations or medical staff by-laws	<ul style="list-style-type: none">• Shared decision making• Clinical champions/local opinion leaders• Compensation reform (capitation funding)• Constraining resources through regulation using agencies to monitor overuse of diagnostics and treatment	<ul style="list-style-type: none">• Education• Mentorship (co-learning; reflective practice)• Audit and feedback• Electronic prompts (point of care access to cost information, and effectiveness data and guidelines)• Evidence based data (clinical guidelines and health technology assessments; computerized care pathways)• Compensation reform (WellMed; reform reimbursement)

**either because of study heterogeneity, or mixed findings reported.*

Although hand-searching does not provide a comprehensive overview of the available data, we have identified potential gaps in the literature given the lack of systematic reviews on tactics related to evidence-based data, regulations or medical staff by-laws, compensation reform, and constraining of resources through regulations. Though evidence was inconclusive in four reviews, this does not mean that evidence of effectiveness does not exist – a more robust evaluation of the literature would provide stronger evidence on the effectiveness of these tactics.

Table 2. Effectiveness of strategies based on identified systematic reviews

Strategy	Number and Type of Included studies	Quality Assessment	Evidence of effectiveness	Notes
1. Shared Decision-making Reference: Légaré et al. ¹⁷ , 2018	Number of included studies: 87 Designs: 83 RCTs, 3 non-randomized control studies, 1 controlled before-after	High risk of bias: 64, Unclear risk of bias: 23 Tool: Cochrane Handbook for Systematic Reviews of Interventions Risk of Bias Tool (Chapter 8)	<ul style="list-style-type: none"> Interventions targeting patients: Uncertain effect on cost (standard mean difference 0.28, 95% CI 0.42 to 1.22; 1 study; N=105) (<i>GRADE quality: very low</i>) Interventions targeting health care professionals or both, patients and health care professionals: No data available on effect on cost 	<ul style="list-style-type: none"> Conclusions on effectiveness were unable to be drawn due to study heterogeneity Activities targeting both health care professionals and patients may make little or no difference to decision regret Overall findings: Inconclusive evidence
2. Education Reference: Forsetlund et al. ¹⁸ , 2009	Number of included studies: 81 Designs: All RCTs	Low risk of bias: 17 Unclear risk of bias: 44 High risk of bias: 20 Tool: Cochrane Effective Practice and Organisation of Care Group (EPOC) checklist	<ul style="list-style-type: none"> Dichotomous outcomes: mean adjusted risk difference of compliance with desired practice was 6% (IQR: 2.6-15.3) for educational strategies (<i>GRADE quality: moderate</i>) Continuous outcomes: mean adjusted percent change related to control was 10% (IQR: 8-32%) (<i>GRADE quality: moderate</i>) There was no statistically significant difference between multifaceted interventions with education as one of many intervention, versus education alone; both had a median adjusted risk difference of 6%. 	<ul style="list-style-type: none"> Education was less likely to change complex behaviors, and may have a smaller impact on outcomes that health professionals perceive as having a less serious consequence to patients More intensive interventions may have a larger effect compared to less intensive interventions Higher attendance was associated with larger adjusted risk difference Mixed interactive and didactic education meetings were more effective than either didactic or interactive meetings alone Overall findings: Evidence of effectiveness
3a. Mentorship (Co-learning) Reference: O'Brien et al. ¹⁹ , 2008	Number of included studies: 69, Designs: All RCTs	Low risk of bias: 20 Moderate risk of bias: 48 High risk of bias: 1 Tool: Cochrane Effective Practice and	<ul style="list-style-type: none"> Median adjusted risk difference in compliance with desired practice was 5.6% (IQR: 3-9) for educational outreach visits 	<ul style="list-style-type: none"> Educational outreach visits improve the care delivered to patients Provides small to moderate changes in practice including changes in prescribing

