



Confidential Physician Feedback Reports: Designing for Optimal Impact on Performance



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This guide is a practical resource designed to inform readers, particularly developers of confidential physician feedback reports (e.g., medical groups, health plans, payers, professional societies, regional collaboratives, and dissemination and implementation campaigns), about evidence-based strategies to consider when developing or refining a feedback reporting system.

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Confidential Physician Feedback Reports: Designing for Optimal Impact on Performance

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Key words: audit and feedback, performance feedback, data/feedback and benchmarking, practice profiling, relative social ranking, practice improvement

AHRQ Publication No. 16-0017-EF

March 2016



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Suggested Citation

McNamara P, Shaller D, De La Mare D, Ivers N. Confidential physician feedback reports: designing for optimal impact on performance. Rockville, MD: Agency for Healthcare Research and Quality; 2016. AHRQ Pub. No. 16-0017-EF.

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Acknowledgments

Although the authors take sole responsibility for this publication, the clarity and organization of its content benefited greatly from thoughtful comments made by the following individuals who generously contributed their time and expertise in reviewing a formative draft: Jim Chase, Minnesota Community Measurement; Robbie Foy, University of Leeds; Michael Fischer, National Resource Center for Academic Detailing; Irene Fraser, formerly with AHRQ; Janice Genevro, AHRQ; Courtney Gidengil, RAND; Tasneem Khan, University of Leeds; Bruce Landon, Harvard Medical School; Rodney McCurdy, AHRQ; Robert McNellis, AHRQ; and Stephanie Teleki, California HealthCare Foundation. A special thank you is extended to Lynette Lilly, K4 (AHRQ contractor), for her capable and prompt assistance with references.

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Foreword

Confidential feedback reporting is widely considered to be a precursor to and a foundation for performance improvement. However, to enable change, the physician responsible for and capable of change must receive, understand, and act on the information. Physicians need more than mere data.

In recent years, we've observed insufficient attention being given by organizers of various performance improvement activities to the particulars of how to effectively convey performance data to physicians and other clinicians. In some cases, those in the field make no distinction between confidential feedback reports for clinicians and public reports for consumers, yet the two audiences couldn't be more different in their informational needs. Moreover, it appears that inadequate attention is paid during the selection of measures and design of the reports to the mechanisms by which the reports could lead to improvement through changes in clinician behavior.

In addition, there is little acknowledgment that feedback reporting can be done either well or poorly. Too often, it is wrongly viewed as a dichotomous variable; was performance data made available to clinicians—yes or no? It is inappropriately dismissed as a small detail to be checked off instead of a bridge that can lead to either performance improvement success or failure, depending on its underlying architecture.

It turns out that confidential feedback reporting for physicians is a well-studied topic; in fact it's one of the most studied performance improvement interventions (Ivers, Grimshaw, et al., 2014). Yet some developers of feedback reports are surprisingly unaware that an evidence base of best practices exists to guide them. This is the case even for some well-resourced, large-scale interventions.

Part of the problem is that different applications, most notably the fields of quality improvement and dissemination and implementation of clinical advances, use different terms for essentially the same activity of reporting, which undermines the spread of learning. Relatedly, academic journals—the curators of the evidence—tend to use the term “audit and feedback,” which is not recognizable to many working in the field, further limiting uptake.

Last but certainly not least, we in the health services research community haven't done a very good job of translating and communicating what we do know to those who can benefit most from the evidence, i.e., developers of feedback reports.

This applied resource seeks to address these shortcomings and inform developers of feedback reports about evidence-based strategies to consider when developing or refining a feedback reporting system. This guide is appropriate for many audiences, including medical groups, health plans, payers, professional societies, regional quality improvement collaboratives, and dissemination and implementation campaigns. In pulling this resource together, we explicitly seek to dismantle “language silos” and use terms readily understandable to all those working to improve the performance of our health care system.

A secondary aim is to foster discussion among report developers, the broader quality improvement and dissemination and implementation communities, researchers actively working on the topic, and funders of research and improvement initiatives. We hope they can work together to set research priorities that will collectively advance these reports as effective instruments to influence clinician behavior and improve care. Subsumed in this aim is interest in actively discouraging research that uses scarce research dollars to retest what are considered settled areas of inquiry.

Peggy McNamara, Dale Shaller, Jan De La Mare, and Noah Ivers
March 2016

Introduction

Confidential physician feedback reports seek to make physicians aware of their individual performance on one or more metrics in order to influence their clinical practice and improve performance. There is growing interest in feedback reports and their potential to improve performance, fueled in part by:

- Recognition that health care quality is not where we as a Nation want it to be, and the pace of improvement is unacceptably, unnecessarily slow;
- Concern about health care waste associated with inappropriate use, underuse, and overuse of services;
- Dissatisfaction with the time it takes to effectively integrate clinical advances into routine medical practice;
- The reality that collective improvement is merely the sum of improvements made by individual physicians, individual practices, and hospitals, one at a time;
- Belief that physicians' awareness of their own performance builds a critical and necessary foundation for improvement; and
- Proliferation of payment incentives tied to performance metrics, which overlays a financial imperative (Hysong, 2009) on top of the professional imperative to deliver high-quality care.

This resource is intended to support the evidence-based design of physician feedback reporting systems. The focus is on developing and using feedback reports for individual physicians working in medical practices and acute care hospitals. But many of the design elements and engagement strategies discussed can be usefully applied to other clinicians in other health care settings, making it a highly flexible intervention to improve performance (Hysong, 2009; Flottorp, et al., 2010).

The guide is organized into four parts:

- Part One presents the “fundamentals” of physician feedback reports in a question and answer format.
- Part Two lists evidence-based practices on how to design a physician feedback reporting system for maximal impact. The purpose of this section is to identify the factors empirically associated with success so that future reports can be most effective. See Text Box 1 for a summary of methods used to identify best practices.

Text Box 1. Summary of methods

The primary source of evidence is the 2012 Cochrane Review on Audit and Feedback: Effects on Professional Practice and Healthcare Outcomes, which identifies a limited number of evidence-based practices from a review of randomized trials (Ivers, et al., 2012). Because the evidence base on how best to design physician feedback reports is still developing, authors supplemented the Cochrane Review findings with additional evidence, including tips from report developers and users. The resulting two categories of guidance—one based on rigorous outcome evaluations and the other based on experiential data—are clearly labeled and distinguished. A formative draft of this guide was reviewed by a multidisciplinary panel that included research experts and physicians and other practitioners engaged in performance improvement.

- Part Three discusses three strategies available to developers of physician feedback reports to support continuous improvement of their reporting systems.
- Part Four reviews research priorities needed to collectively advance the science of confidential feedback reporting. They derive in part from a panel discussion at the 2015 AHRQ Research Conference (De La Mare, et al., 2015).

Part One: Physician Feedback Report Fundamentals

Part One presents basic information about physician feedback reports in a question and answer format:

- Section 1-1: What are confidential physician feedback reports and what is their purpose?
- Section 1-2: Do confidential physician feedback reports work?
- Section 1-3: What types of organizations develop physician feedback reports?

1-1. What are confidential physician feedback reports and what is their purpose?

Confidential physician feedback reports refer to data that are shared with physicians on their clinical performance over a specified period, as captured by various quality and resource use indicators. In contrast to public performance reports aimed at supporting the information needs of consumers and purchasers, confidential feedback reports are designed to support the improvement goals of physicians, other clinicians, and health care organizations. Feedback reports also are distinct from electronic “reminders” designed to provide clinical decision support to physicians at the time of a medical encounter with a patient.

While this guide uses the term “confidential feedback reporting,” other terms (e.g., audit and feedback, performance feedback, data/feedback and benchmarking, relative social ranking, practice profiling) represent the same or similar types of reports. Feedback reports are not typically made available to the public, although the extent to which the performance reports remain “confidential” within an organization varies. See discussion of “unblinded” reports in appendix 1.

Physician feedback reports can be print, Web-based, or embedded in electronic medical records. Although the content, design, and delivery of feedback reports vary widely, most include some way to compare the performance of an individual or group of physicians to that of a comparator group. See discussion of comparators in section 2-3.

Figure 1 is an excerpt of a feedback report comparing six physicians in the same primary care practice site with each other and with a target goal for each of five specific clinical indicators relevant to diabetes care. Scores that are shaded indicate performance below the target goal. For example, the percentage of Physician C’s patients achieving low-density lipoprotein (LDL) cholesterol <100 (28.6%) is below the target goal of 35 percent.

Figure 1. Excerpt of feedback report to convey primary care physicians' performance in treating patients with diabetes

Physician	N of Patients	A1C <8%	BP < 140/90	LDL < 100	Aspirin	Smoking Cessation
Target Goal	--	40%	30%	35%	80%	80%
Physician A	113	48.7%	67.3%	42.5%	98.2%	92.0%
Physician B	171	66.1%	71.9%	46.2%	97.1%	80.7%
Physician C	107	57.1%	71.4%	28.6%	100.0%	85.7%
Physician D	308	75.0%	85.1%	42.9%	97.1%	74.7%
Physician E	254	61.4%	69.7%	42.5%	98.0%	76.0%
Physician F	207	56.5%	70.5%	59.4%	99.5%	67.1%
Practice Site	1,160	63.4%	74.5%	46.6%	97.9%	76.8%
Network	5,596	63.6%	73.2%	48.6%	97.5%	82.0%

Source: University of Cincinnati Physicians, 2016. Report layout modified with permission.

Physician feedback reports are designed to facilitate assessments of care that will lead to improvements in clinical care quality, patient experience, appropriate resource use or cost-reduction, and timely uptake of new clinical advances.

Objectives typically include:

- Enabling physicians, other clinicians, and health care organization leaders to assess their performance, which is a prerequisite to improvement.
- Facilitating dialogue among team members to identify and prioritize areas of health care delivery needing improvement, and in some cases to shift clinical or organizational attention to areas of relative deficit.
- Motivating efforts to improve, specifically by shifting attention to areas of relative need.
- Evaluating efforts to improve, perhaps in response to an earlier feedback report.

