

# Strategically aligning a mandala of competencies to advance a transformative vision

**Nunzia B. Giuse, MD, MLS, FMLA; Sheila V. Kusnoor, PhD; Taneya Y. Koonce, MSLS, MPH; Christopher R. Ryland, MSIS; Rachel R. Walden, MLIS; Helen M. Naylor, MS; Annette M. Williams, MLS; Rebecca N. Jerome, MLIS, MPH**

See end of article for authors' affiliations.

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**Objective:** This paper offers insight into the processes that have shaped the Eskin Biomedical Library's (EBL's) strategic direction and its alignment to the institution's transformative vision.

**Setting:** The academic biomedical library has a notable track record for developing and pioneering roles for information professionals focused on a sophisticated level of information provision that draws from and fuels practice evolutions.

**Strategy:** The medical center's overall transformative vision informs the creation of a fully aligned library

strategic plan designed to effectively contribute to the execution of key organizational goals. Annual goals reflect organizational priorities and contain quantifiable and measurable deliverables. Two strategic themes, facilitating genetic literacy and preserving community history, are described in detail to illustrate the concept of goal setting.

**Conclusion:** The strategic planning model reflects EBL's adaptation to the ever-changing needs of its organization. The paper provides a characterization of a workable model that can be replicated by other institutions.

## BACKGROUND

At Vanderbilt University Medical Center (VUMC), the information delivery paradigm is uniquely structured to achieve an optimal synergy between information management and knowledge management services. Since 1996, the Eskin Biomedical Library (EBL), a unit of the Informatics Center, has implemented a series of innovative knowledge management-focused programs that have established the library as a critical component of the medical center [1–6]. This shift in EBL's approach led to the formal creation a year later of the Knowledge Management (KM) group, within the library, of highly trained in-house information scientists who possess both high-level information skills and content expertise tailored to satisfy VUMC's personalized medicine information needs. EBL and KM are closely linked to each other as they represent two facets of the same information support infrastructure: one (EBL) designed to support access to knowledge through its already well-established library services and information resources provision, and the other (KM) created to fulfill the information needs of any critical advances and new discoveries in medicine. The combined KM-EBL staff consists of thirty-five individuals, including thirteen librarians, six information scientists, four web/programming staff, and twelve additional library professionals.

At KM-EBL, the hiring and training of employees is based on an assessment of the competencies needed to best serve the medical center, which requires additional skills beyond those gained in the traditional master's of library science degree program [7,

8]. Opportunities are provided for KM-EBL employees to cross-train so that the organization is best positioned to achieve departmental goals supporting the institution's strategic vision. Through participation in KM-EBL's well-established, in-house training program, personnel develop advanced knowledge in areas including health literacy, adult learning, public health, molecular biology, genetics, and pharmacology. The training program also provides opportunities for KM-EBL nonlibrarians with advanced degrees in the biomedical sciences (e.g., pharmacology, neuroscience) to develop foundational skills in information and evidence provision, thereby generating a new class of information professionals. Employees at KM-EBL continually refine their critical appraisal and search skills, while building knowledge in clinical medicine and molecular biology and genetics through activities such as participation in evidence-based information services, which are a hallmark of knowledge management at KM-EBL [1–6].

Bolstered by these unique competencies and skills, KM information specialists are integral in developing new research initiatives and are routinely sought after by VUMC researchers and clinicians for high-level, collaborative projects. Representative examples include determining how access to information impacts health care decision making, using knowledge management techniques to optimize location of information and information resources, formalizing the role of information specialists as evidence experts on health care or research teams, and evaluating methods for educating health information professionals [1–4, 9–13]. More recently, the KM-EBL team has become embedded in several of the key personalized medicine initiatives at VUMC including My Cancer Genome (an online personalized cancer medicine resource) <<http://www.mycancergenome.org>>, the



Supplemental Appendix A, Appendix B, and Appendix C are available with the online version of this journal.

Diagnostic Management Teams (groups designed to help clinicians interpret complex laboratory test results), and the Pharmacogenomic Resource for Enhanced Decisions in Care and Treatment (PREDICT) initiative (a clinical decision-support program that leverages information about an individual's genetics to guide drug therapy) [14–19].