Strategy	Number and Type of Included studies	Quality Assessment	Evidence of effectiveness	Notes
		Organisation of Care Group (EPOC) checklist	<ul style="list-style-type: none"> • Median adjusted risk difference were highly consistent for prescribing at 4.8% (IQR: 3-6.5) • Interventions that included educational outreach visits were slightly superior to audit and feedback 	<ul style="list-style-type: none"> • Overall findings: Evidence of effectiveness
3b. Mentorship (Reflective practice) Reference: Stammen et al. ³ , 2015	Number of studies: 79 Designs: 14 RCTs, 65 pre-post intervention design	Higher-quality rigor/relevance: 40 Medium-quality: 24 Low-quality: 15 Tool: None – Each study scored by two independent reviewers, and scores combined	<ul style="list-style-type: none"> • 87% of included articles concluded interventions were effective in delivering appropriate care and reducing costs, volume, or unnecessary procedures. 	<ul style="list-style-type: none"> • Knowledge transmission, reflective practice, and a supportive environment inform development of interventions aimed to train physicians to deliver high-value, cost-conscious care • Overall findings: Evidence of effectiveness
4. Audit and feedback Reference: Ivers et al. ²¹ , 2012	Number of studies: 140 Designs: All RCTs	Low risk of bias: 44 Unclear risk of bias: 71 High risk of bias: 25 Tool: Cochrane Handbook for Systematic Reviews of Interventions Risk of Bias Tool (Chapter 8)	<ul style="list-style-type: none"> • Dichotomous outcomes: median adjusted risk difference of compliance with desired practice was a 4.3% (IQR: 0.5-16%) absolute increase in desired practice for any intervention including an audit and feedback component (<i>GRADE quality: moderate</i>) • Continuous outcomes: the weighted mean adjusted change relative to baseline control was 1.3% (IQR: 1.3%-28.9%) increase in compliance with desired practice (<i>GRADE quality: moderate</i>) • When comparing the mean estimate of effect for audit and feedback alone versus audit and feedback within a multifaceted intervention, there were no 	<ul style="list-style-type: none"> • Feedback may be more effective when: baseline performance is low; it is delivered by a trusted supervisor or colleague in a non-judgmental manner; it is provided more than once; it is given both verbally and in writing; it includes targets and an action plan; and the intention is to decrease rather than increase behaviors • Overall findings: Evidence of effectiveness

Strategy	Number and Type of Included studies	Quality Assessment	Evidence of effectiveness	Notes
			statistically significant differences for dichotomous outcomes. There was a significant difference when assessing continuous outcomes (estimated absolute difference in adjusted change relative to baseline control: 24%, $p < 0.0001$)	
5. Leadership Endorsement and Support (Clinical Champions/local opinion leaders) Reference: Flodgren et al. ²⁰ , 2007	Number of studies: 18 Designs: All RCTs	Unclear/moderate risk of bias: 16 Low risk of bias: 2 Tool: Cochrane Handbook for Systematic Reviews of Interventions Risk of Bias Tool (Chapter 8)	<ul style="list-style-type: none"> • Median adjusted risk difference was 12% absolute increase in compliance with all studies including local opinion leaders (<i>GRADE quality: low</i>) • Literature was heterogeneous. Impact of intervention varied from 15% decrease in compliance to 72% increase in compliance 	<ul style="list-style-type: none"> • Due to poor reporting in the included studies, and large heterogeneity across interventions, the authors of this systematic review were unable to draw conclusions about how best to optimize the effectiveness of local opinion leaders • Overall findings: Inconclusive evidence
6. Electronic Prompts (Point of care access to cost information) AND Electronic Prompts (Point of care access to effectiveness information/guidelines) Reference: Stacey et al. ²² , 2017	Number of studies: 105 Design: All RCTs	High risk of bias: 12 Low or moderate risk of bias: 93 Tool: Cochrane Handbook for Systematic Reviews of Interventions Risk of Bias Tool (Chapter 8)	<ul style="list-style-type: none"> • Decision aids allowed for more accurate risk perceptions, significantly reduced the number of individuals choosing major elective invasive surgery in favor of more conservative options with 0.86, 95% CI 0.75 to 1.00; 18 studies; N=3822) (<i>GRADE quality: moderate</i>) • Costs of the decision aid group were lower in two studies and similar to usual care in four studies (<i>GRADE quality: low</i>) 	<ul style="list-style-type: none"> • Decision aids may improve values-congruent choices • Compared to usual care, patients with decision aids feel more knowledgeable, better informed, and clearer about their values, allowing them to have a more active role in decision making and more accurate risk perceptions • Overall findings: Evidence of effectiveness