Other objectives that may be supported by feedback reports, depending on how they are designed, include:

- Identifying clinical teams or interventions associated with high performance, which can inform improvement plans.
- Supporting patient care management, i.e., when patient-level data are included, by providing access to data that enable clinicians to track whether individual patients are meeting their specified management goals or may be overdue for specific services or followup care.
- Providing linkages and facilitating access to additional improvement-related tools and resources.

Data sources used in creating feedback reports include medical records, registries, administrative or claims databases, observations, and patient surveys. Feedback reports can be delivered periodically or can be designed for ongoing, real-time access if they are built into electronic health information systems. See also related discussion in section 2-2.

Ultimately the success of physician feedback reporting depends on actions taken on the basis of the feedback. The critical outcomes that measure success are not whether a report has been read and understood, but whether it has contributed to better care (Shaller and Kanouse, 2014). See also related discussion in sections 3-2 and 3-3.

1-2. Do physician feedback reports work?

The potential of feedback reports to support physician behavior change and performance improvement is well documented in the research literature. However, the size of the effect varies considerably across implementation contexts. In contrast, some of the more widely used medical education techniques—didactic educational programs (i.e., lectures) and provision of printed text—have little to no effect on physician behavior and performance (Bloom, 2005).

A recent systematic review of randomized clinical trials examining the effect of quality improvement interventions that included feedback reporting compared with usual care found an overall positive effect on measured outcomes. Particularly promising, out of 98 study comparisons in one review, 27 showed an improvement of at least 10 percent (Ivers, et al., 2012). See illustrative case example in Text Box 2.

An important conclusion emerging from the systematic review of the evidence is that, while feedback reporting can work, the design and manner in which feedback reports are implemented appear to have a major impact on the extent of their effectiveness.

Part Two of this guide identifies evidence-based design practices, with the aim of increasing the effectiveness of future feedback reports, nudging them toward improvement in outcomes of 10 percent or more, as was the case in 27 studied interventions cited above.

Text Box 2. Case study illustrating the impact of clinician feedback reporting on quality of Type 2 diabetes care

The power of feedback reporting to influence professional behavior can be illustrated by the results of a randomized, controlled trial evaluating the effect of electronic feedback reporting on the behavior of clinicians treating patients with Type 2 diabetes. Clinicians in a Danish county caring for similar types of diabetic patients were randomized to receive or not to receive electronic feedback on their quality of care. Clinicians receiving feedback showed significant improvements in care quality as measured by their adherence to treatment according to guidelines on evidence-based process of care. For example, physicians in the intervention practices succeeded in motivating their patients to fill prescribed medications for Type 2 diabetes treatments at nearly three times the rate of patients in the control group (Guldborg, et al., 2011).

1-3. What types of organizations develop confidential physician feedback reports?

The number and variety of organizations that develop feedback reports have greatly expanded beyond health care providers, such as hospitals and medical groups. They also include organizations such as health plans, the Medicare and Medicaid programs, professional societies and boards, and regional health improvement collaboratives. Feedback reports are also used by educational campaigns focused on expediting the adoption of a particular new clinical advance (van der Weijden, et al., 2005; Grol, et al., 2005; Flottorp, et al., 2010).

It is important to note that the “type” of developer has potential implications for the impact a feedback report might have on physician behavior. For example, the developer may be perceived as biased toward a particular goal (e.g., reducing costs) that is not aligned with the goals of the recipient physicians (e.g., improving quality of care). In this case, the uptake of the reports may be affected negatively (Ivers, Sales, et al., 2014). See also related discussion in section 2-4.

Feedback reports developed by health care providers

Hospitals and large medical practices have developed data collection systems to support performance improvement. Feedback reports are a natural extension of such activities. See Text Box 3 below.

Text Box 3. Medical group perspective on the value of feedback reports

HealthPartners Medical Group (HPMG), based in Bloomington, Minnesota, consists of a network of 55 clinics providing both primary and specialty care. It structures its feedback reports to provide actionable information on clinical quality, patient experience, and total cost of care. Performance on more than 80 metrics is reported each month for each of the following levels: medical group, division, clinic location, individual physician, and individual patient. The ability to review these reports monthly enables team members to identify both successes and missed opportunities quickly so that needed changes can be made and then monitored. It also provides a sense of ownership so that team members can work together to reach their goals (contribution by Nancy Salazar, Director of Care Innovation and Measurement, HPMG, to Shaller and Kanouse, 2014).

Figure 2 below displays an excerpt of a feedback report developed by HPMG, which set an improvement goal of having 62 percent of a clinic’s patients achieve the optimal vascular care (OVC) measure. The results for the top 10 clinics are listed on the left; for example, Clinic C exceeded the goal, with 70 percent of its eligible 100 patients meeting the OVC goal. The results for the top 25 physicians are listed on the right; for example, Dr. G exceeded the goal, with 88.9 percent of his 36 eligible patients meeting the goal.

Figure 2. HealthPartners Medical Group feedback report excerpt on vascular care
Optimal Vascular Care – December 2013 Summary Report

Aims & Measures

Aim: To improve to 62% the percentage of patients who meet the Optimal Vascular Care by December 31, 2013.

Measure: % of patients with ischemic vascular or cardiovascular disease who have had an LDL screen in last 15 months with a value ≤ 99 , last recorded blood pressure ≤ 139 and ≤ 89 , documented non-tobacco user, and documented regular aspirin use.

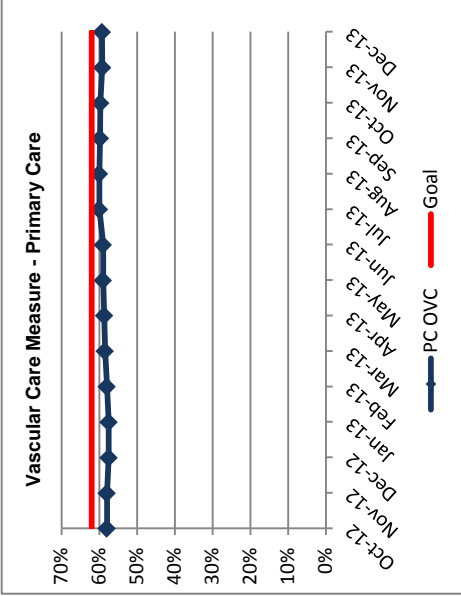
Eligible Population: All patients age 18 to 75 with a diagnosis of ischemic vascular or cardiovascular disease and 2 or more ambulatory visits in the last 24 months and a visit for any reason in the last 12 months.

Top 10 Primary Clinics or Specialty Dept for Vascular Care

Primary Care Clinic/ Specialty Dept*	# Eligible Patients	% Met Criteria
C	100	70.0%
A	172	69.2%
B	125	66.4%
E	172	66.3%
F	425	65.4%
D	28	64.3%
H	142	64.1%
I	193	63.2%
J	144	63.2%
G	344	62.5%

*All clinics met goal.
Excludes clinics with <25 patients

HPMG Vascular Care Summary

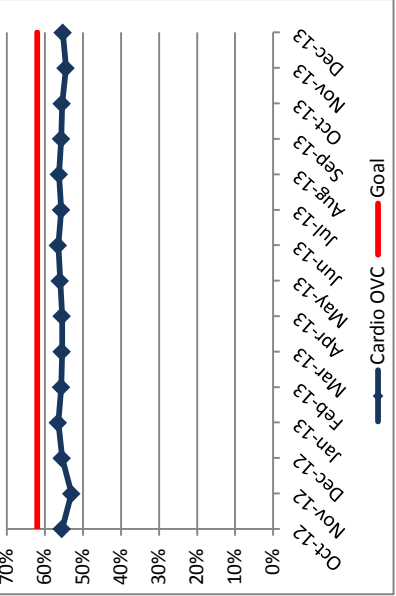


Top 25 Providers for Vascular Care

Provider*	# Eligible Patients	% Met Criteria
G	36	88.9%
K	20	85.0%
A	19	84.2%
B	50	84.0%
E	22	81.8%
F	16	81.3%
D	10	80.0%
H	18	77.8%
I	22	77.3%
J	13	76.9%
C	21	76.2%
M	20	75.0%
N	31	74.2%
R	57	73.7%
L	72	73.6%
O	22	72.7%
S	43	72.1%
P	21	71.4%
Q	21	71.4%
T	14	71.4%
X	66	71.2%
W	79	70.9%
Y	23	70.8%
U	34	70.6%
V	30	70.0%

*All providers met goal.
Excludes providers with <10 patients

Optimal Vascular Care Measure - Cardiology



Source: Health Partners Medical Group, 2014.

Some reports developed by providers are driven exclusively by their own internal performance goals. Others, at least in part, adopt and include metrics explicitly selected to mirror measures used in accountability programs external to their organization. For example, measures may be based on accreditation and certification requirements, public reports for consumers, pay for performance targets, and national and regional campaigns to promote uptake of new clinical discoveries from the field of clinical effectiveness research.

When providers develop their own reports, depending on the metrics used, they may not have access to data external to their organization that they need to produce performance comparisons with others outside their organization. Such data could be an important feature in engaging and motivating physicians. See also related discussion in section 2-3.

Feedback reports developed by organizations external to providers

A wide variety of organizations external to providers develop and disseminate confidential physician feedback reports to support improvement aims (Grol, et al., 2005). These should not be confused with quality reports available in the public domain and designed for use by consumers. This section discusses confidential reports designed for use by physicians in assessing and improving their performance but developed by organizations external to the provider, i.e., using externally sourced data.