## STRATEGIC PLANNING

The development of new and expanded roles for information professionals described above has been made possible through careful strategic planning and alignment to the institution's transformative vision. Consideration of the needs of the institution provides the foundation of a successful strategic plan, as understanding top medical center priorities is essential to the process. An assessment of the team's skills and competencies has also been critical for identifying transformative opportunities that will bring the team closer to achieving the overall vision of the medical center.

At VUMC, priorities are conveyed via multiple channels. The medical center has an established set of key themes (people, service, quality, finance, and innovation) that provides a framework for setting departmental annual goals and monitoring progress on specific objectives [20]. Information professionals at KM-EBL attend leadership meetings, including the annual "State of the Medical Center" and the "State of the Informatics Center," in which yearly priorities are clearly communicated. VUMC institutional directions also evolve from Vanderbilt Center for Better Health DesignShop sessions, which follow a patented process aimed at bringing together key stakeholders to devise innovative, strategic solutions to complex problems [21]. KM-EBL team members help plan and participate in these DesignShops, thereby gaining further insight into medical center priorities.

Informed by a thorough understanding of the medical center's vision and active participation in VUMC's planning process, KM-EBL leadership developed its strategic plan. Conceptualized as a mandala of competencies, read from the center to the periphery, KM-EBL's strategic plan depicts how the team aligns its areas of expertise to support the institution's transformative vision (Figure 1). At its core is the institution's overall vision: personalized medicine [22]. In the first concentric circle emanating from the core are distinct institutional priorities that fall within the scope of the personalized medicine vision. Among these priorities are pharmacogenomics, patient- and community-centered care, patient education, curriculum revision, and evidence-centered care. Encircling the institutional priorities are the KM-EBL team's competencies and skills: critical appraisal and synthesis, expertise in biosciences and genetic database information sources, social media or social networking communication, adult learning and instruction, information seeking, organizational knowledge, user-centered services, and metadata creation and organization. By leveraging these competencies and skills, the KM-EBL team participates, either by taking on a leadership

role or serving as a collaborator, in a variety of projects addressing different strategic themes (depicted along the periphery of the mandala). Aligning the skills and competencies of KM-EBL employees with key institutional priorities allows the team to identify new opportunities to better serve the medical center, leading to the development of the strategic themes described in Table 1.

## TRANSFORMATION OF A STRATEGIC VISION INTO EXECUTABLE GOALS

Through exceptional information provision and services in the areas covered by the strategic themes, KM-EBL works to advance the institution's transformative vision. At VUMC, all departments and centers, including KM-EBL, set annual metrics-driven goals each fiscal year to measure accountability. The goals at KM-EBL are created by library leadership in conjunction with medical center administration through a participatory and receptive mechanism, with opportunities for refinement and improvement, and three to five key goals are usually established each year. To proactively address changes in the institutional environment, medical center priorities, and technology, the team designs new goals at the end of each fiscal year.