Strategy	Number and Type of Included studies	Quality Assessment	Evidence of effectiveness	Notes
7a. Evidence-based data (Clinical guideline development and health technology assessment) Reference: Goetz et al. ²³ , 2015	Number of studies: 17 Designs: 7 RCTs, 8 pre-post intervention, 2 non-randomized	Medium to high risk of bias: All Tool: Not reported.	<ul style="list-style-type: none"> • Having real-time access to charges changed ordering and prescribing behavior in majority of the studies • Seven of nine studies reported significant cost reduction 	<ul style="list-style-type: none"> • Of the six studies that reported differences in the number of tests ordered, only three reported a significant decrease in the number of tests ordered, perhaps reflecting that awareness of cost may lead a practitioner to order a less expensive test rather than fewer tests • Overall findings: Evidence of effectiveness
7b. Evidence-based data (Do not do recommendations)	No systematic review found.			
7c. Evidence-based data (Computerized Care Pathways) Reference: Rotter et al. ²⁴ , 2012	Number of studies: 27 Designs: 19 RCTs, 4 controlled before-and-after studies, 2 interrupted time series, 2 non-randomized	Low risk of bias: 4 Moderate risk of bias: 23 High risk of bias: excluded Tool: Cochrane Effective Practice and Organisation of Care Group (EPOC) Risk of Bias Tool	<ul style="list-style-type: none"> • Effect of clinical pathways on reduced in-hospital complications had odds ratio 0.58: 95% CI 4.72 to 30.30. • Length of stay in hospitals for 11 studies were significantly reduced when clinical pathways were introduced, 7 studies found no difference 	<ul style="list-style-type: none"> • Clinical pathways are associated with reduced in-hospital complications and improved documentation • High statistical heterogeneity prevented pooled analysis on the effect of clinical pathways on reduced hospital length of stay • Overall findings: Evidence of effectiveness
7d. Evidence-based data (Revise diagnostic criteria and lower thresholds to prevent overdiagnosis)	No systematic review found.			

Strategy	Number and Type of Included studies	Quality Assessment	Evidence of effectiveness	Notes
8. Regulations or Medical Staff By-laws	No systematic review found.			
9a. Compensation Reform (Reform volume-based reimbursement system) AND 9b. Compensation Reform (Capitation funding)	Number of studies: 9 Designs: 1 RCT, 6 controlled before-after studies, 2 interrupted time series studies	High risk of bias: 7 Moderate risk of bias: 1 Low risk of bias: 1 Tool: Cochrane Handbook for Systematic Reviews of Interventions Risk of Bias Tool (Chapter 8)	<ul style="list-style-type: none"> Literature was heterogeneous in relation to context, study design, characteristics of the participants and the interventions, and the outcome measures Results were uninformative to calculate average effects across studies Two studies showed significant change for improving health outcomes while the rest found mixed results 	<ul style="list-style-type: none"> Performance based funding is not a uniform intervention, but rather a range of approaches Overall findings: Inconclusive evidence
Reference: 1) Witter et al. ²⁵ , 2011, 2) Mendelson et al. ²⁶ , 2017	Number of studies: 69 Designs: 2 RCTs, 67 observational studies	All studies were of low-strength evidence for short term and limited for long term Tool: Cochrane Handbook for Systematic Reviews of Interventions Risk of Bias Tool (Chapter 8)	<ul style="list-style-type: none"> Positive effects were associated with pay for performance programs but results were inconsistent across studies Low-strength, contradictory evidence that it could improve processes of care 	<ul style="list-style-type: none"> Largest improvements seen in areas where baseline performance was poor In hospital setting, low-strength evidence that pay for performance had little or no effect on patient health outcomes and a positive effect on reducing hospital readmissions Overall findings: Evidence of effectiveness
9c. Compensation Reform (WellMed) Reference: Chaix-couturier et al. ²⁷ , 2000	Number of studies: 89 Designs: 8 RCTs, 81 observational studies	Medium to high risk of bias: All Tool: Cochrane Effective Practice and Organisation of Care Group (EPOC) Risk of Bias Tool	<ul style="list-style-type: none"> Any form of fund-holding or capitation decreased the total volume of prescriptions by 0-24%, and hospital days by up to 80% compared with fee-for-service 	<ul style="list-style-type: none"> Financial incentives represent a non-voluntary strategy to implement change in medical practice, and therefore do not result from the motivation of health care professionals Can reduce the use of health care resources, improve compliance

