

Actionable Content: A Framework for Better Decision Making

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Driven by healthcare reform and other changing market dynamics, stakeholders are at last getting down to the business of effecting true transformation. Actionable content—usable information that is understood, adopted and embedded into workflow—is a critical tool to enable that change.

Clinical information or content brings consistency, collaboration, efficiency and quality to both the delivery of healthcare services and the business of healthcare. In its fully realized form, content is truly intelligent or “actionable.” In other words, it recognizes the context in which it is invoked and automatically delivers specific and relevant guidance to the point of care to influence decision making. If this is done without human intervention, actionable content can also reduce time and resources.

Here, we present a framework to define and categorize clinical content, as well as to assess the key characteristics of quality, accessibility and context. Then, we explain the role that rules play in rendering the content usable and relevant, and the expertise required to do so.

Actionable Content: A Framework for Better Decision Making

Briefly, we introduce the concept of “content as a service,” the delivery of content through technology on a subscription basis, which allows guidance to be seamlessly integrated into our healthcare workflow to fuel better and more efficient decision making. Finally, we discuss the benefits that can be derived from harnessing intelligent clinical content.

Classifying Clinical Content

Clinical content is the unique enabler of all healthcare activities, the intelligence that informs clinical as well as financial decisions and transactions. There are two primary categories of clinical content:

- **Person-specific data** is information specific to an individual and his or her clinical care. This content can be self-reported or clinician determined, or it can arise as the result of completed assessments such as diagnostic tests.
- **General clinical content** is information extracted from the medical literature and set forth in current practice standards, guidelines, criteria and other formats. Considered broadly,

this content includes a spectrum from text-based information to sophisticated, predictive algorithms.

For example:

- Educational or reference information, such as text books, monographs, papers, and online materials
- Information that is aggregated and grouped for a specific purpose, such as benchmark data
- Dictionaries, code sets and other categorizations of clinical concepts, such as Current Procedural Terminology (CPT®), International Classification of Diseases (ICD) and SNOMED Clinical Terms® (SNOMED CT®)
- Payment logic, or the rules that interpret clinical actions and contract terms and group them for various reasons, such as bundled payment for an episode of care or discovery of fraudulent activities
- Decision support, a broad category of information designed to analyze and guide care, such as guidelines, alerts, order sets, documentation templates, criteria, and care plans
- Comparative analytics that support capabilities—such as physician, efficiency profiles, or views of case mix, utilization and cost by physician or provider group—as compared to peers
- Quality-based or gaps-in-care analytics that measure provider and member/population behavior based upon HEDIS® and other quality metrics
- Population-based analytics that identify and stratify members by risk and direct them to appropriate disease management programs, or that help predict and manage the cost of populations

The utility of content is evident. Physicians use what they know about clinical best practices to make decisions about the care they deliver to their patients. Patients go online to search for information about symptoms so they are more informed when they meet with their doctors. Payers and healthcare entities use clinical content to identify gaps in care or manage

populations at risk.

However, even the business activities associated with healthcare cannot occur without content. A bill cannot be paid if a physician is unable to articulate the clinical issue he or she addressed in the encounter, or the payer is unable to validate that the billed services were appropriate and actually rendered. Contracts between payers and providers, particularly those that are value-based, directly link clinical measures with financial expectations. Clinical policies and related insurance offerings describe the clinical services included in benefit plans. The list of content-enabled processes in healthcare is nearly endless.

Developing Clinical Content: The Importance of Quality, Context and Accessibility

All clinical content is “actionable” to some degree, meaning it can be absorbed, understood, and acted upon. However, significant barriers exist that limit the degree to which content can be used to change behavior and drive positive clinical and financial outcomes.

The first challenge is **quality**. Continuously addressed by professional, governmental, and similar organizations, the synthesis of valid and relevant information from the volume of articles, guidelines, papers and other available sources far exceeds an individual’s ability. To determine whether clinical content is of the highest possible quality, the following questions must be asked:

- Is the content fact-based, rational, and founded on evidence-based standards of care?
- Is the content comprehensive—does it represent the most knowledgeable and appropriate distillation of the vast quantity of material available?
- Is the content current, given the rapid pace of change?