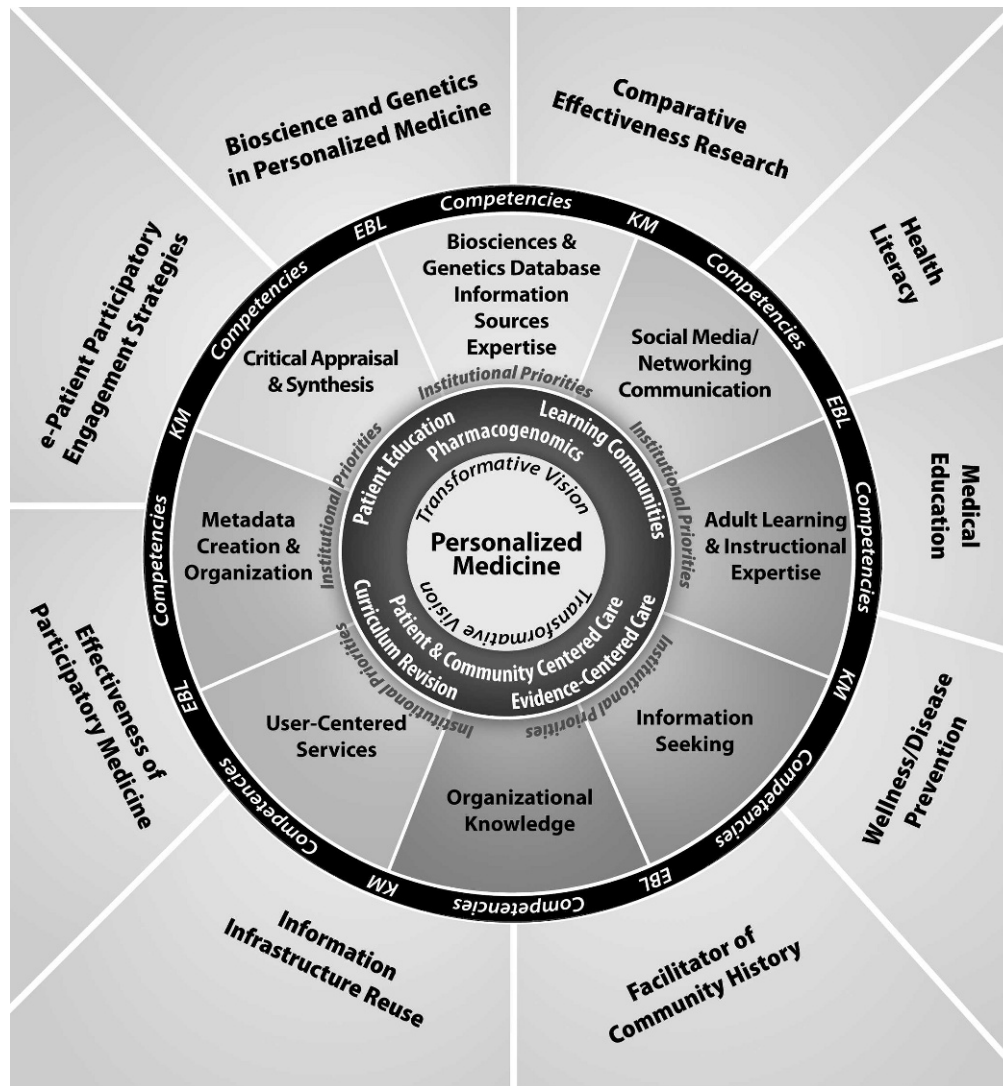
Key to establishing annual goals is the delineation of specific, ambitious deliverables. The team specifies the number, or sometimes the percentage, of deliverables needed to perform at the threshold (minimum), target, or reach (maximum) level for the goal. To document and substantiate progress on the annual goals, KM-EBL regularly provides status reports to medical center leadership, as is expected of units in the Informatics Center. The final report is ultimately reviewed by the Board of Trustees at the end of the fiscal year. In addition to encouraging accountability, the reports enable KM-EBL to gain recognition for their accomplishments through documentation of successes.

Reflecting the interdisciplinary nature of the team's projects, many goals involve partnering with other medical center units to develop innovative strategies addressing top institutional priorities. Setting ambitious goals and working collaboratively with other medical center teams creates opportunities for KM-EBL employees to better serve the needs of the medical center by applying their information science skills in nontraditional ways. To further illustrate the application of the strategic planning process, the themes "Bioscience and Genetics in Personalized Medicine" and "Facilitator of Community History" were chosen as examples because of their high level of innovation and for their contrasting scope of practice in the field of library and information science.

### Example 1: "Bioscience and Genetics in Personalized Medicine"

One of KM-EBL's recent goals under the "Bioscience and Genetics in Personalized Medicine" strategic theme was to contribute to ongoing institutional

**Figure 1**  
Strategic plan, Knowledge Management/Eskind Biomedical Library, Vanderbilt University Medical Center (VUMC)



personalized medicine initiatives that target patient education and communication. The goal (Appendix A, online only) was written based on an understanding of VUMC's personalized medicine transformative vision and a recognition of the team's expertise in patient education and communication, as well as an in-depth knowledge of bioscience and genetics resources. Harnessing these unique skills and competencies, KM-EBL collaborated with My Cancer Genome and PREDICT, two key ongoing institutional personalized medicine initiatives.

In 2011, VUMC leadership approached KM-EBL to collaborate with the team working on VUMC's freely available, innovative personalized medicine initiative, My Cancer Genome. Developed at VUMC, My Cancer Genome provides information for clinicians and researchers about how genetic mutations in cancers affect responsiveness to anti-cancer drugs, thus promoting the personalization of cancer treatment

[14]. The website allows clinicians and patients to quickly identify clinical trials investigating specific cancer mutations. A key contribution of the KM-EBL team has been to provide comprehensive summaries of the evidence regarding the impact of genetic mutations on tumors in cancer therapy. The team's advanced knowledge of genetics, specifically the complexities involved in gene and mutation nomenclature and their relationship to cancer, was fundamental to these contributions. As the resource evolves, KM-EBL continues to collaborate with the My Cancer Genome group to explore strategies for developing reusable, patient-friendly content for the website.

