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SCAMPs: A New Tool for an Old Problem

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Standardized Clinical Assessment and Management Plans (SCAMPs) are tools to facilitate learning and discovery in a rapid iterative fashion. SCAMPs aim to reduce practice variation, improve patient outcomes, and identify unnecessary resource utilization. They are a quality improvement initiative that captures targeted data about clinical decision making. These data are then analyzed to change and improve the SCAMP algorithm itself. The purpose of this article is to describe the general SCAMPs methodology and to compare SCAMPs to traditional tools like clinical practice guidelines. *Journal of Hospital Medicine* 2015;10:633–636. © 2015 Society of Hospital Medicine

The traditional tools of observation, retrospective studies, registries, clinical practice guidelines (CPGs), prospective studies, and randomized control trials have all contributed to much of the progress of modern medicine to date. However, each of these tools has inherent tensions, strengths, and weaknesses: prospective versus retrospective, standardization versus personalization, and the art versus the science of medicine. As the field of medicine continually evolves, so too should our tools and methods. We review the Standardized Clinical Assessment and Management Plan (SCAMP) as a complementary tool to facilitate learning and discovery.

WHAT IS A SCAMP?

The methodology and major components of a SCAMP have been described in detail.[1–3] The goals of SCAMPs are to (1) reduce practice variation, (2) improve patient outcomes, and to (3) identify unnecessary resource utilization. SCAMPs leverage concepts from CPGs and prospective trials and infuse the iterative "Plan, Do, Study, Act Cycle" quality-improvement techniques. Like most novel initiatives, SCAMPs methodology itself has matured over time and with experience. Briefly, creating a SCAMP has the following steps. Step 1 is to summarize the available data and expert opinions on a topic of interest. This is a critical first step, as it identifies gaps in our knowledge base and can help focus areas for the SCAMP to explore. Occasionally, retrospective studies

are needed to provide data regarding local practices, procedures, and outcome metrics. These data can be used as a historical benchmark to compare SCAMP data with. Step 2 is to convene a group of clinicians who are engaged by the topic to define the patients to be included and to create a standardized care algorithm. Decision points and recommendations made within these algorithms should be precise and concrete, knowing that they can be changed or improved after data analysis and review. Figure 1 is a partial snapshot of the algorithm from the Hypertrophic Cardiomyopathy SCAMP describing the follow-up in adults with known hypertrophic cardiomyopathy. Creation of the algorithm is often done in parallel with step 3, which is the generation of a set of targeted data statements (TDSs). TDSs are driven by the main objectives of the SCAMP, focus on areas of high uncertainty and variation in care, and frame the SCAMP to keep the amount of data collected in scope. A good TDS is concrete, measurable, and clearly relates to the recommendations in the algorithm. Here is an example of a TDS from the adult Congestive Heart Failure SCAMP: "Greater than 75% of patients will be discharged on at least their admission doses of β-blockers, angiotensin-converting enzyme inhibitors, and angiotensin receptor blockers.

The last step for SCAMP creation involves developing online or paper data forms that allow for efficient data capture at the point of care. The key to these data forms is limiting the data capture to only what is needed to answer the TDS and documenting the reasons why clinicians chose not to follow SCAMP recommendations. Figure 2 is a partial data form from the adult Distal Radius Fracture SCAMP. Implementation of a SCAMP is a key component to a SCAMP's success but is outside the scope of this review.

