HotTopics

Educational Needs & Instructional Design: Oncology

Report Highlights:

• What Works in Education, How Oncologists Seek Information and Future Research
• Instructional Design Solutions for Oncology Learners
• Virtual Patient Simulation CME in Oncology
• Achieving Publications via Support of CME
• Participatory Medicine

Grounded in science, fueled by innovation, driven to impact healthcare quality.
Medical practices are being transformed by the combination of regulatory changes, economic conditions, demographic shifts, and technology advances occurring today. To support the maintenance of quality patient care during this period and after, the traditional approach to medical education and continuous professional development must also transform. Innovative approaches to learner engagement, quality-focused interventions, and measurement can be accomplished via strategic partnerships between the pharmaceutical industry and the medical education industry. But first, one must understand the innovations and advancements in medical education design and measurement to facilitate quality interventions using cutting edge technology.

A Hot Topics symposium, a half-day event with presentations highlighting the educational needs and instructional design particular to the specialty of oncology, was held this winter in New York City and again more recently in San Francisco. In attendance were representatives from many of the stakeholders in the pharmaceutical industry interested in learning how the latest trends can support effective medical education for oncologists.

Each symposium consisted of presentations from industry experts discussing a different aspect of the current state of, and future need for, medical education in the oncology setting.

What Works in Education, How Oncologists Seek Information and Future Research
Meta-analyses and recently completed surveys provide guidance in the overall planning of CME activities in oncology. Of paramount importance is relevance; new information must tightly adhere to the specific clinical needs of the learner. Other critical aspects of knowledge retention include interactivity, repetition, and feedback.

Instructional Design Solutions for Oncology Learners
To provide education that is impactful and results in knowledge acquisition or behavior change, activities must engage the learners with the content. That requires applying instructional design strategies. Surveys performed by Medscape Education highlight the barriers oncologists face when looking for an answer to a specific problem/patient case and the preferred learning modalities.

Virtual Patient Simulation CME in Oncology
With the technology of virtual simulators, the complexity of oncologic decision-making is possible. Studies have shown that this highly interactive teaching modality, with mentoring capability, can greatly aid in knowledge retention. Further, computer-based simulations can be easily updated with newly released data sets.

Achieving Publications via Support of CME
Disseminating data on clinical practice gaps and analysis of education program results via publications can advance clinical care quality and the field of continuing education. Though not a common consideration for supporting CME grants as yet, the publication of outcomes data can support the value of CME. Outcomes data of appropriately designed activities can be widely applicable to the goal of improving future medical education initiatives, and thereby, patient care.

Participatory Medicine
A new paradigm in patient care, the success of participatory medicine depends on establishing a partnership between the patient and the provider. This partnership can be initiated by either the patient (via patient advocacy mechanisms) or via the healthcare provider where medical education plays an integral part.

Yours in the advancement of science, innovation, and healthcare quality,

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What Works in Education, How Oncologists Seek Information and Future Research
Mazi Abdolrasulnia, PhD, CE Outcomes

Mazi Abdolrasulnia, PhD, president of CE Outcomes, LLC, Birmingham, AL, began the day's presentations by simply stating that the challenge facing our industry, be they educator, advocate, or corporate CME sponsor, was to translate evidence into practice.

That said, the complexity of the challenge came quickly into view: What evidence is the most clinically relevant? How should the evidence be presented? Are there ways to ensure that the evidence, once learned, will be retained? Is educating the oncologist any different than, say, the internist, and if so, in what ways?

To answer these questions, Dr. Abdolrasulnia highlighted just what the evidence shows regarding how an individual in general, and healthcare providers in particular, integrate new, behavior-changing information.

Adult Learning Principles
Adult learning principles, a concept put forth in the 1970's by educator, Malcolm Knowles, consists of six characteristics. Expanding on these original concepts, and making them more applicable in the clinical setting, Dr. Abdolrasulnia interpreted the principles this way:

- Connect life experiences, and prior learnings, to the new information
- Involve participants in the learning process
- Clearly articulate how the program will help participants
- Allow for sharing of experience and opinions
- Limit didactic teaching and provide more exercises in practice skills
- Accommodate different learning models to the needs (education gaps) at hand
- Provide the opportunity for feedback

One of the original principles as put forth by Knowles states explicitly: “The need to be shown respect.” This principle, or mandate, pervades all processes discussed in Dr. Abdolrasulnia's presentation: Assessing of what the learner already knows; allowing the learner to participate; teaching the learned in the manner in which they are best taught; and providing meaningful feedback in a timely fashion.