Information specialists at KM-EBL also play an integral role in the institution's National Institutes of Health (NIH) Clinical and Translational Science Award (CTSA)-funded program, which focuses "on both bench-to-bedside, and bedside-to-practice translation" [23]. One of the key projects that the grant

**Table 1**  
Knowledge Management/Eskind Biomedical Library strategic themes

Strategic themes	Opportunities
Patient decision making informed by comparative effectiveness research	<ul style="list-style-type: none"> <li>Collaborate with Vanderbilt University Medical Center's (VUMC's) Agency for Healthcare Research Quality (AHRQ)-funded Evidence-Based Practice Center to evaluate key disease management questions pertaining to patient decision making.</li> <li>Study how to translate findings from systematic reviews into improvements for patient care, such as whether creating decision-making tools aids patients in weighing the various management options specific to their conditions and particular characteristics (e.g., mediating risk factors, comorbid conditions).</li> </ul>
Bioscience and genetics in personalized medicine	<ul style="list-style-type: none"> <li>Apply expertise in bioscience and genetics, knowledge management, and critical appraisal and synthesis of the literature to advance personalized medicine initiatives at VUMC.</li> <li>Aid in patient education initiatives, particularly those involving pharmacogenetics.</li> </ul>
Patient participatory engagement strategies	<ul style="list-style-type: none"> <li>Facilitate patient participation through activities such as helping patients identify reliable, personalized health information; evaluate the medical evidence; use social media and interactive web communities for active engagement with health topics; and formulate questions to discuss with their providers.</li> <li>Provide collaborative spaces for patient participatory engagement activities incorporating instruction and consultation, access to subscription electronic resources, and hands-on expert assistance.</li> <li>Educate providers about patients' health-related social media activities and how to monitor and respond to online patient dialogue.</li> </ul>
Effectiveness of participatory medicine	<ul style="list-style-type: none"> <li>Explore research questions evaluating the effectiveness of participatory medicine, such as whether minimal health literacy and educational requirements must be met for active participation.</li> <li>Identify the most effective characteristics for segmenting populations to match interventions.</li> <li>Explore the use of health communication principles to improve clinician-patient interactions and systematize the use of those technologies.</li> </ul>
Understanding and optimization of consumers' use of health information to promote health literacy	<ul style="list-style-type: none"> <li>Provide consumer health information to patients via the My Health at Vanderbilt portal.</li> <li>Investigate methods to scale information provision and increase the bank of health materials by leveraging freely available resources or licensing additional content resources.</li> </ul>
Digital library infrastructure reuse for information discovery, communication, and management	<ul style="list-style-type: none"> <li>Pilot efforts to refine the infrastructure of tools and projects to enhance their modularity and reusability and capitalize on knowledge management capabilities.</li> <li>Assess how the redesign of information resources and incorporation of new technologies affects patterns of information discovery and communication.</li> <li>Explore techniques for data mining VUMC archival collections, which may offer useful organizational knowledge in addition to its historical value.</li> </ul>
Wellness and disease prevention	<ul style="list-style-type: none"> <li>Create a wellness consult service by working collaboratively with VUMC to provide personalized disease prevention plans for patients.</li> <li>Expand the web-based patient portal My Health at Vanderbilt by creating interactive tools to help patients manage their health.</li> <li>Provide interactive, flexible spaces to host presentations or patient group study clubs on health and wellness topics.</li> <li>Create opportunities for offering additional educational interventions for wellness and disease prevention through collaborations with the medical center on community medicine and outreach initiatives.</li> </ul>
Facilitator of community history	<ul style="list-style-type: none"> <li>Provide interactive access to virtual collections.</li> <li>Investigate the optimal means for collecting and preserving electronic records.</li> <li>Evaluate the feasibility of establishing enhanced knowledge management processes to create a user-accessible digital knowledge bank of significant archival records.</li> </ul>
Medical education	<ul style="list-style-type: none"> <li>Collaborate with VUMC faculty and staff to explore new strategies, grounded in learning theory, for improving medical student education.</li> </ul>
Translational architecture	<ul style="list-style-type: none"> <li>Lead a collaborative initiative to create a translational architecture to help translate VUMC discovery into action at a global scale.</li> <li>Capture and share knowledge from VUMC Innovation Project stakeholders to help VUMC research teams become more effective by learning from the experiences of others.</li> <li>Build an online data repository containing information including lessons learned, recommendations and pointers, and access to champions including both VUMC and non-VUMC stakeholders, for a variety of key VUMC research projects.</li> </ul>