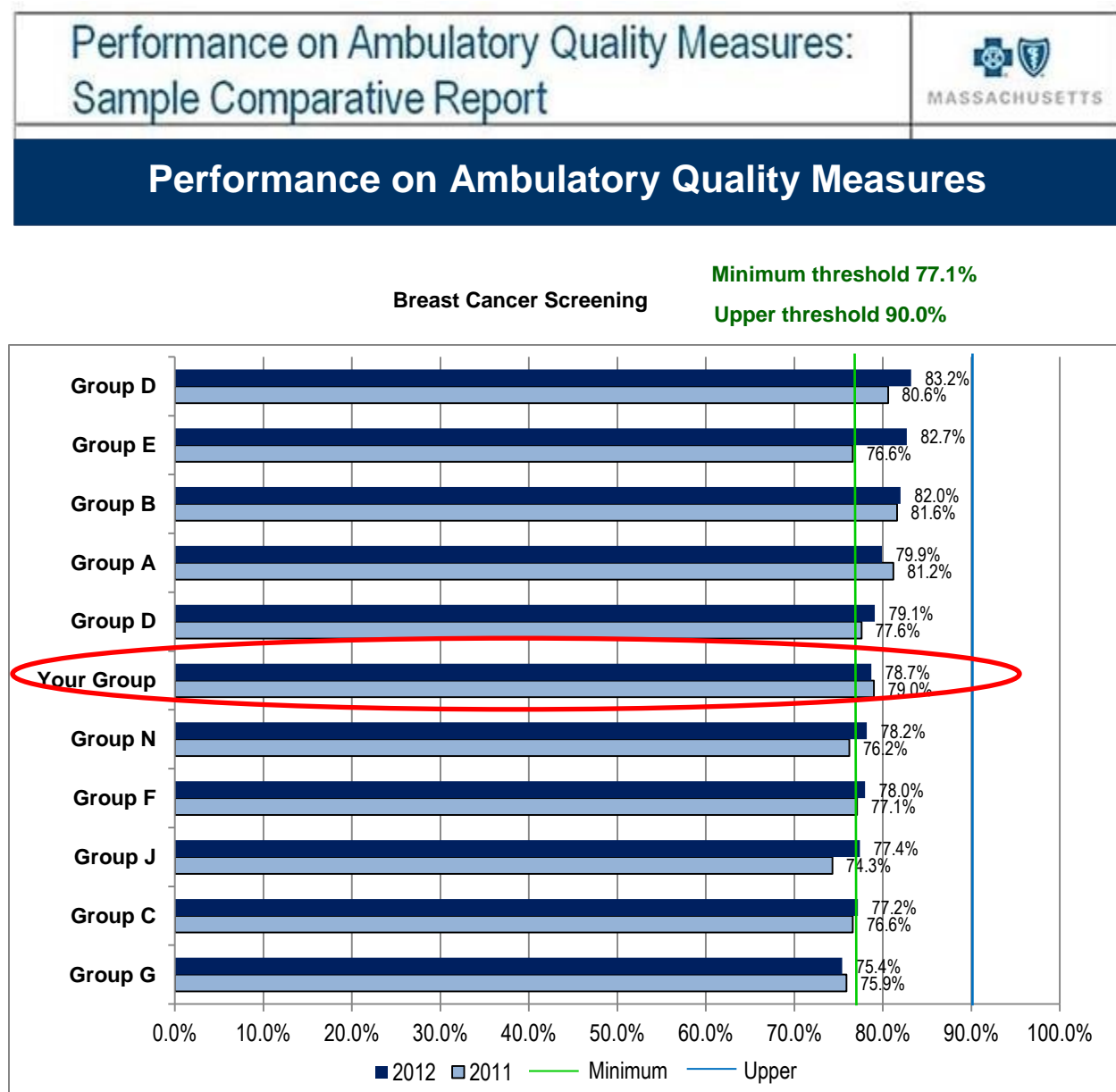
- **Private/public health plans and purchasers, including accountable care organizations.** Commercial insurers have access to large administrative databases containing utilization and financial information on affiliated physicians that can be and often are used to develop performance reports. United Healthcare, for example, has developed a feedback report for its affiliated physicians on HEDISⁱ measures. In the public sector, the Centers for Medicare & Medicaid Services (CMS) produces feedback reports for physicians and physician groups through its Quality and Resource Use Reports program. CMS also is producing feedback reports featuring key cost and quality metrics for its affiliated accountable care organizations.

At the State level, a growing number of Medicaid agencies are producing performance feedback reports; an informal poll of a subset of Medicaid Medical Directors identified 10 State Medicaid agencies that develop some type of feedback report for affiliated physicians. Other State Medicaid agencies rely on the managed care organizations with whom they contract to develop and implement feedback reports for physicians in their networks (Shaller and Kanouse, 2014).

Figure 3 is an excerpt of a feedback report for medical groups developed by a health plan, BlueCross BlueShield of Massachusetts. The excerpt presents one of several dozen measures that are collectively linked to financial performance incentives developed by the plan. It compares performance on the rate of patients screened for breast cancer with a set of performance targets designed to reward both performance and performance improvement, which for this measure fall between 77.1 and 90 percent screened. For example, “Your Group” achieved a 79 percent screening rate in 2011 and a 78.7 percent rate in 2012, exceeding the minimum threshold of 77.1 percent each year.

ⁱⁱ HEDIS = Healthcare Effectiveness Data and Information Set.

Figure 3. BlueCross BlueShield of Massachusetts feedback report excerpt on breast cancer



Source: BlueCross BlueShield of Massachusetts, 2016. Report layout modified with permission.

- Regional multi-stakeholder health care improvement collaboratives.** There are more than 30 such collaboratives in the United States (NRHI Web site, 2015), including those formerly sponsored by AHRQ's Chartered Value Exchange (CVE) program and the Robert Wood Johnson Foundation's Aligning Forces for Quality program. A growing number have either developed or plan to develop some kind of provider feedback report. A 2012 informal poll of 24 CVE project directors revealed that at least 15 developed some kind of feedback report, most focused on physicians or medical practices. Many of these collaboratives have created an infrastructure to support the communitywide collection of claims and, in some cases, medical record data; others have developed approaches to communitywide collection of patient experience survey measures.

Physician feedback reports developed by regional health improvement collaboratives have four advantages over those developed by a single plan: (1) the report represents a larger pool of patients and thus more completely reflects physicians' care; (2) the larger the data pool is, the greater the ability to validly and reliably measure performance; (3) regional collaboratives have a unique ability to provide region-level, regionwide benchmarks, which no single care system or health plan can create on its own; and (4) consumers are one of the key stakeholders at the table, so feedback reports are more likely to include consumer-valued metrics as a focus for improvement (Shaller and Kanouse, 2014).

Figure 4 is an excerpt of a feedback report developed by a multi-stakeholder regional collaborative, Oregon Health Care Quality Corporation, which compares screening rates across clinics. For example, Clinic 1 achieved a Cervical Cancer Screening score of 83.3 percent, compared with Clinic 3 at 78.7 percent and Clinic 4 at 63.2 percent.

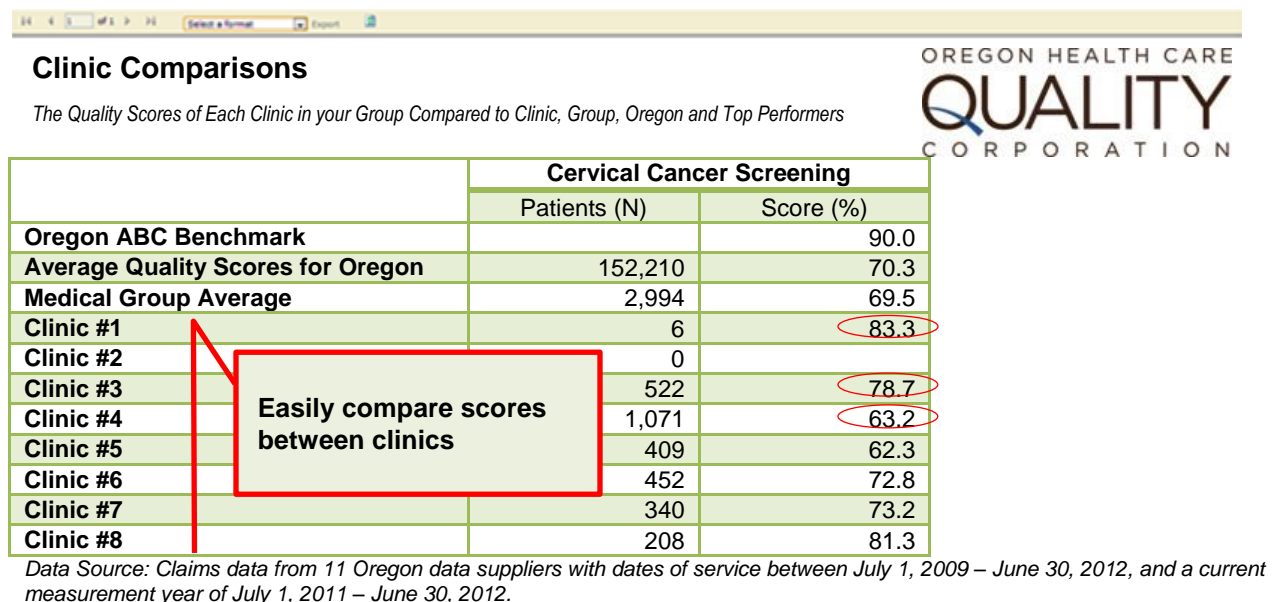
Figure 4. Oregon Health Care Quality Corporation feedback report excerpt on set of preventive screenings

Clinic Comparisons

[Return to My Reports](#)

[Go Back One Screen](#)

[Show notes on exporting data](#)