Strategy	Number and Type of Included studies	Quality Assessment	Evidence of effectiveness	Notes
				<p>with practice guidelines or achieve a general health target</p> <ul style="list-style-type: none"> • Annual cap on doctors' incomes resulted in referrals to colleagues when target income is reached • Overall findings: Evidence of effectiveness
9d. Compensation Reform (Malpractice reform/no-fault compensation)	No systematic review found.			
10a. Constrain resources through regulation (Restrict indications associated with coverage or reimbursement)	No systematic review found.			
<p>10b. Constrain resources through regulation (Agencies to monitor overuse of diagnoses and treatment)</p> <p>Reference: Flodgren et al.²⁸, 2011</p>	<p>Number of studies: 2</p> <p>Designs: 1 RCT, 1 interrupted time-series</p>	<p>Low risk of bias: 1 Unclear risk of bias: 1</p> <p>Tool: Cochrane Handbook for Systematic Reviews of Interventions Risk of Bias Tool (Chapter 8)</p>	<ul style="list-style-type: none"> • No firm conclusions can be drawn about the effectiveness of external inspection on compliance with standards • No cost data reported for both studies 	<ul style="list-style-type: none"> • Both studies highlights the paucity of high-quality controlled evaluations of the effectiveness of external inspection systems • Overall findings: Inconclusive evidence

Feasibility of strategies in the Alberta context

Alberta has some unique assets within its health ecosystem that make some of the above-noted tactics more feasible than others. Province-wide implementation of a single electronic health record in acute care and other AHS facilities (ConnectCare) will enable robust use of care pathways, electronic prompts, reminders and clinical decision aids in acute care. However, given the need to balance their use against convenience of EMR use, and avoiding physician alert fatigue, particularly important during ConnectCare launch in acute care, these tools are best used in high priority areas in the next few years.

The College of Physicians and Surgeons is currently implementing a new framework for maintenance of certification, collaborating with the University of Calgary and University of Alberta's Physician Learning and Continuing Professional Development programs. This will include individual physician audit and feedback, and offers an opportunity to use this tool to support physicians to provide high quality appropriate care.

There is interest from Alberta Health in exploring alternate physician payment models, and this may be used, when enabled by appropriate accountability frameworks, to support physician practice consistent with health system and patient needs.

Summary and Next Steps

Given the multitude of strategies, and the number of potential tactics within each, it is not feasible to conduct a comprehensive search of all tactics identified. We searched for systematic reviews that assessed the effectiveness of the identified tactics. Nine systematic reviews suggested effectiveness, four reported inconclusive evidence of effectiveness, and systematic reviews were not found for five tactics. It is important to note, though, that although we found no systematic reviews for some of the tactics, this does not mean that they have no effect. Indeed, some of these tactics (e.g., restricting indications associated with coverage or reimbursement) may be likely to impact use.

The goal of this report is to seek input from AHS leaders as to which strategies might be deemed feasible for further evidence synthesis or might be considered for use as we enter a time of change within AHS and the broader health system to support government and AHS priorities. By narrowing the list of tactics that might be considered, a more comprehensive search and analysis of effectiveness could be accomplished which would better guide the future direction of implementation in Alberta.