One of the hallmark features of SCAMPs is iterative, rapid data analysis, which is meant to inform and help change the SCAMP algorithm. For example, the Congestive Heart Failure TDS example above was based on the assumption that patients should be discharged home on equal or higher doses of their home

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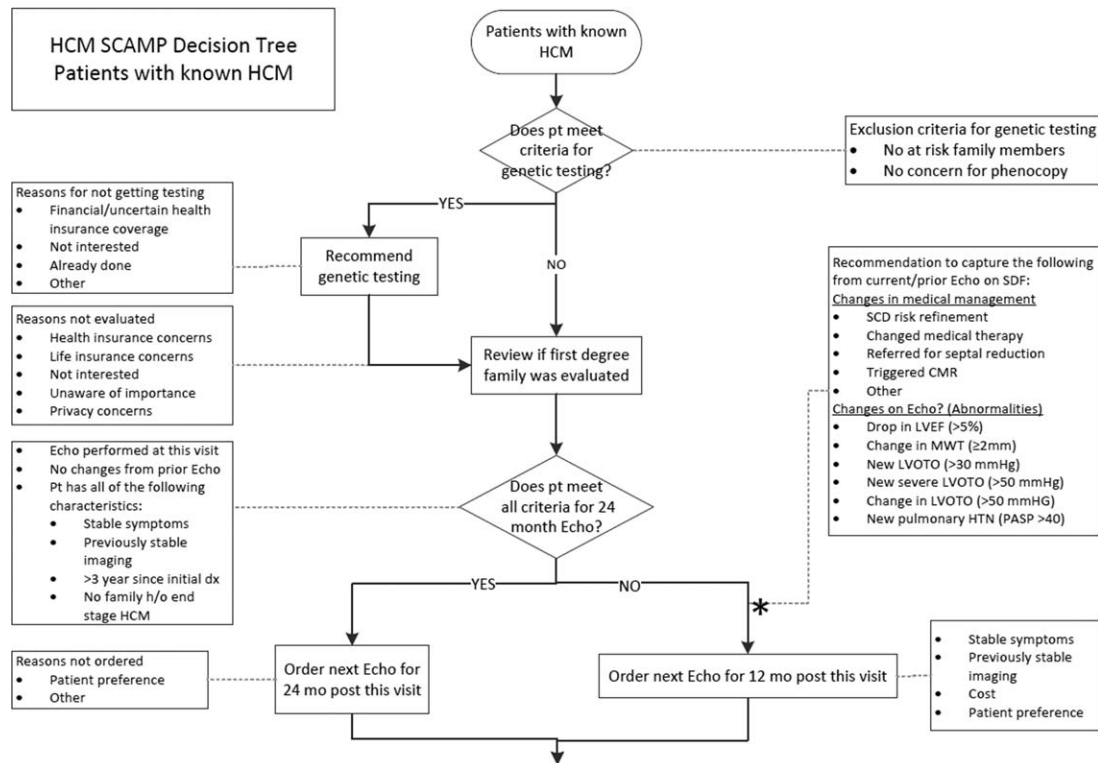
FIG. 1. Partial snapshot of the algorithm from the adult Hypertrophic Cardiomyopathy SCAMP for the follow-up management of patients with known hypertrophic cardiomyopathy. Abbreviations: CMR, cardiac magnetic resonance; dx, diagnosis; Echo, echocardiogram; HCM, hypertrophic cardiomyopathy; h/o, history of; HTN, hypertension; LVEF, left-ventricular ejection fraction; LVOTO, left-ventricular outflow tract obstruction; MWT, minimum wall thickness; PASP, pulmonary artery systolic pressure; pt, patient; SCAMP, Standardized Clinical Assessment and Management Plan; SCD, sudden cardiac death.

medications. However, analysis of SCAMP patients showed that, in fact, clinicians were discharging a large number of patients on lower doses despite algorithm recommendations. The SCAMP algorithm was changed to explore and better understand the associations between neurohormonal medication dose changes and patients' renal function, blood pressures, and overall hemodynamic stability. This type of data capture, analysis, and algorithm change to improve the SCAMP itself can occur in relatively rapid fashion (typically in 6- to 12-month cycles).

WHAT MAKES A GOOD SCAMP TOPIC?