Relevance
One of this simplest ways to demonstrate respect is to not waste someone's time, and that is implicit in the pursuit of relevance: CME directors must be able to accurately assess what a given physician population, in this circumstance, oncologists, need to learn, and teach with the goal of relevance strongly in mind.

To be comprehensive, relevance must be established by appealing to multiple sources—physicians, certainly, but other members of the healthcare team, as well as the patients themselves. As Dr. Abdolrasulnia put it, the process is an exercise in "etic and emic", essentially, seeing the problem through the eyes of the other. This concept is critical in oncology where so much shared decision-making happens.

Easier said than done, of course—assessing relevance. Past research has shown that physicians have a limited ability to accurately self-assess. So, rather than simply asking an oncologist what he/she needs to know, a far more effective meaning of gaining that insight is to pose a problem to be solved, and in the attempt to solve it, reveal distinctive knowledge gaps (or not, which again, is to the point of relevance).

Case studies are most revealing in this regard. Do you want to know what an oncologist does not know? Attend a tumor board; take note of the problems they’re trying to solve.

Feedback
Oncologists, perhaps more than any other specialty, are competitive by nature, and often operate on the frontier. Confident? Certainly. Influenced by the experiences of their peers? Absolutely.

As pointed out by Dr. Abdolrasulnia, a frequent concern amongst oncologists is, as compared to their peers, “How am I doing?” And the “I” in the question directs that the answer provided should be a personal as possible.

Appealing to the personal is the idea behind the marketing concept of Content Matching, which, once again, traces back to relevance, and in this circumstance, must be skewed toward the individual oncologist. Essentially, the goal of the learning tactic is to tailor the experience as closely as possible to the needs of the individual, as if the experience involved only the single student and the instructor.

Assessing relevance in the setting of oncology, where new data comes out on a near daily basis, and where care is provided to the patient by a multidisciplinary team, poses a particular challenge.
There is a practical aspect to this, of course—satellite symposia would not be ideally suited to the purpose as stated (though ARS keypads do provide some immediate context). However, online activities do provide the means to track individual responses, and therefore, the ability to give more personal feedback, and a feeling of a more tailored approached to education, which, as research has shown, is critical to keeping the learner engaged.

The value of feedback during the activity does, however, have diminishing returns with repeated iteration—too much feedback, Dr. Abdolrasulnia has found, is a turn-off. Learning is best retained when mention is made of the greatest knowledge deficits, and the greatest improvements for a given topic.

**Interactive, Repetitive, Targeted**

Taken in aggregate, and as highlighted by Dr. Abdolrasulnia, a number of recent studies looking specifically at the outcomes of past CME programs have some suggestions to offer regarding overall teaching strategies:

*Interactive vs. Didactic* – CME programs that enhance learner participation through interactivity, providing the opportunity to practice learned skills, are superior to didactic teaching initiatives. Further, these interactive programs achieve even greater effect when using multiple approaches and offered to smaller, specialty-targeted audiences. (Again, the optimum setting for oncology learning is that of the tumor board—interactive, targeted, and immediately relevant.)

*Multi-faceted vs. Single Episode* – CME programs designed to use more than one intervention have been shown to be more effective in increasing physician knowledge.

There is a caveat to both these observations, however; studies in this regard look at knowledge acquisition in the short term. Few if any studies are able to demonstrate the superiority of a given teaching modality in changing clinical practice long-term. Such data has yet to be accrued.

**Oncologist’s Preferences for, Perceptions of Medical Education**

CE Outcomes designed a survey in 2013 to analyze the perceived and in-practice value of different forms of physician information sought to address clinical queries. Among the 124 oncologists’ respondents, 4 habits are noteworthy:

- Oncologists earn an average of 61 CME credits per year
- Oncologists spend an average of 7 hours per week looking for additional medical information
- Oncologists field an average of 17 questions a week from patients that require them to seek out additional information

Even though most oncologists are required to complete just 30 hours of CME each year, oncologists exceeded that requirement (earning 61 CME credits), implying that CME provides value to the management of their patients beyond licensure.

A second survey of community oncologists (N=283) directly explored their perceived value of CME programs.