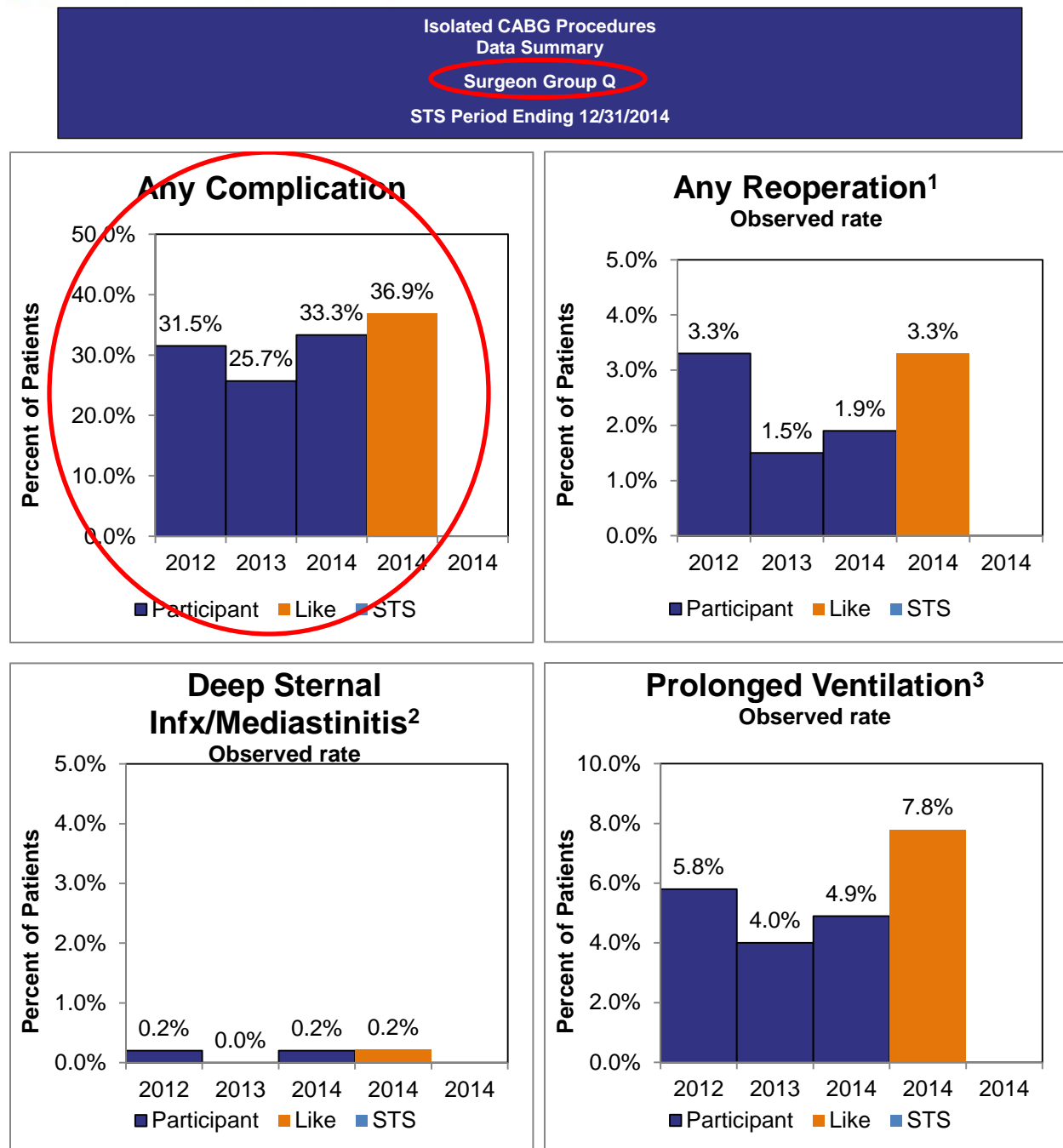
Source: Oregon Health Care Quality Corporation, 2016. Report layout modified with permission.

- **Clinical professional societies and boards.** A growing number of clinical specialty societies and boards have developed confidential feedback reports for their members. The College of Cardiology, for example, develops reports for physicians who voluntarily participate in their registries.

Figure 5 is an excerpt of a feedback report developed by a professional society, The Society of Thoracic Surgeons. For example, the percentage of patients with “any complication” during isolated coronary artery bypass graft (CABG) procedures is shown for a database participant (i.e., typically a hospital cardiac surgery program, a practice group of cardiothoracic surgeons, or uncommonly, an individual surgeon), Surgeon Group Q, for years 2012, 2013, and 2014. The report also shows Surgeon Group Q compared with the percentage of patients with “any complication” for “like groups” performing the same procedures in 2014.

Professional societies and boards also play a more general role in encouraging physicians to support measurement and reporting activities. The 24 member boards of the American Board of Medical Specialties have implemented a program of Maintenance of Certification that requires certified physicians to participate in a number of educational and improvement activities. Many of these activities are supported by a form of feedback reporting. The American Board of Internal Medicine, for example, offers its members Performance Improvement Modules that typically include some type of comparative data collection and measurement to support specific improvement aims (Granatir contribution to Shaller and Kanouse, 2014).

Figure 5. The Society of Thoracic Surgeons feedback report excerpt on complications



¹ Includes reoperations for bleeding/tamponade, valvular dysfunction, graft occlusion, and other cardiac problems.

² Includes surgical and PCI/transcatheter interventions.

³ Excludes patients with zero vein grafts.

Source: The Society of Thoracic Surgeons, 2016. Report layout modified with permission.

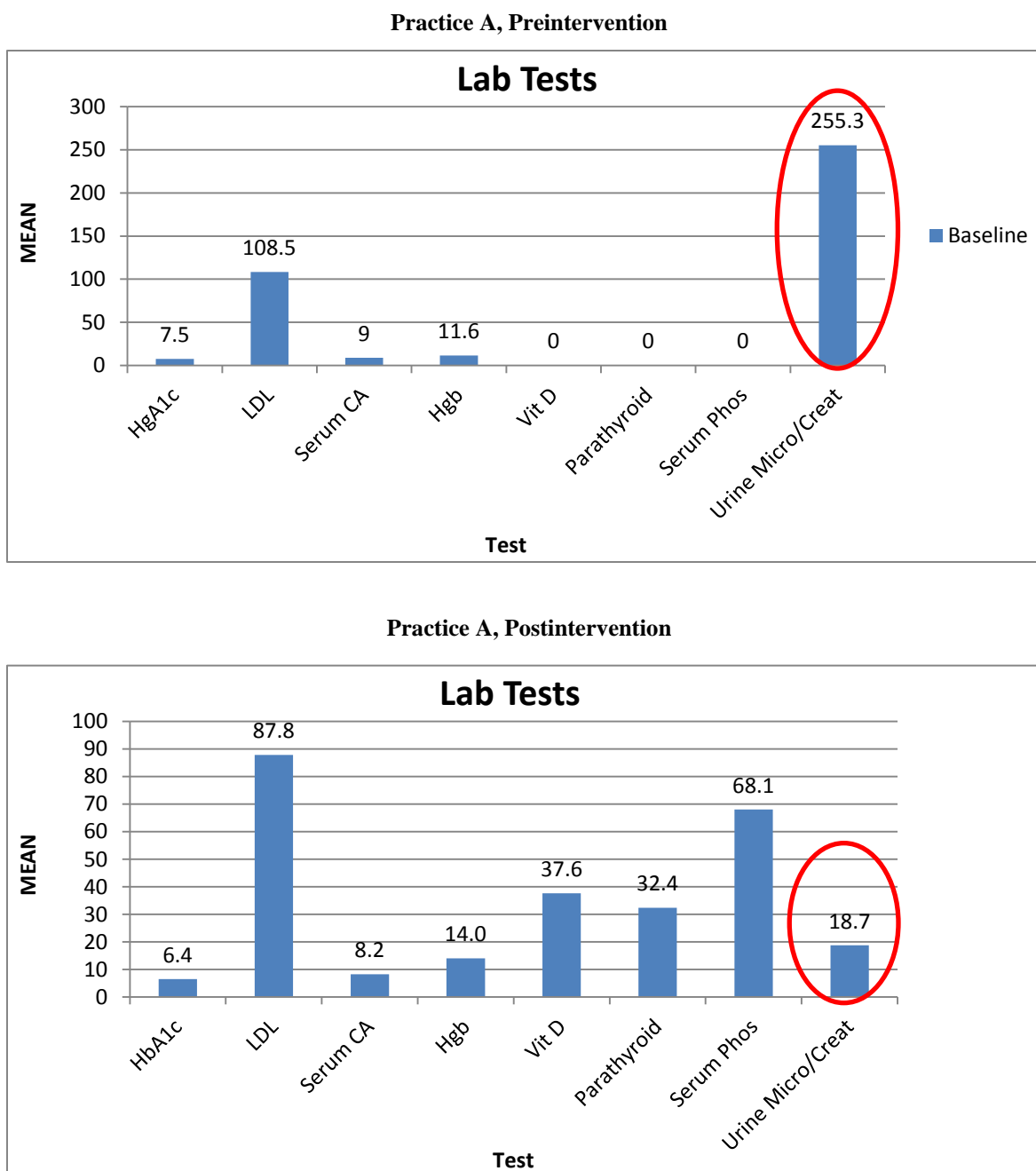
- **Campaigns and programs to support and expedite physician uptake of new clinical advances.** “Patient centered outcomes research” programs and other campaigns focused on expediting the time it takes for new clinical evidence to be implemented into clinical practice often develop a feedback report to motivate uptake and track the rollout of new evidence. Such reports can be freestanding, focused narrowly on the new clinical evidence to be implemented. Or, the tracking metrics can be integrated into a pre-existing physician feedback reporting system, the developer of which has agreed to partner with the campaign.

The latter approach has the advantage of using an established reporting infrastructure, which likely has a degree of familiarity among affiliated physicians. If the pre-existing report already tracks performance for a large number of metrics, however, any added measures to support uptake of new clinical evidence may get lost. To the extent the geographic focus of a campaign is large, it is well situated to produce performance benchmarks tailored to a range of implementation contexts.