A good SCAMP topic typically involves "high stakes." The subject matter or the anticipated impact must be substantial enough to warrant the time and resource investments. These interests often parallel the overall goals of the SCAMP. The best SCAMPs target areas where the stakes are high in terms of the costs of practice variation, the importance of patient outcomes, and the waste of unnecessary resource utilization. We have shown that SCAMPs can apply to the spectrum of clinical care (inpatient, outpatient, procedures, adult, pediatric, long- or short-range episodes of care) and to both common and rare diagnoses in medicine. To date, there have been 47 SCAMPs created and implemented across a network of 11 centers and societies. A full list of available

adult and pediatric SCAMPs can be found at http://www.scamps.org.

WHAT MAKES A SCAMP DIFFERENT?
More Than a Clinical Practice Guideline

The initial process of developing a SCAMP is very similar to developing a CPG. There is reliance on available published data and expert opinion to create the TDS and algorithms. However, in contrast to CPGs, there is a fundamental tenet to the SCAMPs methodology that, within a given knowledge base on a particular subject, there are considerable holes where definitive truth is not known. There are errors in our data and understanding, but we do not know exactly which assumptions are correct or misguided. Acknowledging the limitations of our knowledge base gives the freedom to make recommendations in the algorithm that are, essentially, educated guesses. Within a short time period, the authors will get informed data and the opportunity to make adjustments, as necessary, to the algorithm. This type of prospective data collection and rapid analyses are generally not part of CPGs.

The Role of Diversions

No CPG, prospective study, randomized trial, or SCAMP algorithm will perfectly fit every patient, every time. The bedside clinician will occasionally have insights into that particular patient's care that

SCAMPs Data Form
Distal Radius Fracture Follow-up Form

Physician Name: _____

PA Name: _____

BWH MRN: _____
Patient Name: _____
Visit Date: _____

Were x-rays done for this visit?

☐ YES   ☐ NO

How did this x-ray change the clinical management?

☐ Management was not changed   ☐ Surgery
☐ Further Immobilization   ☐ Reduction
☐ Other:

Evaluation of today's x-ray:

Alignment maintained: ☐ YES ☐ NO
Radiographically united: ☐ YES ☐ NO

SCAMP Recommendations: *If NOT united on a prior x-ray, order x-rays for the next follow-up visit.*
If united on a prior x-ray, do not order additional x-rays.

Are you planning to order x-rays for the next follow-up visit?

☐ YES   ☐ NO

Reason(s) for NOT following SCAMP recommendation:
☐ Reason:

Examination:

Range of Motion

Active Digital Range of Motion:
☐ Baseline   ☐ Significant limitations

Active Wrist Arc of Motion:
☐ <40 degrees   ☐ 40-80 degrees
☐ >80-100 degrees   ☐ >100 degrees

Forearm Rotation:
☐ <80 degrees ☐ 80-120 degrees ☐ >120 degrees

Residual Problems

EPL, FPL function: ☐ Intact ☐ Crepitus ☐ Ruptured
CRPS: ☐ YES ☐ NO
Median nerve symptoms: ☐ YES ☐ NO
Ulnar-sided wrist pain: ☐ YES ☐ NO
Returned to work? ☐ YES ☐ NO ☐ N/A

Occupational Therapy:

Is this patient currently receiving Occupational Therapy?
☐ Yes   ☐ No

SCAMP recommendation:
If forearm rotation is <80 degrees or digital range of motion is significantly limited, refer to occupational therapy.
If forearm rotation is >80 degrees and digital range of motion is at baseline, provide home exercise program.

Are you ordering Occupational Therapy for this patient?