When asked to indicate if they were a current user of various education sources, the following results were observed:

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<thead>
<tr>
<th>Source</th>
<th>%</th>
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<tbody>
<tr>
<td>Medical Journals</td>
<td>93%</td>
</tr>
<tr>
<td>Colleagues</td>
<td>78%</td>
</tr>
<tr>
<td>KOLs</td>
<td>71%</td>
</tr>
<tr>
<td>CME</td>
<td>68%</td>
</tr>
<tr>
<td>Symposia</td>
<td>24%</td>
</tr>
<tr>
<td>Sales Reps</td>
<td>17%</td>
</tr>
</tbody>
</table>

Further bolstering the value proposition of CME, 75% of oncologist respondents indicated that CME helped them learn new information; 70% said it helped improve patient management; and 50% of respondents indicated that CME was an aid in enhancing quality of care.

Of great interest to the attendees of this Hot Topics meeting and prompting a good deal of conversation between audience members was the data regarding oncologist’s perceptions of commercial CME support. In general, findings indicated that the majority of oncologists believe that commercial support of CME is needed in...
oncology more than other specialties because of the rate of newly available therapies (80% of respondents agreed with the statement); that commercial support of CME is a significant reason why high quality CME is available to oncologists (80% agreed); and that, it is important for commercial supporters to fund education initiatives to disseminate new clinical information related to new drugs, or new drug indications (86% agreed).

Further testing the perceived importance of CME activities to the oncologist, survey respondents were asked to consider: What would be the impact on knowledge transmission if commercial CME support were removed? To this, a majority of respondents indicated that the loss of support would, 1) slow the dissemination of evidence-based medicine data, 2) prolong the development of guidelines and, 3) lead to CME activities that were less therapy specific.

As to the impact of the loss of commercial CME support on clinical practice itself, half of the oncologists reported there would be a negative impact on the application of new and emerging therapies within oncology if commercial support for CME were removed. Commented one listener: “This kind of information could cause a cultural shift within a (sponsor) company.”

With this comment reflecting the highly enthusiastic response to Dr. Abdolrasulnia’s findings, there was almost immediate consensus amongst listeners that it was very important for the survey data to be disseminated to those industry executives in charge of allocating sponsor funds to CME activities.

### Instructional Design Solutions for Oncology Learners

Kathleen Geissel, PharmD, CCMEP, Medscape Education

After formal education, oncologists are required to be masters at knowing what they don’t know in order to stay current in their field. The problem, however, is that there are barriers to self-directed learning. In fact, Kathleen Geissel, presented data from a recently completed survey of US oncologists conducted by Medscape (N=70). As noted in Figure 1, over 1/3 of oncologists agreed that “Searching for education on a specific topic is time consuming.”

Adding to this, 1 in 5 responded in agreement with the statement, “I don’t know what I should be learning.” This is in line with other literature on the topic. For example, a 2006 JAMA review article by Davis, et al³, reviewed the accuracy of physician self-assessment compared with observed measures of competence and found that physicians have a limited ability to accurately self-assess. Understanding the potential obstacles to learning provides valuable insights to CME professionals to consider when designing and supporting educational programs – will the program facilitate the learners ability to self-select participation and overcome the perceived time crunch?

### How Best to Engage Learners?

To address these and other potential barriers to learning, and in light of the ACCME mandate that: “The provider chooses educational formats for activities/interventions that are appropriate for the setting, objectives, and desired results of the activity,” instructional design principles provide insights into how to design a program that creates a more efficient and effective way for oncologists to select education to address their needs. The 1st step is to consider the destination – “where do you want to take the learner,” said Geissel. Then, consider the instructional method, or learning models, most likely to guide the desired outcomes.

In brief, popular learning models include:

- **Instructor-led** – This allows for little freedom, the faculty has complete control over the content and how the learner interacts with it. Most of your preliminary education utilized the Instructor-Led model. Satellite Symposia is an example.

- **Self-directed** – The learner seeks information and discovers facts (consider the 17 patient-generated questions pursued each week by oncologists).

- **Blended learning** – A blend of online with the other learning activities such as classroom instruction and on-the-job coaching.
• **Problem-based** – Teaching by requiring the learner to be actively involved in the investigation and resolution of messy, real-world problems in a simulated environment. This also serves to demonstrate to the learner what he/she does not know.