supported is the PREDICT program, which embeds patients' genetic information into the medical record to guide physicians as they select drug therapies. A consumer-level version of the information is also made available directly to patients via the My Health at Vanderbilt web portal [12, 24]. Using expertise in both genetic and health literacy, KM-EBL partners with PREDICT to develop consumer-level information about pharmacogenetic testing. In this role, the KM-EBL team provides comprehensive evidence summaries on genetic variations that impact drug responses, for example, CYP3A5 \*3 and \*6 allele characterization (Appendix B, online only).

The collaborations with the My Cancer Genome and PREDICT teams informed the development of KM-EBL's patient education and communication goal. As pharmacogenetic testing at the medical center expands, the demand for consumer-friendly information will increase. To scale patient education and communication initiatives, KM-EBL will harness its training model paradigm to expand the number of its personnel with expertise in health literacy and patient education. The KM-EBL team will leverage its experience with My Cancer Genome and PREDICT to investigate new strategies for developing patient-friendly pharmacogenetic information, an underex-



**Figure 2**  
VUMC Through Time website <<http://www.mc.vanderbilt.edu/throughtime/>>

**VUMC Through Time**  
A Photographic Archive  
from the Eskind Biomedical Library  
VANDERBILT UNIVERSITY MEDICAL CENTER

Welcome | [Log In](#)

VUMC *through Time* contains over a thousand images depicting Vanderbilt Medical Center's people and places, from the late 19th century through to the recent past.

We've created this website to share our history with members of the community, but also to provide a place for others to share their own pictures and memories of VUMC.

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plored area of research. Given the importance of personalized medicine to the institution, patient education and communication will remain strong priorities at KM-EBL, driving the formulation of future metrics goals.

### Example 2: "Facilitator of Community History"

KM-EBL's innovative work in archival practice offers an additional example of the application of the strategic planning process. For its special collections goal (Appendix C, online only), the team focused on leveraging electronic media to preserve and enhance VUMC records of archival value using its competencies in organizational knowledge, social media, metadata creation and organization, and knowledge

management techniques. To meet this goal, the KM-EBL team developed VUMC Through Time <<http://www.mc.vanderbilt.edu/throughtime/>> (Figure 2), a website providing digital access to thousands of historical images, including photographs of VUMC people, buildings, and events dating from 1875 until the recent past. Placing these images and their associated metadata online allows ready discovery, capture, appropriate reuse, and community knowledge management. By embracing new technologies, the KM-EBL team has been able to expand its role in archival practice and become a "Facilitator of Community History."

The VUMC Through Time website encourages and allows members of the community to participate in developing the historical record of the institution and,

by extension, assist with managing knowledge for transformation and reuse. Users are invited to upload new images and comment on individual items displayed on the website. KM-EBL archivists lightly process the images and, where possible, edit existing metadata to reflect the new information. Archivists also vet all contributions for compliance with institutional policies relating to privacy and confidentiality.

The KM-EBL team collaborated with alumni and news offices to publicize VUMC Through Time. The response was overwhelmingly positive, and the collaboration led to a strengthening of relationships with key distribution channels in the medical center. VUMC Through Time has become a featured resource for the medical alumni department for their reunion events, and the news and public affairs department is using the site to identify images for reuse. Community engagement with the website has also led to identification of unknown individuals in photographs, addition of historical context to images, and further exposure of KM-EBL's collections and services.

Building on the success of VUMC Through Time, KM-EBL plans to focus on community history projects in upcoming years. These efforts include establishing requirements and processes for archiving and providing collaborative access to archival records related to Vanderbilt communities of practice. Such communities include academic departments and divisions, as well as cross-disciplinary groups working on discrete projects. By providing access to these digitized and born-electronic records, KM-EBL will further empower VUMC communities to participate in the development of institutional knowledge, to reuse and transform historical documents, and to facilitate further innovation and discovery.