Practice-Based Research Networks (PBRNs), which consist of 176 networks of primary care clinicians and practices, represent one type of program working to translate research findings into practice (AHRQ PBRN Web site, 2015). Some incorporate feedback reporting into their work. One PBRN in particular, PPRNet, links practices across the United States that use electronic health records to support feedback reporting on 62 quality measures at the practice, physician, and patient level. PPRNet feedback reports also include network and national comparators for practices to use in assessing their progress (PPRNet Web site, 2015).

Figure 6 is an excerpt of a feedback report developed as part of a PBRN campaign to accelerate implementation and diffusion of chronic kidney disease (CKD) guidelines in primary care practice. The first table shows lab test results for patients of “Practice A” before implementation of the CKD guidelines. The second table shows lab test results for the same patients in “Practice A” after implementation of the CKD guidelines. For example, Practice A’s patients had a mean Urine Micro/Creat score of 255.3 before the intervention, which improved after the intervention to a mean Urine Micro/Creat score of 18.7.

Figure 6. PBRN feedback report excerpt on compliance with chronic kidney disease guidelines



Source: Oklahoma Physicians Resource/Research Network project, “Leveraging PBRNs to Accelerate Implementation and Diffusion of Chronic Kidney Disease Guidelines in Primary Care Practice,” 2016. Report layout modified with permission.

With the growth in the number and variety of organizations that develop physician feedback reports comes a significant challenge to the broader enterprise of feedback reporting. An individual physician may receive multiple reports from different sources, such as his or her medical group, the different health plans with which he or she contracts, a regional health care improvement collaborative, and his or her professional society (Teleki, et al., 2006). There is no

guarantee that reports produced by different developers are aligned in focus or measure specification. The phenomenon of dueling feedback reports may diminish the visibility—and importance—of any single report, and in the case of conflicting scores, may create confusion and undermine the credibility of provider feedback reporting.

Part Two: Design of Physician Feedback Reporting Systems

Just because physician feedback reports can work to improve performance does not mean they always do. The purpose of this section is to identify the factors empirically associated with success—referred to as “best practices”—with the aim of increasing the effectiveness of future feedback reports.

The following sections review best practices culled from the body of literature on physician feedback reporting, in particular the most recent Cochrane review of randomized trials (Ivers, et al., 2012). These evidence-based practices are clustered into four sets of decision points accompanying the development of a clinician feedback reporting system:

- Section 2-1: Identifying a clinical focus
- Section 2-2: Ensuring underlying data support aims of report
- Section 2-3: Optimizing user functionality
- Section 2-4: Delivering to promote impact

Because the evidence base is still developing, each of these four evidence summaries is followed by potential best practices that derive from weaker or indirect evidence, but which some practitioners have found to be useful. The summaries also offer tips from experienced developers, recipients, and observers of feedback reporting. The two categories of guidance, one based on a rigorous review and the other on suggestions, are clearly labeled and distinguished.

2-1. Identifying a clinical focus

There are a variety of clinical areas from which to select a focus for improvement. Table 1 below provides a starting point for eliciting or organizing potential foci of clinician feedback reports. It incorporates both the Donabedian and Institute of Medicine (IOM) frameworks and covers a breadth of potential clinical foci and measures.

Table 1. Matrix of quality measure typologies, illustrated with measure examples

IOM domains	Donabedian domains		
	Structure measures	Process measures	Outcome measures
Effective care measures	Example: Cardiac nurse staffing, nursing skill mix (RN/total)	Example: Use of angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) for patients with systolic heart failure	Example: 30-day readmissions (or mortality) for heart failure
Patient centered care measures	Example: Use of survey data to improve patient-centered care	Example: Patient response to question: Did the nurses treat you with courtesy and respect?	Example: Patient overall rating of care

IOM domains	Donabedian domains		
	Structure measures	Process measures	Outcome measures
Timely care measures	Example: Physician organization policy on scheduling urgent appointments	Example: Received beta blocker at discharge and for 6 months after acute myocardial infarction	Example: Potentially avoidable hospitalizations for angina (without procedure)
Safe care measures	Example: Computerized physician order entry with medication error detection	Example: Use of prophylaxis for venous thromboembolism in appropriate patients	Example: Postoperative deep vein thrombosis or pulmonary embolism
Efficient care measures	Example: Availability of rapid antigen testing for sore throat	Example: Inappropriate use of antibiotics for sore throat	Example: Dollars per episode of sore throat
Equitable care measures	Example: Availability of adequate interpreting services	Example: Use of interpreting services when appropriate	Example: Disparity in any other outcome according to primary language

Source: Romano, et al., 2010.

Reports can include performance metrics for a broad menu of clinical conditions (e.g., top 10 most frequent hospitalizations) or specialize in a narrow clinical area (e.g., diabetes care).

Physician feedback reports are usually more effective when:

- **The targeted clinical measure or suite of measures is perceived as important by the physician** (Hayes and Ballard, 1995). This requires not only that the measures be relevant to a particular physician's practice and caseload, but also that there are sufficient evidence and expert consensus to inform and compile the underlying clinical protocol (e.g., use of ACE inhibitor or ARB for patients with systolic heart failure, from which the measure is derived and compiled [Landon, et al., 2003]).
- **The targeted clinical behavior has a low level of baseline performance among physicians, representing an opportunity for significant improvement.** The greater the extent to which measured performance is not aligned with best clinical practice, the greater the likelihood that individual physicians will be motivated to set aside their previous (erroneous) self-assessment in favor of that reflected in a feedback report (Ivers, et al., 2012).

Additional factors that may contribute to the effectiveness of physician feedback reports but are based on weaker or less direct evidence, as well as tips from experienced users, include:

- The targeted clinical measure can be influenced by changes in physician behavior. That is, the physician has control over activities that will lead to a better "score" on the report. For example, providing feedback about overall hospital performance may not be relevant or useful to individual physicians who work only in one unit of the hospital (Brehaut, et al., 2016).

- The target clinical performance requires relatively simple behavior changes (e.g., medication prescribing or test ordering), in contrast to more complex behavior changes (e.g., patient-centered chronic disease management) (Ivers, et al., 2012).
- The target clinical focus is not an exceedingly rare event, such as a foreign object unintentionally left in the wound after surgery (Ivers, Sales, et al., 2014).

In practice, selection of the clinical focus of a report is inexorably linked to the availability and quality of underlying data needed to support related measurement, which is discussed in the next section.

2-2. Ensuring underlying data support aims of report

Data on physician performance can be obtained from medical records, registries, administrative or claims databases, observations, or patient surveys. The definitions, advantages, and disadvantages of using alternative types of data are discussed in more detail in a separate AHRQ decision guide, *Selecting Quality and Resource Use Measures: A Decision Guide for Community Quality Collaboratives* (Romano, et al., 2010).

Physician feedback reports are usually more effective when:

- **The underlying data are valid** (Ivers, Sales, et al., 2014) **and are viewed as credible by recipient physicians** (Bradley, et al., 2004), respected peers, and clinical leaders. The following data attributes (Teleki, et al., 2006; Landon, et al., 2003; Shaller and Kanouse, 2012), some of which contribute to data validity and others to credibility, are particularly deserving of the attention of report developers:
 - A sample size that is adequate to produce reliable estimates of performance;
 - Reasonable procedures for attribution of clinical responsibility;
 - Transparent methods and scoring processesⁱⁱ;
 - Case mix adjustment procedures that mitigate the effects of patient factors that are not under the physician's control;
 - Explicit discussion of data/measure limitations;
 - Accuracy of data abstraction and analysis; and
 - Trustworthiness and objectivity of the developer.
- **The data are timely and updated frequently** (Ivers, et al., 2014; Bradley, et al., 2004). Feedback reports can be delivered periodically or can be designed for ongoing, real-time access (e.g., “dashboards”) if they are built into electronic health information systems. Monthly updates generally are viewed as sufficiently frequent (Hysong, et al., 2006) but the “right” frequency depends on a number of factors. Short reporting intervals may contribute to report fatigue (Brehaut, et al., 2016). Long reporting intervals may fuel perceptions that the data are “stale” and may limit the opportunity for physicians to observe if a practice change they instituted had an impact on performance.

ⁱⁱ In 2006 the Ambulatory Quality Alliance developed a set of principles to guide the reporting of performance information to clinicians and hospitals; a major focus of these principles is on the issue of methods transparency (Shaller and Kanouse, 2012). Guidelines published in 2012 by the American Medical Association also emphasize the need for methods transparency as well as greater industrywide standardization of reporting formats and the need for physicians to have access to patient-level data (American Medical Association, 2012).

In the case of small practices, less frequent reporting cycles (longer intervals) are one of several strategies to ensure adequate data for reliable assessments (Landon and Normand, 2008). Alternatively, in such cases, frequent updates can incorporate a “rolling average” that combines data from preceding periods with data from the most recent period to increase the number of observations; complex versions give greater weight to more recent performance data (Shaller and Kanouse, 2014; Friedberg and Damberg, 2011).

Additional factors that may contribute to the effectiveness of physician feedback reports but are based on weaker or less direct evidence, as well as tips from experienced users, include:

- Data include patient-level identifiers, which allow physicians to access detailed information about their performance at the patient level. This supports physicians’ trust in the data, i.e., assuming drill downs by physicians reveal accurate representations (Shaller and Kanouse, 2012). See also related discussion in Section 3-1.
- Data can be easily corrected by physicians. A correction feature or protocol that allows physicians to note where data appear to be in error not only provides a feedback loop for improving data quality, but also may facilitate physicians’ trust in the data (Shaller and Kanouse, 2012). See also related discussion in Section 3-1.

2-3. Optimizing user functionality

Feedback reports should strive to be “physician friendly.” Physicians’ needs should drive each of the design decisions that go into building a report.

Physician feedback reports are usually more effective when:

- **Actual performance is displayed alongside a desirable comparator.** In order to make sense out of their performance scores, physicians need some way to answer the question, “compared to what?”