References

1. Canadian Medical Association. *Appropriateness in Health Care*. Ottawa: Canadian Medical Association;2015.
2. American College of Physicians. *High value care clinical recommendations*. 2015.
3. Stammen LA, Stalmeijer RE, Paternotte E, et al. Training physicians to provide high-value, cost-conscious care a systematic review. *JAMA - Journal of the American Medical Association*. 2015;314(22):2384-2400.
4. Reuben DB, Cassel CKJJ. Physician stewardship of health care in an era of finite resources. 2011;306(4):430-431.
5. Toolkit AS. *Appropriate Use of Medical Resources*.
6. Ginsburg JA. *Controlling Health Care Costs While Promoting the Best Possible Health Care Outcomes*. American College of Physicians; 2009.
7. Leep Hunderfund AN, Dyrbye LN, Starr SR, et al. Role modeling and regional health care intensity: US medical student attitudes toward and experiences with cost-conscious care. 2017;92(5):694-702.
8. Association QM. *Overdiagnosis: Findings and Action Plan*.
<https://www.amq.ca/images/stories/documents/m%C3%A9moires/surdiagnostic-plan-action-en.pdf>.
9. Elshaug AG, Rosenthal MB, Lavis JN, et al. Levers for addressing medical underuse and overuse: achieving high-value health care. 2017;390(10090):191-202.
10. CMA Policy. *Appropriateness in Health Care*. 2017.
<https://policybase.cma.ca/documents/policypdf/PD15-05.pdf>.
11. Huang GC, Tibbles CD, Newman LR, Schwartzstein RMJT, medicine li. Consensus of the Millennium Conference on teaching high value care. 2016;28(1):97-104.
12. Smith CD, Levinson WSJAoim. A commitment to high-value care education from the internal medicine community. 2015;162(9):639-640.
13. Detsky AS, Verma AAJJ. A new model for medical education: celebrating restraint. 2012;308(13):1329-1330.
14. Moriates C, Dohan D, Spetz J, Sawaya GFJAM. Defining competencies for education in health care value: recommendations from the University of California, San Francisco Center for Healthcare Value Training Initiative. 2015;90(4):421-424.
15. Moriates C, Wong BM. *High-value care programmes from the bottom-up... and the top-down*. BMJ Publishing Group Ltd; 2016.
16. Morgan DJ, Brownlee S, Leppin AL, et al. Setting a research agenda for medical overuse. 2015;351:h4534.
17. Legare F, Adekpedjou R, Stacey D, et al. Interventions for increasing the use of shared decision making by healthcare professionals. *Cochrane Database of Systematic Reviews*. 2018;7.
18. Forsetlund L, Bjørndal A, Rashidian A, et al. Continuing education meetings and workshops: effects on professional practice and health care outcomes. 2009(2).
19. O'Brien MA, Rogers S, Jamtvedt G, et al. Educational outreach visits: effects on professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*. 2007;4.
20. Flodgren G, Parmelli E, Doumit G, et al. Local opinion leaders: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*. 2011;8(1).
21. Ivers N, Jamtvedt G, Flottorp S, et al. Audit and feedback: effects on professional practice and healthcare outcomes. 2012(6).
22. Stacey D, Legare F, Lewis K, et al. Decision aids for people facing health treatment or screening decisions. *Cochrane Database of Systematic Reviews*. 2017.
23. Goetz C, Rotman SR, Hartoularos G, Bishop TF. The effect of charge display on cost of care and physician practice behaviors: a systematic review. *J Gen Intern Med*. 2015;30(6):835-842.

24. Rotter T, Kinsman L, James E, et al. Clinical pathways: effects on professional practice, patient outcomes, length of stay and hospital costs. *Cochrane Database of Systematic Reviews*. 2010;3.
25. Witter S, Fretheim A, Kessy F, Lindahl AK. Paying for performance to improve the delivery of health interventions in low- and middle- income countries. *Cochrane Database of Systematic Reviews*. 2012;2.
26. Mendelson A, Kondo K, Damberg C, et al. The Effects of Pay-for-Performance Programs on Health, Health Care Use, and Processes of Care: A Systematic Review. *Ann Intern Med*. 2017;166(5):341-353.
27. Chaix-Couturier C, Durand-Zaleski I, Jolly D, Durieux P. Effects of financial incentives on medical practice: results from a systematic review of the literature and methodological issues. *Int J Qual Health Care*. 2000;12(2):133-142.
28. Flodgren G, Pomey MP, Taber SA, Eccles MP. Effectiveness of external inspection of compliance with standards in improving healthcare organization behaviour, healthcare professional behaviour or patient outcomes. *Cochrane Database of Systematic Reviews*. 2011;11.