The second challenge is rendering **context-specific content** to drive efficient decision making. For example, unique clinical circumstances can be considered to render the content more valuable and relevant:

- To the patient/member (e.g., age, sex, health profile)
- To the health plan (e.g., coverage, benefit)
- To the provider (e.g., specialty, patient mix, value-based contracts)

The third challenge is **accessibility**. Given healthcare’s myriad workflows, how is content delivered when and where it is needed to best support decision making—for example, at the point of care in the workflow of ordering a test, or documenting an encounter and care plan, without requiring access to a separate system? How is the same information shared among staff with varying roles, reducing (or replacing) duplicative, labor-intensive functions while increasing information transparency and collaboration? How is that information made available to both the providers of and the payers for that patient’s care?

Here, a new technology model that we call **“content as a service”** has emerged to overcome historical barriers and enable content access when it is needed in the context of a particular transaction between stakeholders.

Making Content Actionable: The Importance of Rules

Clear, consistent and reproducible rules logic is at the core of translating information into actionable content. In other words, rules make content more intelligent by tying disparate pieces of information together—for example, heart failure codes and care guidelines—so that a conclusion can be drawn, a recommendation can be made or an action can occur. In so doing, the content becomes meaningful and can drive the right, timely intervention or behavior.

Consider the following types of actionable content:

- **Simple logic:** A healthcare consumer accesses an Internet and searches on “heart failure.” Google takes 0.25 seconds to serve up 66.2 million possible resources to explore. A certain amount of intelligence is required to retrieve this information and present it in potential order of relevance and validity—the U.S. National Library of Medicine appears

at the top of the list, and Wikipedia second. The consumer still has to wade through vast amounts of data, however, refining search criteria until he or she finds specific answers and direction from what he or she views as a trustworthy source. A step-up in rule complexity would refine the value of the search, for example, presenting the patient with select, relevant resources based on simple parameters such as age and sex.

- **Conditional or personalized:** The more specific or unique the information provided to a system “trained” to receive that information is (e.g., a consumer’s genetic information, health risk assessment, or blood cholesterol levels), the more tailored and thus useful the information that he or she will receive (e.g., recommendations around risk profile, preventative therapies or care plans). Information is sequentially presented based on systematic and context-specific questions and answers.
- **Predictive:** Content can reach new levels of actionability and impact when clinical specificity is combined with complex rules (e.g., artificial intelligence) enabled by technology. For example, cardiovascular risk factors can be accurately identified and preventive treatments proactively recommended to mitigate risk, as opposed to reactively addressing disease.

Creating Content Rules

To deliver clinical information in a timely, context-specific and results-oriented way—in other words, content made actionable—rules must be applied to the information. Rules do not have to be complex to drive value. A very simple rule can be very actionable: for example, an automated reminder to both member and physician about annual mammograms.

Simple or complex, transforming clinical content into reproducible, actionable rules is a highly precise endeavor. Consider how nuance and meaning can be lost in any translation and the time and effort that can be spent debating an author’s original intent. In healthcare, the stakes are significantly higher in “getting it right,” and shades of gray in meaning can affect the

intended outcome. For example, concepts such as “worsening,” “severe” and “over time” are common parameters that need specific definition to become actionable and measurable.

A good rule:

- Is complete, meaning that it has fully considered all the cases relevant to that circumstance
- Similarly understands all the exceptions that can still allow a case to meet the rule
- Considers elements such as timing and time spans, number of activities required before the rule comes into action, inclusions and exclusions
- Is as transparent as possible to support a clear relationship between the input of data and the generation of recommendations
- Is specific and unambiguous

Clinical rule creation requires a specific and diverse skill set that combines art with science—in other words, clinical acumen with technical prowess:

- A clinical background and a solid understanding of current best practices and clinical scenarios
- Medical informatics knowledge to understand how codes and words combine to create meaning
- A software engineering mindset to tie these concepts together with Boolean logic
- Meticulous attention to detail to ensure all parameters, whether defining each word in a sentence or identifying appropriate counts and time spans, are included, accurate and specific
- A deep understanding of the ultimate context in which the rules will be applied, in both the workflow and by the person invoking them
- Discipline to test the output of the rules for logic and accuracy

Powerful rules combine straightforward, mathematical mapping and heuristic judgment. They require an understanding of intent and

a matching of that intent to sets of standard reference terminologies. To render concepts unambiguous may require asking the author to think, “What did I really mean by that?” If ambiguity remains, more specifics need to be identified until the rule achieves absolute clarity and precision.