The terms “comparator,” “benchmark,” and “performance goal” are often used interchangeably, but they are different. “Comparator” is an umbrella term. A frequently-used comparator is the national, regional, or practice average. Another type of comparator is a benchmark, which connotes a level of performance that is desirable. A national, regional, or practice average also could be a benchmark, if the report developer views the average as desirable. Usually, however, a benchmark is pegged to performance that is above average, although it depends on the metric and how well average clinicians are performing. As discussed later in this section, a benchmark becomes a performance goal when it is bounded by a time period for improvement.

The Achievable Benchmark of Care™ uses data to identify performance levels achieved by top-performing clinicians involved. Recipients of reports that include an Achievable Benchmark of Care™ experience greater improvement than recipients of reports that use average performance as the comparator (Kiefe, et al., 2001).

Benchmarks, such as 90th percentile, are derived at least in part from an analysis of performance data and may or may not also be informed by expert consensus on the appropriate level of performance. Regardless, the process used to develop a benchmark

should be transparently described to physicians. Reports also should describe any analyses to examine the extent to which a given recipient's patients are sicker or different, to address possible concerns about the fairness of the benchmark. For example, stratification of underlying data by type of provider, such as safety net, rural/urban, or multi-specialty, may help a clinician appreciate the extent to which his or her patients are sicker or different. It may be appropriate to develop separate benchmarks for clinicians with similar patient profiles.

It is uncertain whether displaying more than one type of benchmark is effective. What might be gained by enabling physicians to select the benchmark that is most meaningful to them could be offset by a physician's bias in favor of the benchmark that portrays his or her performance most favorably. Use of multiple types of benchmarks for each performance measure also might introduce confusion, as might inconsistent use of benchmarks across performance measures (e.g., using one type of benchmark for measure A and another type for measure B).

Practically speaking, the availability of data needed to construct a particular benchmark, or the lack of it, may give one benchmark type an edge over another. Achievable Benchmarks of Care™ are not always feasible to construct. Other benchmarks, such as the 90th percentile for all safety net hospitals in a given region, need external performance information that may or may not be accessible to the report developer. Conversely, a formal process to elicit expert consensus to identify a target performance may be time consuming and costly.

- **Goals are set for the target performance or behavior** (Ivers, et al., 2012). Ideal goals are specific, measurable, achievable, relevant, and time bound. (Ivers, Sales, et al., 2014). They can be linked to a threshold measure of performance (e.g., 80 percent of patients to be screened) or can be expressed as a level of improvement (e.g., screening rates to improve by 10 percent).

Goals may be inherent in the selection of certain comparators (e.g., Achievable Benchmark of Care™), if they are further bounded by a time increment, but may be less likely in others (e.g., national average). For the latter, an explicit goal must be added. Evidence is mixed about whether physicians receiving feedback reports should self-set goals, be given a menu of possible goals from which to select, or simply be given a goal, which is embedded in the report.

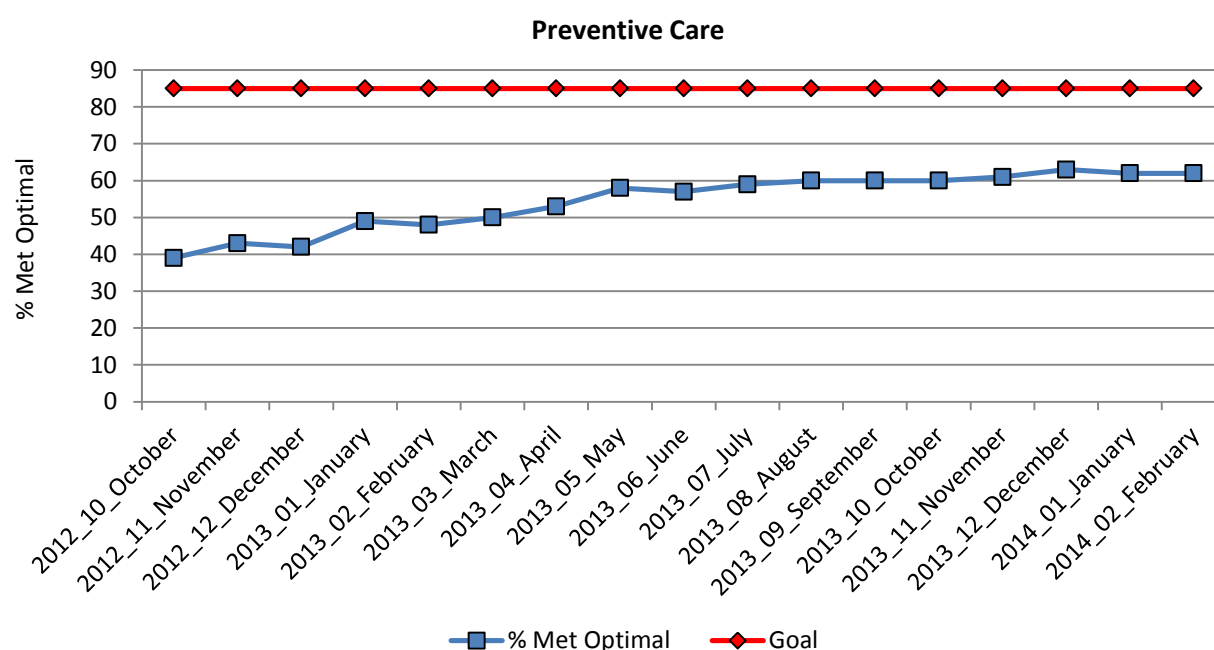
- **Reports are accompanied by a specific improvement plan that facilitates goal achievement** (Ivers, Grimshaw, et al., 2014). If physicians are told that their scores are low but are not told how they can attempt to improve them, frustration may displace motivation to improve. An improvement plan with specific steps is needed to make the performance data actionable. In the case of low vaccination rates, for example, an improvement plan might include a list of the physician's patients who did not get vaccinated to facilitate followup. Or in the case of low CAHPSⁱⁱⁱ communication scores,

ⁱⁱⁱ CAHPS = Consumer Assessment of Healthcare Providers and Systems.

an improvement plan might include a review of elements of effective communication (Teleki, et al., 2006).

- **The report format facilitates correct interpretation and highlights important patterns in performance** (Vaiana and McGlynn, 2002). For example, does the report clearly communicate instances in which a physician's performance is significantly different from the performance goal, or show whether and how performance is changing over time? Figure 7 is an example of a graphic display that facilitates a physician's ability to see how his or her performance compares with the performance goal and assess whether he or she is improving over time.

Figure 7: Sample graphic comparing actual performance with the goal, and monthly trending



Source: Shaller and Kanouse, 2014.

Many of the formatting tips gleaned from literature on best practices in designing public reports for consumers also apply to physician feedback reports. In both cases, the goal is to design a report that helps the user correctly identify and interpret key messages with minimal cognitive effort. Information about the measurement period (e.g., data year/month) needs to be explicit and visible. Details on measure specifications and scoring methodologies need to be easily accessible to those interested. On a Web display, use of a hover function can make detailed information readily available without adding clutter.

Other effective formatting conventions include linking data graphics to summary text messages to facilitate interpretation (Brehaut, et al., 2016) and using highlighting, boldfacing, text boxes, or sidebars to draw attention to key messages (McCormack, et al., 2001). To minimize confusion, formatting conventions are best used consistently within a particular report as well as from one report to the next.

Additional factors that may contribute to the effectiveness of physician feedback reports but are based on weaker or less direct evidence, as well as tips from experienced users, include:

- The organization of the report is logical and clear, and the landing page (for a Web-based report) or the table of contents (for a hard copy report) clearly explains how the report is organized and where to find specific elements (Vaiana and McGlynn, 2002).
- The report allows physicians to drill down to access patient-level data, which enables them to identify specific patients whose care falls short of the target performance or who are overdue for specific services or followup. The report also can generate a list of patients, such as those who need followup. Such a feature thereby supports care management as well as performance improvement functions (Shaller and Kanouse, 2012). Section 3-1 has a more detailed discussion of access to patient-level data.
- The report includes composite measures, which reduce the cognitive load to process the report's contents and convey a summary of performance at a glance, in addition to related component measures, which provide more specific actionable information. For example, the report might include an overall score for the quality of diabetes care by primary care clinicians or an overall score for safety in hospitals, as well as related component measures, such as an A1c value less than 8 percent, and pressure ulcer rate, for primary care clinicians and hospitals, respectively.
- The report gives physicians flexibility to tailor output to their needs. Reports could be structured to enable physicians, for example, to select a subset of measures; review performance at the individual, team, or organization level; easily repackage information for a slide presentation; or convey information via email to themselves or others.
- Physicians are involved in report design. The greater their involvement, the greater the likelihood that their needs will be reflected in the design and the greater their sense of ownership and likelihood to use it. See also related discussion in sections 2-3 and 3-2. In addition, active engagement by physicians during the development stages helps premarket the report and set the stage for behavior change (Shaller and Kanouse, 2012).
- The report links to physicians' certification requirements (e.g., the American Board of Medical Specialties' Maintenance of Certification program). If physicians can satisfy their professional obligations by actively participating in a feedback reporting system, they may be more inclined to engage (Granatir contribution to Shaller and Kanouse, 2014).

2-4. Delivering to promote impact

Delivery of feedback reports to physicians may involve multistaged or single communication, a decision that is best driven by the particular context. Some contexts call for a multistaged delivery strategy. These contexts might include:

- A complex clinical behavior change is needed to improve performance.
- The clinical best practice is based on new evidence.
- The physician has never participated in a feedback reporting system.
- The changes needed to improve performance rest at the organizational level.

In a multistage strategy, for example, stage one might be a group presentation to introduce the feedback report, review improvement resources, and provide opportunities for discussion. Stage

two might involve distributing individual feedback reports via hard copies or an online portal (Shaller and Kanouse, 2012). Stage three might feature a followup one-on-one meeting or group discussion to help interpret the report and discuss specific opportunities for performance improvement.