• **Practice-based** – Learning that supports physician’s use of their practice environment and experiences to identify opportunities for learning. Quality-based initiatives that rely on personal practice data to guide the education are examples of this model in practice. This can include PI-CME.

• **Tailored** – This is the opposite approach from instructor-led. This mode is a collaborative partnership between the instructor and the learner that ends in an educational event tailored for each learner.

There are no shortage of activity formats to select from, such as text-based print and online activities; live sessions; and simulated interactive, case-based instructions. Once you decide on a specific format, the decisions don’t end. Geissel noted, that just like no two varieties of apples are alike despite both being red in color, no two live events, or online activities necessarily are alike. The difference lies in the design elements used to enhance the instructional impact of the education, including:

- ARS/polling questions
- Video vignettes
- Patient testimonials
- Self-assessments
- Live video/social feeds
- Discussion boards

For example, one live event could include a limited number of participants sitting at a few round tables to promote peer-to-peer learning and interactivity. While another live event could be a larger symposia, which traditionally are a less personalized approach to learning. However, with the addition of pre-work and the use of an ARS systems to add interactivity and facilitate self-assessment, the traditional live event would become more instructionally impactful. Regardless of scale, however, Geissel stated an easy approach to learner engagement is for the faculty to take time for a short 30-second pause, asking the learner to think about applying what they heard in their practice. This allows for the possible connection to be made between the just-presented material and the real-life clinical situation recently faced by a given learner.

**Format Preference Among Oncologist**

Limited data exists related to oncologists preference for various modalities – some according to the previously mentioned Medscape Education survey, when choosing CME activities: 68% of respondents chose text-based formats; 48% choose activities (of any kind) that take less than 30 minutes to complete; and 40% want education in audio/video formats.

As for the criteria that physicians consider when deciding relevance of a specific activity: 67% choose based upon specified learning objectives; 61% based on the activity’s title; 57% choose integrated activities (like a curriculum); and 35% reported choosing an activity because of a specific faculty presenter/author.

Of these data, Geissel noted two of the themes: relevancy and timeliness of the education to help in the care of their patients. Preference, Geissel observed, is important, but don’t let that influence the design of your education program more than the ultimate goal of achieving relevancy and timeliness. Elaborating on this point, Geissel sited four processes of adult learning: Awareness, Agreement, Adoption, and Adherence (related to, in this circumstance, practice gaps and educational needs), which should be used to guide the content planning and format selection for an educational event.

As for the number of activities, of whatever modality or overall nature, repetition is the key to producing a lasting change in behavior. This presents something of a challenge in CME, where getting the same message to a physician is difficult to guarantee. One possible approach to keep the learner engaged is to design episodic programs where education is presented in a predetermined thematic progression, as opposed to a more fragmented approach.

Learner engagement shouldn’t end at the end of the event.

- **Ask for a commitment to change.** Literature suggests that the simple task of writing something new you will do after participation in a learning event will increase the probability of follow through. Geissel presented a summary of 12 Planned Change Assessments* conducted by Healthcare Performance Consulting among participants in online CME activities from 2011 to 2012. The assessment measures physicians’ intended changes immediately after participation and actual changes in practice 4-6 weeks later. On average, 70% who said they’d make a change did.

- **Provide discussion boards.** Establishing social communities of practice via discussion boards can
enhance an education post-event. Literature suggests participation rates in discussion boards are highest when the communities are initially established in a face-to-face meeting and when experienced facilitators continuously engage learners in the discussions.

- Followup surveys: Tests are teaching tools, said Geissel. In addition to supporting outcomes evaluations, followup surveys can reinforce for participants the key takeaways from the event and facilitate retention.

There are many ways to engage learners, using different models, formats, and design elements to enhance the instructional impact of the education, said Jackson and Geissel. Multimedia can enhance the learning experience. Selection of the variety of elements for a specific project should be chosen based on the competency to be addressed, the intended outcome, and feasibility limitations. When done strategically, increased engagement and improved results of educational activities can be realized.

**Virtual Patient Simulation CME in Oncology**

David D. Hadden and Tommy Dalton (TheraSim)

Tell me and I will forget, show me and I may remember, involve me and I will understand. — Confucius

Certainly one of the most high tech solutions of how to teach certain aspects of clinical medicine is the virtual patient simulation—the online computer-based, case-based learning tool, allows the learner to be placed in, what is as nearly as possible, the real world setting where the acquired competency and skills are applied.