## SUMMARY

This paper discussed a strategic planning model that enables the KM-EBL team to proactively address changing information needs and ensure its vitality in the medical center. Detailed elements of this model, when applicable, could through a process of adaptation and refinement be harnessed by other organizations willing to consistently invest considerable effort into skills and competency enhancements for their professionals.

By detailing KM-EBL's existing competencies as they relate to institutional priorities and vision, the team has been able to identify opportunities to apply its skills in novel and collaborative ways. Developing annual goals that are aligned with the institutional vision has created a mechanism for securing the team's value in the medical center. Establishing challenging deliverables that accompany each goal helps ensure accountability and encourages team members to undertake new endeavors. The two examples provided of KM-EBL's work in bioscience and genetics and archives demonstrate how strategic planning led to new innovations and practices that have strengthened and expanded KM-EBL's institutional value.

As librarians prepare to embark on new roles, the need for appropriate strategic planning has become even more crucial. The process of explicitly aligning a team's strengths and abilities with the institution's overarching strategic vision is imperative for any information organization seeking to demonstrate and expand its institutional value, and may inspire creative approaches to existing knowledge concerns.

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## REFERENCES

1. Giuse NB, Kafantaris SR, Miller MD, Wilder KS, Martin SL, Sathe NA, Campbell JD. Clinical medical librarianship: the Vanderbilt experience. *Bull Med Lib Assoc.* 1998 Jul;86(3):412-6.
2. Williams MD, Gish KW, Giuse NB, Sathe NA, Carrell DL. The Patient Informatics Consult Service (PICS): an approach for a patient-centered service. *Bull Med Lib Assoc.* 2001 Apr;89(2):185-93.
3. Giuse NB, Koonce TY, Jerome RN, Cahall M, Sathe NA, Williams A. Evolution of a mature clinical informationist model. *J Am Med Inform Assoc.* 2005 Jun;12(3):249-55. DOI: <http://dx.doi.org/10.1197/jamia.M1726>.
4. Giuse NB, Jerome R, Koonce TY, Williams AM. Specialty-specific medical librarians provide quick access to evidence-based research, leading to reports of improvements in clinician decisionmaking [Internet]. Agency for Healthcare Research and Quality Health Care Innovations Exchange; 2013 [cited 7 Mar 2013]. <<http://www.innovations.ahrq.gov/content.aspx?id=2057>>.
5. Giuse NB, Williams AM, Giuse DA. Integrating best evidence into patient care: a process facilitated by a seamless integration with informatics tools. *J Med Lib Assoc.* 2010 Jul;98(3):220-2. DOI: <http://dx.doi.org/10.3163/1536-5050.98.3.009>.
6. Health Research Institute, pwc. Needles in a haystack: seeking knowledge with clinical informatics [Internet]. PricewaterhouseCoopers; 2012 Feb:38-9 [cited 7 Mar 2013]. <<http://www.pwc.com/us/en/health-industries/publications/needles-in-a-haystack.jhtml>>.
7. Huber JT, Giuse NB, Pfeiffer JR. Designing an alternative career ladder for library assistants. *Bull Med Lib Assoc.* 1999 Jan;87(1):74-7.
8. Giuse NB, Kafantaris SR, Huber JT, Lynch F, Epelbaum M, Pfeiffer J. Developing a culture of lifelong learning in a library environment. *Bull Med Lib Assoc.* 1999 Jan;87(1):26-36.
9. Powers JS, Cahall M, Epelbaum M, Habermann R, Rosenstiel D, Giuse NB. Incorporating evidence into clinical teaching: enhanced geriatrics specialty care-based residency presentations. *J Graduate Med Educ.* 2012 Mar;4(1):83-6.
10. Giuse NB, Koonce TY, Storrow AB, Kusnoor SV, Ye F. Using health literacy and learning style preferences to optimize the delivery of health information. *J Health Commun.* 2012;17(suppl 3):122-40. DOI: <http://dx.doi.org/10.1080/10810730.2012.712610>.
11. Mulvaney SA, Bickman L, Giuse NB, Lambert EW, Sathe NA, Jerome RN. A randomized effectiveness trial of a clinical informatics consult service: impact on evidence-