Other contexts (e.g., the required clinical behavior change is simple and straightforward or the group of physicians has a long history using feedback reports) might require only the distribution of individual feedback reports.

In addition to multistage strategies, some experts suggest the use of multifaceted interventions. For example, feedback reports may be more successful when paired with a reinforcing companion strategy, such as pay for performance or electronic reminders. In other cases, feedback reports may be effective on their own. Decisions about if and how to stage delivery or pair feedback reports with other strategies depend in part on the potential marginal impact of the proposed enhancement weighed against the added costs, especially if the desire is to deliver these strategies at scale (Ivers, Sales, et al., 2014).

Delivery of physician feedback reports is usually more effective when:

- **Mode of delivery includes a verbal review by a trusted source, such as a supervisor or respected senior colleague.** Conversely, feedback is less effective when it comes from an unknown source, such as a researcher, a payer, or a regulatory body. In-person delivery allows the discussion to be tailored to the needs of the receiving physician (Ivers, Sales, et al., 2014).
- **Feedback is routinized and ongoing.** Routine feedback conveys a sense of importance and facilitates a cycle of learning in which the physician can assess whether changes made to his or her practice since a prior report had a positive impact on performance. Routine feedback also may help focus attention on the measure and support sustained improvements in practice (Brehaut, et al., 2016). In contrast, one-time feedback reports are more easily dismissed by physicians.
- **Feedback is anchored in an overarching quality improvement structure** (Foy, et al., 2005; Van Der Veer, et al., 2010). Whether the structure is based on “plan, do, study, act” (PDSA), “Six Sigma,” or another quality improvement model, it is important for feedback reporting to have a home within this superstructure rather than competing with it for physicians’ attention. Doing so will support its credibility among physicians, increase the likelihood of sufficient funding with dedicated resources, and mitigate unnecessary duplication of measurement and reporting efforts.

Additional factors that may contribute to the effectiveness of physician feedback reports but are based on weaker or less direct evidence, as well as tips from experienced users, include:

- Adequate context is given so that physicians are poised to appreciate the purpose of the report and why they should be interested. It is important to be direct and straightforward, for example, about whether reported metrics will be part of incentive payments or whether the primary aim is to cut costs or improve quality (Vaiana and McGlynn, 2002). See also related discussion in appendix 2 of messaging to consider when delivering your feedback report to clinicians.

- The report is delivered in a supportive, nonjudgmental way (Hysong, et al., 2006; Hayes and Ballard, 1995).

Part Three: Three Strategies for Continuous Improvement of Physician Feedback Reporting Systems

To some extent the distinctions among the following three strategies to test the accuracy of feedback reports and the extent to which they meet the needs of physicians are artificial, but the point is that testing reports is not a one-shot deal. Rather, testing can and should be performed throughout the reporting cycle from development through implementation.

- Section 3-1: Systems that enable physicians to correct patient-level data
- Section 3-2: Prerelease cognitive testing: giving physicians the opportunity to make feedback reports work for them
- Section 3-3: Postrelease monitoring and evaluation

“When in doubt, test. When not in doubt, test more.”

—David Kanouse, RAND

3-1. Systems that enable physicians to correct patient-level data

Some online feedback reports allow physicians to drill down to patient-level data and note where data appear to be in error and need to be corrected. In addition to providing a feedback loop for improving data quality, the mere visible presence of a correction feature may enhance physicians’ trust in the report.

The degree of rigor in documentation to correct errors should be influenced by the amount of trust that exists (or must be built), the intended uses of the reports, and the costs of documentation. Corrections to reports that are used solely to support good patient care and quality improvement may require little or no supporting documentation.

Capacity to access patient-level data also enables physicians to identify specific patients whose care falls short of the target performance or are overdue for specific services or followup. Access to patient-level data is a key feature that differentiates feedback reports that are aimed primarily at performance assessment from those that also serve as tools for improving care management.

For physicians to take the steps needed for improvement, they need to know where to direct their efforts. Reports that include patient-level data are more actionable than those that do not, since the physician can drill down to patient-level data to identify, for example, gaps in services. Reporting guidelines published by the American Medical Association emphasize the need for physicians to have access to patient-level data (AMA, 2012).

Some report developers present information (e.g., a list of specific patients due for care) in an appendix, companion report, or registry to provide the physician with guidance on specific ways to improve performance (e.g., contacting patients on the list who are due for a mammogram).

Followup action by physicians is further facilitated by enabling patient data to be downloaded to Excel spreadsheets.

If patient-level information is shared across business entities, a Business Associate Agreement (BAA) is required in order to comply with the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule, which protects the privacy of individually identifiable health information. The BAA provides written safeguards that such protected information will be used only for authorized purposes, including quality assessment and improvement activities, and will not be disclosed in any way that would violate the Privacy Rule (U.S. DHHS, 2003).

*This section was excerpted and adapted from Shaller and Kanouse, 2012.

3-2. Prerelease testing: Giving physicians the opportunity to make feedback reports work for them

Designing and developing an effective physician feedback report requires working with members of the intended user audience (e.g., physicians, care teams) to test how understandable and usable it is before the report goes live (Shaller and Kanouse, 2012). A variety of techniques can be used to test reports before a report's release, including cognitive testing, semistructured interviews, and focus groups. Each requires the development of a guide to ensure key topics are addressed, and each calls for a note taker tasked with chronicling user feedback.

Technique #1: Cognitive testing

Cognitive testing is conducted through one-on-one, in-person meetings during which the interviewer shadows and observes a representative of the report's intended user audience, such as a physician, as he or she reviews the report. It is a particularly useful and efficient technique for gaining critical insights about the extent to which the prerelease version of the report is understandable and usable. See Text Box 4 for sample questions that cognitive testing can answer.

Text Box 4. Illustrative questions that can be answered with cognitive testing

- Do physicians respond positively to the messages about the purpose of the feedback report, the featured framework for and components of health care performance, and the credibility of the developer?
- Does formatting (e.g., graphics, icons, text summaries) support clear communication of the information?
- Can physicians easily and accurately assess their own performance and differentiate high performers from low performers?
- How easy is it for physicians to find out more information, such as details about individual patient data, scoring methods, and ways to improve performance on the reported metrics?

In cognitive testing, physicians are asked to tell, *in their own words*, what they learned from different components and features of the report and how the report made them feel. Physicians are not being tested, but rather, the report is being tested. Cognitive testing can be used throughout the development process. Some developers find it useful to conduct two rounds of testing, either on the whole report or on particularly problematic sections, to ensure subsequent "fixes" made in response to initial testing adequately address deficiencies (Sofaer contribution to AHRQ working paper on public reporting, 2012).

Technique #2: Semistructured interviews

Semistructured interviews are conducted one-on-one or in very small groups of no more than three physicians (AHRQ, 2015). They are distinguished from cognitive interviews in that they do not rely on observation of the physician representative using the tool, in this case the feedback report.

Both cognitive and semistructured interviews are particularly useful for collecting information that is not influenced by the opinions of others in a group discussion. They also are useful for collecting information from an individual or small group of physicians that is not influenced by the presence of supervisors or managers.

Technique #3: Focus groups

A focus group is a small group discussion among representatives of the target audience, in this case physicians, that is led by a moderator. It allows for group members to respond to comments made by other group members, and can yield innovative ideas for redesigning the report to better meet the physicians' needs. An important part of the moderator's responsibility is to ensure that each person has an opportunity to speak (AHRQ, 2015).

Testing a report before release, be it via cognitive or semistructured interviews or focus groups, has a secondary benefit of jump-starting the phase of building physician awareness about the feedback report. A decision to forgo testing before a report goes live could be a big mistake, as can be seen in the example below. See Text Box 5.

Text Box 5. Case example of Cincinnati Health Collaborative

Although the Cincinnati Health Collaborative successfully engaged physician leaders in many aspects of their measurement and reporting activities, the Collaborative did not conduct any initial testing or review of their provider feedback report with physicians. Not doing so prevented the Collaborative from discovering what report features were most valuable to physicians, such as the availability of patient-level data to identify patients in need of followup screening tests. Absence of testing also contributed to a lack of awareness and use of the Collaborative's clinician feedback report. This situation enabled the perception to grow that that their report, accessible through a secure data portal, added little value to the performance feedback information already available to physicians (Shaller and Kanouse, 2012).

3-3. Postrelease monitoring and evaluation

Like all improvement strategies, physician feedback reports can be enhanced through periodic evaluation. Distinct from prerelease testing, which seeks to determine before the report goes live if the presentation of the information in the draft effectively supports goals, evaluation in the context of this discussion is to assess the report's actual impact on physician behavior. For the subset of physician feedback reports that also serve as care management tools, discussed in section 1-1, evaluation also can include the assessment of their impact on improving care management.

While physicians' responses to informal questions, such as, "Have you used the report?" and "How has it influenced what you do in the treatment rooms?," can be instructive, more systematic methods for monitoring and evaluating reports include:

- Online tracking tools for Web-based reports only (summarized in Text Box 6);
- User surveys; and
- Analysis of performance data (Shaller and Kanouse, 2012).

Text Box 6. Complementary monitoring tools for Web-based reports

- **Web analytics**, many of which are available at no charge, enable tracking of physician visits to the reporting Web site. How many physicians are coming to the Web site, what pages are they viewing, and how long are they staying on the site? For example, discovering that only 5 percent of featured physicians view the Web-based report would be helpful to a report developer.
- **Pop-up online surveys** enable questions to be asked of visiting physicians about their motivation in coming to the Web site, perceptions of the site, and, in particular, whether they got what they needed. Online surveys can be thought of as complementary to Web analytics, rather than as substitutes.
- **Query email function** embedded in the Web site that encourages visitors to ask for help is another way to monitor the site's functionality. For example, discovering that 25 percent of physicians visiting the Web site sent an email query about navigation would be helpful to report developers.