The most obvious example of this application used today is the flight simulator, routinely used to train pilots. The efficacy of this training modality was so graphically demonstrated just a few years ago with the dramatic landing of a commercial jet liner in the Hudson River. The pilot, Captain Chesley Sullenberger, credited his ability to immediately, and calmly respond to the situation to his many hours of flight-simulator training.

David Hadden, CEO of TheraSim, Inc, a medical simulator company out of Raleigh-Durham, NC, discussed the potential of virtual patient simulations in the setting of oncology. He introduced the topic by considering the two types of deficits that can contribute to medical error—the first being a lack of knowledge, the second, the inability to retrieve the knowledge in a timely manner.

Both aspects, knowledge acquisition, and retrieval, are enhanced with virtual patient simulation, a system that more effectively combines learning with cognitive decision making processes—once learned, the system enables the retrieval through the incorporation of virtual cues. Simulations are, of course, nothing new in medicine. Actors have long been used in medical schools, as have mannequins. However, virtual patient simulators are able to replicate substantial aspects of the real world in a fully interactive manner and have a near limitless capacity for complexity.

Other contrasting aspects:

<table>
<thead>
<tr>
<th>Mannequin</th>
<th>Patient Actors</th>
<th>Virtual Simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease state limitations</td>
<td>Adult care</td>
<td>None</td>
</tr>
<tr>
<td>Cost per training hr</td>
<td>$300</td>
<td>$200</td>
</tr>
<tr>
<td>Capacity for simulations/yr</td>
<td>5000/yr</td>
<td>5000/yr</td>
</tr>
<tr>
<td>Weaknesses</td>
<td>Not for chronic or infectious disease</td>
<td>Scales poorly, inconsistent raters</td>
</tr>
<tr>
<td>Rating/Assessment</td>
<td>Human assessment (+/-30% error)</td>
<td>Human assessment (+/-30% error)</td>
</tr>
<tr>
<td>Mentoring/debriefing</td>
<td>Human variation (error as above)</td>
<td>Human variation (error as above)</td>
</tr>
</tbody>
</table>

In general, the capabilities of a virtual simulator are:

**Assessment (skill/competency gap analysis)** – This allows for a tailored approach to training by rapidly identifying skills and competencies at the onset. By providing the entire universe of potential choices to treat a patient with cancer, simulation is the best method to mimic how an oncologist makes evidence based choices at the clinical level, allowing targeting of skill gaps.

**Mentoring/debriefing** – A critical component to any learning modality, allowing the participant to learn from mistakes, and, in the virtual setting, receive mentoring in real time. Without mentoring, the simulation is
merely an assessment. Mentoring may occur in two ways: Formative, performed during the simulation, or summative, done after the training is completed.

**Analytics** – Being computer-based, a virtual patient simulator has the capacity to track behavior, allowing for adjustments to be made to the program in accordance with learner responses—not every clinical possibility can be anticipated, but the ability to record every response is key. Using the built in capturing rational, data can be examined on each clinical decision point to include which therapy or drug was prescribed during diagnosis, thus not only demonstrating behavior, but preferences as well.

Though extremely versatile, virtual simulators are appropriate to address every practice gap. As mentioned above, this method is not effective for training on a device, or team training. It also is inappropriate for situations where the information being imparted is merely a minor update to an existing knowledge base.

Virtual patient simulation has been proven in numerous studies to reduce medical errors and improve patient outcomes.

**AIME**

The virtual patient simulator developed by Hadden and colleagues is referred to as, AIME: Artificial Intelligence Mentoring Engine, a system that purportedly contains over a million clinical rules in its knowledge base. The rules are derived from treatment guidelines, product inserts, physician consensus, and more, and the knowledge base is updated as new drug data is available as well as input from faculty and key opinion leaders as cases are designed.

The ability to rapidly input new information is critical in the oncology setting where emerging therapeutics is the norm. Information on how to use a new drug, or use an already approved drug for a new indication is key, yet the lag time between the availability of the new information, and its incorporation into treatment guidelines can be substantial. The AIME system allows for the information to be incorporated in near real time and can illustrate patterns of clinical practice.

As pointed out by Hadden, a widely distributed simulation with an analytic component, such as AIME, could assess physician consensus on a new product or indication, should no guideline yet exist that confirms the ideal clinical application. The platform is also useful for teaching about novel mechanisms of action, and the presentation of nascent data yet to be widely published, but yet, is in the public domain; one example is clinical trial results presented at medical meetings.