No rule will be entirely actionable without structured data behind it. Gradually, structured or codified information within electronic medical records and other healthcare information systems is replacing text. This advancement now makes it possible to efficiently feed multiple, often complex data elements into a rule to automatically recommend the best action. Even when structured data is not available (often the case), the use of technologies such as natural language processing (NLP) can bring structure, allowing rules to be run and recommendations to be made without human intervention.

Delivering Clinical Content

In the era of reform, and given the focus on quality metrics as the basis for reimbursement, the ability to tie clinical concepts to business processes is ever more important. To maximize the value of clinical guidance, information must be delivered directly into the workflow at all the points of care or into a “transaction” (e.g., authorization, benefit design, network selection) in a context-specific, on-demand basis. This capability remains a significant challenge today, although newer technologies are addressing the challenge in innovative ways.

Content as a service is the delivery method designed to provide actionable, rules-based information to any point of care. The rules are housed in a centralized repository and delivered via technologies based on web services, so that they can be deployed seamlessly into diverse healthcare workflows and across stakeholders. This provides the accessibility and ease of use that not only enables better decisions but also leads to shared accountability between payers, providers and members—and ultimately better quality of care.

Take, for example, the patient care plan. At its most basic, a care plan is a living document designed to guide and focus the patient and his

or her care providers on the ongoing assessment and management of health issues. The plan is typically generated using evidence-based assessments to identify a list of problems, goals, and interventions. The interventions are intended to address gaps in, or barriers to, care. The consistent delivery of the assessment at the point of care, and the sharing of the results of that assessment across multiple settings of care using content as a service, can help to assure the consistent delivery of high-quality care.

Utilization management is another discipline ripe for the application of content as a service. This traditionally paper-based, manual, and labor-intensive process can be transformed and automated through the use of clinically credible content delivered in a robust web-enabled rules engine at the point of care. Proposed interventions (e.g., requests for expensive diagnostic tests) are then automatically screened for appropriateness using data embedded in electronic systems, saving millions of dollars in staff time and provider effort and inconvenience, then shared directly with health plans. Administrative costs are dramatically reduced. More importantly, however, context-specific information is provided at the point of care to support clinical decision making and drive quality, transparency, and consistency in care.

Benefits Across the Healthcare Continuum

The value of actionable content cannot be underestimated in terms of its ability to support optimal decision making across stakeholders:

- For healthcare providers, intelligent content

allows the flexibility to practice the art of care delivery while ensuring they are armed with the best, most current, and relevant clinical knowledge at the point of patient interaction. Where possible, it offloads tasks that can be automated, freeing clinicians to focus on the delivery of care rather than the administrative processes that support it.

- For healthcare payers, intelligent content provides a shared connection between stakeholders that is nearly impossible otherwise without expending significant resources. Playing a central role in supplying the content, rules, and increasingly automated and intelligent solutions, payers can continue to transform their role from insurers of claims to ensurers of high-quality, clear, consistent and transparent care.
- Most importantly, for healthcare consumers, intelligent content transforms a complicated, disjointed and impersonal healthcare system into one that “knows” their individual clinical context and supplies the personalized “healthcare GPS” necessary to manage their own care.

With all stakeholders aligned by the same high-quality actionable content, presented in a language that it is easily understood and acted on by a variety of constituents, automatically synthesized, interpreted, and delivered in workflow, we can drive better care at lower cost. In sum, healthcare has a powerful tool to drive heightened quality, efficiency and coordination, which results in better clinical and financial outcomes.