Ultimately the success of physician feedback reporting depends on actions physicians take based on the feedback. The "holy grail" measure of success is not whether a report has been read and understood, but whether it has contributed to better care (Shaller and Kanouse, 2014). This is challenging because so many other factors simultaneously affect care. Unless the report is part of a controlled scientific study, it is difficult to isolate what, if any, specific impact can be attributed solely to a reporting effort, or more narrowly, to one or more specific features of a reporting effort.

Part Four: A Research Agenda To Advance the Science of Physician Feedback Reporting Systems

A recent systematic review of randomized clinical trials examining the effect of feedback reporting compared with usual care found an overall positive effect on measured outcomes. However, the impact varied considerably across the included studies, ranging from no effect to relatively large effects (Ivers, et al., 2012). We do not know enough about how, when, and why some feedback reports can achieve a more significant impact on improvement. We therefore have much to learn collectively about how to optimize feedback reporting (Ivers, Grimshaw, et al., 2014).

To help ensure that future research on feedback reporting adds to our understanding of what works and why, its focus needs to pivot from comparing feedback reporting against usual care to explicitly evaluating different features and types of feedback reporting. We propose three priorities to consider when planning or funding research to improve the design and delivery of

feedback reporting; they derive in part from a panel discussion at the 2015 AHRQ Research Conference (De La Mare, et al., 2015).

- Section 4-1: Understanding key attributes of highly successful feedback reporting systems
- Section 4-2: Understanding the implementation contexts that promote highly successful feedback reporting systems
- Section 4-3: Understanding factors that affect both the design and context of feedback reporting systems

4-1. Understanding key attributes of highly successful feedback reporting systems

For example:

- What measures are relatively sensitive to physician behavior change as a result of feedback and therefore might be prioritized over other measures (Van Der Veer, et al., 2010)?
- Is it more effective to focus on performance related to a narrow set of measures that allow more targeted reflection or to capitalize on a physician's attention and give feedback on a much broader set of measures?
- Does physician engagement vary by how the measures are framed? By the type of comparator or benchmark used? By whether summary or composite measures are included? By whether outcome measures or process measures are used? By whether a specific feedback report is linked to board certification requirements, such as the Maintenance of Certification requirements of one or more of the 24 member boards of the American Board of Medical Specialties?
- What is the optimal level of aggregation at which feedback should be delivered? For what type of measures is it more effective to deliver feedback to an individual physician versus to a team?
- What is the best way to include goals and action plans with feedback reports, and how specific should they be?
- What is the ideal way to deliver feedback to physicians? Although face-to-face feedback is often considered ideal, competing time demands on physicians may make this impractical, so evaluating the impact of innovative and nontraditional ways to provide feedback would be useful.
- How can the content, design, and delivery of feedback be personalized to the recipient physician, and to what extent does such tailoring affect outcomes (Landis-Lewis, et al., 2015)?

4-2. Understanding the implementation contexts that promote highly successful feedback reporting systems

For example:

- How do physician characteristics influence reporting effectiveness? Are physicians more likely to respond favorably to feedback reports than other clinicians? Are there

differences among specialties? To what extent is effectiveness a function of the time demands on physicians (Van Der Veer, et al., 2010)?

- How does the setting influence effectiveness? While feedback reporting is a highly adaptable intervention, are some settings, such as medical practices, more amenable than others, such as long-term care facilities?
- What is the impact of co-interventions, such as financial incentives, clinical decision support tools, and practice facilitation (Teleki, et al., 2006)?
- What are the key barriers inhibiting the use of reports by individual physicians and how might they be overcome (Teleki, et al., 2006)? In particular, how often do individual physicians receive multiple provider feedback reports from various developers (e.g., health plans, regional health care improvement collaboratives, professional societies) and to what extent do the scores conflict?

4-3. Understanding factors that affect both the design and context of feedback reporting systems

For example:

- What is the benefit of feedback reporting in terms of improved outcomes, accrued savings, and other goals? Along those lines, what is the cost of developing and implementing feedback reporting systems, and how can these costs be minimized? How does the emergence of the electronic health record enable efficient collection of more complete and nuanced data to support feedback reporting?
- How does the cost/benefit of provider feedback reporting—its business case—compare with that of other performance improvement interventions?

What is the best way to study these three buckets of priorities? Expert methodologists recommend the following approaches:

- Design head-to-head trials to isolate and examine alternative reporting features and approaches (Ivers, Grimshaw, et al., 2014). This may involve adapting approaches commonly used in the marketing field, known as A/B testing, with the goal of determining which design features and contexts lead to the greatest uptake and use of the data for practice change.
- Identify implementation failures (Grimshaw, 2015). As much can be learned from implementation failures as from successes yet null findings on any topic are less likely to be published and therefore less likely to be included in systematic reviews. To better enable the identification of failures, efforts to more systematically identify and centrally log findings of “no effect” need support (e.g., directives) from research funders and journal publishers.
- Conduct outlier research, i.e., focus on implementation cases associated with best and worst outcomes (Hysong, et al., 2007).
- Sufficiently and consistently document each intervention and its implementation context in order to increase the reproducibility of the intervention, support its inclusion in meta-analyses, and better enable an analysis of the generalizability of the results (Van Der Veer, et al., 2010). Peer review journals could make this documentation available as online appendixes.

A secondary aim of this guide is to foster discussion about research priorities among report developers, the broader quality improvement and dissemination and implementation communities, researchers actively working on the topic, and funders of research and improvement initiatives. We hope they will find ways to collectively advance these reports as effective instruments for influencing physician behavior and improving care.

Concluding Remarks

As a group, physicians and other clinicians are highly motivated to ensure patients receive the best care possible. Despite the best intentions of all involved, unintended variations in care are common, resulting in suboptimal outcomes for some patients.

An extensive body of research clearly shows that feedback reporting to physicians can lead to significant improvements in quality of care, especially if careful attention is paid to the way the feedback is designed and delivered. Faced with a need to implement quality improvement programs *now*, and spurred on by the motivation to increase accountability and transparency, a variety of health sector stakeholders are implementing feedback reporting initiatives. These include medical groups, health plans, payers, professional societies, regional collaboratives, and dissemination and implementation campaigns.

To ensure the best possible return on this investment, it is necessary to consider how to convert “data” into a report with salient and actionable information. This guide attempts to distill what is known regarding evidence-based best practices for developing and implementing feedback reporting. It also suggests a framework for future research priorities that will advance our collective knowledge on optimizing feedback reporting as a strategy to change clinician behavior and improve care.

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Appendixes

Appendix 1. Advantages of sharing “unblinded” performance data within a team, practice, or network*

While not common, some internally developed feedback reports include the performance scores of named physicians affiliated with a team, practice, or network as comparators instead of or in addition to other comparators. See a broader discussion of comparators in section 2-3.

In the right environment and with supportive leaders, unblinded peer performance information may facilitate developing a group norm around which individual physicians can anchor their own performance. See case example in Text Box 7. Although physicians may be uncomfortable with their team, practice, or network colleagues seeing their individual performance scores, unblinded data may better support peer-based learning and enable below-average performers to improve. Physicians with below-average scores can shadow and be mentored by physicians with high scores to help identify specific strategies for improvement. Use of unblinded data might be staged, i.e., to follow use of blinded data.

Text Box 7. Case example of Massachusetts General Hospital

Massachusetts General Hospital (MGH) developed a framework for an internal provider feedback report explicitly intended to provide a comprehensive view of the care—across providers—delivered to their patients. The hospital’s leadership, in working with affiliated primary care physicians, opted to share unblinded data.. Physicians could view their performance in relation to other named physicians in their practice and compare the performance of their practice with other practices within the network. Unblinded data allowed users to identify areas needing improvement, identify those in their practice or network who were excelling on those measures, and potentially make adjustments to their practice in order to improve their performance. Most individual physicians were comfortable with this transparency among their immediate peers but not among physicians in the broader network. MGH leaders viewed unblinded benchmarking as an effective method for encouraging transparency within and among provider teams and collaboration with peers and other practices.

If opting for unblinded data, developers need to ensure that physicians understand that the data are only for internal use and cannot be shared with patients, insurers, or physicians not included in the report. Given the sensitivity of the data, robust security features (e.g., firewalls, password-secured shared drives) are critical to protect privacy.

*This section was excerpted and adapted from a contribution to Shaller D, Kanouse D. Working paper. Private physician feedback reports: a decision guide written by Steven J. Atlas, M.D., M.P.H., Director, Primary Care Research & Quality Improvement Network, and Charlotte Ward, M.P.H., System Innovation Analyst, Primary Care Operations Improvement Program.

Appendix 2. Performance improvement messaging for physicians: lessons from market research*

The Robert Wood Johnson Foundation funded market research to test alternative messaging to identify how to better engage physicians in supporting performance measurement (RWJF, 2009). Several take-aways from this research may help with physician messaging about a physician feedback reporting system, including the importance of:

- Acknowledging flaws in earlier generations of measurement and reporting efforts. This acknowledgment reduces the risk that physicians will immediately tune out and instead creates an opening to discuss the current measurement and reporting effort and to seek physician input.
- Emphasizing two benefits for physicians' own practices: physicians will be able to assess their own care and increase learning opportunities.
- Addressing the concern among some physicians that performance measurement often captures variables outside their control, such as patient adherence to treatment protocols and patient health status.
- Emphasizing that patients also have a role in performance improvement, which might be activated (e.g., by patient education about disease management).

Developers of physician feedback reports might want to consider explicitly incorporating these findings into their report engagement and dissemination strategies, be they in person, hard copy, email, or Web based. See sample message in Text Box 8.

Text Box 8. Sample message to introduce measurement/reporting that tested well with physicians

Performance measurement data can help physicians assess what is working in their own practice. Most physicians don't have accurate, complete data on the care provided in their practice. Without measurement, it is hard to know if the steps physicians are taking are as effective as they want them to be (RWJF, 2009).

*This section was excerpted and adapted from Shaller D, Kanouse D. Working paper. Private physician feedback reports: a decision guide.

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