**Learning Through Mentoring**

Hadden stressed the importance of mentoring in a virtual patient simulation. For AIME, mentoring can be adjusted in frequency, and acts, as he put it, “like an attending.” The program may point out a fault directly, or it may prompt you to reconsider a diagnosis, or treatment choice. When the simulation is finished, AIME will offer closing case remarks, and, since all interactions are recorded, current interactions can be compared to previous teaching sessions, allowing for direct, immediate assessment of outcomes.

The efficacy of the AIME platform has been demonstrated in a number of disease states. In one example from cardiology, AIME eMentoring increased physician ability to correctly diagnose DVT by 13% and the appropriate use of an anticoagulant by 30%. In an example from oncology, AIME’s instruction increased the proper use of the breast cancer drug, lapatinib, by 78%.

In one case study that looked at 2,616 unique training simulations regarding adherence to treatment guidelines, prior to AIME training only 28% of participants were fully adherent, after training, measured compliance increased to 70%.

**Achieving Publications via Support of CME Initiatives**

Kathleen Geissel, PharmD, CCMEP, Medscape Education

When considering the design of a CME initiative, regardless of the modality, one does not generally focus on how data generated from the project might be disseminated, and how publishing data generated in this way might further validate the value of CME.

For example, as pointed out by Kathleen Geissel, outcomes data from CME projects has the potential to further the mission of advancing improvements in clinical care through continuing medical education.

To be clear, not everything is publishable. The findings, as illustrated by outcomes, must have broader applications. Common themes for publishable data from CME projects are:
• Barriers, systemic or individual, that impact quality of patient care (practice gaps, deficits in medical, or even cultural knowledge)
• Documentation of learner’s educational preferences
• Documentation of practice patterns
• Data that illustrates the value of education, such as demonstrated improvements in clinical knowledge
• Validation of an innovative approach to education programs

An example of publishable data generated by Medscape regarding treatment barriers examined the problem of why, even though the CDC had issued guidelines calling for universal HIV testing for all persons aged 16-64, that testing was not being done.

Certainly not all data is worthy of a premier journal like JAMA – novelty, and a more broad-based applicability are key, however, as emphasized by Geissel, all outcome studies are considered research. The most publishable data sets move the science of clinical education forward, provide an in-depth evaluation of clinical practice, are innovative in concept, and/or fill an information void.

There are several routes to public dissemination of a data set; major medical meetings offer ample opportunities to present. Abstract submission to medical conferences, including the American Society of Clinical Oncology, the American Diabetes Association and the American College of Cardiology. For example, a poster presentation at the 2011 meeting of the American Society of Hematology2 probed the strategies used to overcome barriers of shared-care models, including communication strategies for conveying patient history, treatment, and survivorship plans.

A further example, by Casebeer, et al, published in collaboration with Medscape, was a very large study looking at participation in internet-based CME programs (N=17,142). This analysis demonstrated that physicians participating in internet CME programs were 48% more likely to make clinical choices based on the evidence, as compared to non-participant colleagues. Further, these data indicated that multimedia activities were the most effective in eliciting practice changes (BMC Medical Education. 2010;10:42).

Perhaps the most relevant data in the larger context, a study that answered the big question regarding CME activities in general, was published in 2009. In this study, by Ellison, et al, a review of one million physician, post-CME activity evaluations showed that 93% of respondents perceived no commercial bias following their online CME participation (Am J Med. 2009 Sep;122(9):875-8). This finding was in direct opposition to opinions expressed recently by a United States senator, and echoed in the mainstream press.

When to Publish?
Questions following Geissel’s presentation indicated publication was not often considered as part of a potential CME grant, and how the data generated was (or was not) perceived as independent of the grantor, or how the grantor could leverage the data, was not immediately clear.

The question was also raised as to whether or not an article in a given publication could be CME accredited, and the answer to that, according to Geissel, would depend on the journal and the instructional value of the content. Is it CME worthy? However, most publications on data from CME programs are not certified for credit.

Participatory Medicine, Participatory Healthcare Education
Sarah Krüg (Society for Participatory Medicine/Cancer 101)

Sarah Krüg, president of the Society for Participatory Medicine, and CEO of CANCER 101, addressed the difficult issue of educating healthcare providers on how to interact with their patients, a topic which is of increasing importance within the evolving healthcare environment.