☐ Yes   ☐ No

Reason(s) for referring to OT against SCAMP recommendations:
☐ Patient request   ☐ Occupation/avocation requirement
☐ Other:

Reason(s) for not referring to OT against SCAMP recommendations:
☐ Expected to recover motion on own ☐ Other:

FIG. 2. Data collection form from the adult Distal Radius Fracture (SCAMP). Abbreviations: SCAMP, Standardized Clinical Assessment and Management Plan. BWH, Brigham and Women's Hospital; CRPS, complex regional pain syndrome; EPL, extensor pollicis longus; PFL, Flexor pollicis longus; MRN, medical record number; N/A, not applicable; OT, occupational therpay; PA, physician's assistant.

justify not following an algorithm, regardless if it comes from a CPG, trial, or SCAMP. SCAMPs encourage these diversions, as they are a rich set of data that can be used to highlight deficiencies in the algorithms, especially when numerous providers identify similar concerns. In a CPG, these diversions are typically chalked up to noncompliance, whereas in a SCAMP, the decision, as well as the rationale behind the decision making, is captured. The key to diversions is capturing the logic and rationale of the decision making for that patient. These critical clinical decision-making data are often lost or buried within an electronic medical record, in a form (e.g. free text) that cannot easily be identified or analyzed. During the analysis, the data regarding diversions are reviewed, looking for similar patterns of why clinicians did not follow the SCAMP algorithm. For example, in the adult Inpatient Chest Pain SCAMP, there was a high rate of diversions regarding the amount of inpatient testing being done for the evaluation of patients at low or intermediate risk for acute coronary syndrome. In analysis of the diversions, it seems that many of these patients did not have a primary cardiologist or lived far away. The SCAMP algorithm was modified to have different recommendations based on where the patient lived and if they had a cardiologist. In the next analysis, this subgroup can be compared against patients who live closer and had a primary cardiologist to see if additional inpatient testing did or did not affect outcomes.

Little Data Instead of Big Data

There has been a lot of focus across hospital systems on the analysis of "big data." Over the last several years, there has been an explosion in the availability of large, often unstructured, datasets. In many ways, big data analytics look to find meaning across very large datasets because the critical data (e.g. clinical decision making) is not captured in a discrete analyzable fashion. In electronic health records, much of the decision making as to why the clinician chose the red pill instead of the blue pill is lost in the free text abyss of clinic and inpatient notes. Through the use of TDSs, the SCAMP authors are asked to identify the critical data elements needed to say which patient should get what pill. By doing this, the clinical decision making is codified in a way that will facilitate future analysis and SCAMP modifications. Decisions made by clinicians and how they got to those decisions (either via the SCAMP algorithm or by diversion) are captured in an easily analyzable form. This approach, choosing only critical and targeted "little data," also reduces the data collection burden and increases clinician compliance.

A Grassroots Effort

Many CPGs are created by panels of international experts in the field/subject matter. The origins of most SCAMPs tend to start more locally, often by frustrated clinicians who struggle with the data and knowledge gaps. They are often motivated to improve their care delivery, not necessarily on a national level, but in their clinic or inpatient setting. The data they get back in the interim analyses are about their patients—their data. This empowers them to expand and grow the SCAMP. The flexibility of allowing diversions increases this engagement. SCAMPs are created and authored by clinicians on the front lines. This more grassroots approach feels more palatable compared to the top down verdicts that come from CPGs.

SCAMPs are a novel, complementary, but alternative tool to help deliver better care. By focusing on targeted little data collection, allowing diversions, and performing rapid analysis to iteratively improve the algorithm, SCAMPs blend the strengths of many of our traditional tools of good change to affect better change. By choosing topics with high stakes, they allow the frontline clinicians to shape and improve how they delivery care.

Disclosure: Nothing to report.

References

1. Rathod RH, Farias M, Friedman KG, et al. A novel approach to gathering and acting on relevant clinical information: SCAMPs. *Congenit Heart Dis*. 2010;5:343–353.
2. Farias M, Jenkins K, Lock J, et al. Standardized clinical assessment and management plans (SCAMPs) provide a better alternative to clinical practice guidelines. *Health Aff (Millwood)*. 2013;32:911–920.
3. Farias M, Friedman KG, Lock JE, Rathod RH. Gathering and learning from relevant clinical data: a new framework. *Acad Med*. 2015;90(2): 143–148.