As the medical model moves towards the multi-pronged objectives of personalized medicine (particularly in oncology), greater scrutiny of patient outcomes, and an emphasis on overall patient satisfaction with care, a paradigm is evolving whereby a partnership between clinicians and the patient is emerging as the foundation to optimizing health.

As stated by Krüg, clinicians were not taught to account for the variation in patient profiles, preferences, and
engagement—it is simply not a component of medical school or residency program training. However, with the emergence of the e-patient, the traditional dynamic is changing and clinicians are beginning to practice medicine in a very different way. It is increasingly common for a patient, at their first visit, to have done some research on their symptoms, disease state, and/or connected with others that share their ailment. In short, many patients want to take a more active stance and partner with their clinicians to collaboratively determine their care.

Participatory Medicine is a movement in which networked patients shift from being mere passengers to responsible drivers of their health, and in which clinicians encourage and value them as full partners. Participatory education is the engine behind this movement that allows for the intersection of the engaged and informed patient and the knowledgeable and competent clinician.

The new paradigm of participatory medicine, as put forth by Krüg, asks four things of clinicians:

- Engage patients before, during, and after illness to instill behaviors
- Understand patient barriers, individual needs, and most effective educational methods
- Address the increasingly participatory role of the patient
- Leverage the power of the caregiver

Without an alignment of these precepts, a ripple effect of negative consequences often occurs, including lack of adherence to a prescribed treatment, increased healthcare costs due to prolonged illness, an increase in adverse events due to misunderstood or unrealized risks, and overall patient dissatisfaction.

The guiding principles of Participatory Medicine are as follows:

- Guide patients and caregivers to actively engage in their health and healthcare experiences
- Guide health professional practices so that patient experience and contribution is an integral part of excellence
- Encourage mutual collaboration among patients, clinicians, caregivers, and others, allowing them to partner in determining care

Distilling these stated goals and principles into a teachable curriculum is paramount. Clinicians must be trained on how to assess, communicate with, and empower their patients, providing them with a self-paced education curriculum and the appropriate resources required to better engage them in understanding and managing their condition.

CANCER 101, a Patient Resource Model

For an example of the type of resources that could be made available to patients with a malignancy—look no further than CANCER 101. This website and tools provided walk the patient through their disease state and prompts the patient to: ask specific questions of their clinician; identify symptoms; document and accurately describe symptoms; track medications, and so on.

Information is also available on how to interpret lab results, or a pathology report, including a glossary of medical terms to help them decode the new language. The advice and resources offered enables the patient to stay organized, be better prepared for their visits, document their journey, and share the most relevant information with their clinician, thereby enabling a partnership that leverages the patient’s day to day life expertise and the clinician’s medical expertise. In addition, building upon the success of the navigation tool, which is distributed to patients at the point of care by
clinicians, the framework of the C101 navigator is being expanded to accommodate other chronic illnesses.

The goal of this type of patient education, similar to CME in general, is to improve outcomes, and numerous studies have shown that engaging the patient improves patient care. Therefore, as Krüg stated in her closing remarks, it is important that CME providers, and sponsors, take the current CME model and extend those methods, and that capacity to patient education by way of participatory medicine. If the ultimate goal is to improve outcomes, participatory medicine is the catalyst in helping us to best achieve this goal.

**Closing Comments**

Being in healthcare today is very exciting. Healthcare reform is upon us with its goal to achieve the "triple aim" in healthcare

- Better care for individuals
- Better health for all
- Greater value for dollar spent

And behind it all, behind the trends, behind the Health Care reform, a common theme: EDUCATION. For any changes, any evolution, any progress to be made, irrelevant of the type of industry, education is the engine behind progress. This makes being in education today is even more exciting because we have the ability to impact the entire healthcare team. Continued efforts on research, to evaluate how physicians learn and apply the finding in the delivery of impactful education and demonstrate how and why CME is not only effective and but why CME will be a key component to implements changes of the Healthcare care reform.

To achieve the triple aim during this period and after, the traditional approach to medical education and continuous professional development must also transform. Innovative approaches to learner engagement, quality-focused interventions and measurement can be accomplished via strategic partnerships between the pharmaceutical industry and the medical education industry.

But first, one must understand the innovations and advancements in medical education design and measurement discussed in this review to facilitate quality interventions using cutting edge technology.

**References**