- based decision-making and knowledge implementation. *J Am Med Inform Assoc.* 2008 Apr;15(2):203–11. DOI: <http://dx.doi.org/10.1197/jamia.M2461>.
12. Koonce TY, Giuse DA, Beauregard JM, Giuse NB. Toward a more informed patient: bridging health care information through an interactive communication portal. *J Med Lib Assoc.* 2007 Jan;95(1):77–81.
13. Sathe NA, Lee P, Giuse NB. A power information user (PIU) model to promote information integration in Tennessee's public health community. *J Med Lib Assoc.* 2004 Oct;92(4):459–64.
14. Swanton C. My Cancer Genome: a unified genomics and clinical trial portal. *Lancet Oncology.* 2012 Jul;13(7):668–9. DOI: [http://dx.doi.org/10.1016/S1470-2045\(12\)70312-1](http://dx.doi.org/10.1016/S1470-2045(12)70312-1).
15. Stuart D. VICC launches online genetic research tool [Internet]. *VUMC Reporter*; 2011 [cited 6 Mar 2013]. <<http://www.mc.vanderbilt.edu/reporter/index.html?ID=10309>>.
16. Snyder B. 'Clotting team' aids diagnosis, decision making [Internet]. *VUMC Reporter*; 2010 [cited 6 Mar 2013]. <<http://www.mc.vanderbilt.edu/reporter/index.html?ID=9211>>.
17. Snyder B. Zutter to lead efforts to integrate diagnostic testing [Internet]. *VUMC Reporter*; 2011 [cited 6 Mar 2013]. <<http://www.mc.vanderbilt.edu/reporter/index.html?ID=10347>>.
18. Whitney K. PREDICT helps match patient with proper drug [Internet]. *VUMC Reporter*; 2010 [cited 6 Mar 2013]. <<http://www.mc.vanderbilt.edu/reporter/index.html?ID=9665>>.
19. Snyder B. VUMC poised to lead as health care reform evolves [Internet]. *VUMC Reporter*; 2012 [cited 6 Mar 2013]. <<http://news.vanderbilt.edu/2012/09/vumc-poised-to-lead-as-health-care-reform-evolves/>>.
20. Bartoo C. Balsler outlines fresh look at VUMC's pillars [Internet]. *VUMC Reporter*; 2010 [cited 6 Mar 2013]. <<http://www.mc.vanderbilt.edu/reporter/index.html?ID=8226>>.
21. Center for Better Health, Vanderbilt University Medical Center. Innovation Center [Internet]. The University; 2012 [cited 6 Mar 2013]. <<http://www.mc.vanderbilt.edu/root/vumc.php?site=vcbh&doc=30169>>.
22. Vanderbilt University Medical Center. Personalized medicine at Vanderbilt [Internet]. The University [cited

- 2013 Mar 6]. <<http://www.vanderbilthealth.com/personalizedmedicine/>>.
23. Clinical and Translational Science Awards [Internet]. National Center for Advancing Translational Sciences [cited 6 Mar 2013]. <<http://www.ncats.nih.gov/research/cts/ctsa/ctsa.html>>.
24. Howser J. Use of My Health site continues growing strong [Internet]. *VUMC Reporter*; 2009 [cited 6 Mar 2013]. <<http://www.mc.vanderbilt.edu/reporter/index.html?ID=7308>>.

## AUTHORS' AFFILIATIONS

**Nunzia B. Giuse, MD, MLS, FMLA**, nunzia.giuse@vanderbilt.edu, Assistant Vice Chancellor for Knowledge Management; Director, Eskind Biomedical Library; Professor, Department of Biomedical Informatics; and Professor, Department of Medicine; **Sheila V. Kusnoor, PhD**, sheila.v.kusnoor@vanderbilt.edu, Health Knowledge Information Scientist, Eskind Biomedical Library; **Taneya Y. Koonce, MSLS, MPH**, taneya.koonce@vanderbilt.edu, Associate Director for Research, Eskind Biomedical Library; **Christopher R. Ryland, MSIS**, christopher.ryland@vanderbilt.edu, Assistant Director for Special Collections, Eskind Biomedical Library; **Rachel R. Walden, MLIS**, rachel.walden@vanderbilt.edu, Program Manager, Eskind Biomedical Library; **Helen M. Naylor, MS**, helen.naylor@vanderbilt.edu, Health Knowledge Information Scientist, Eskind Biomedical Library; **Annette M. Williams, MLS**, annette.williams@vanderbilt.edu, Associate Director, Eskind Biomedical Library; **Rebecca N. Jerome, MLIS, MPH**, Program Director, Eskind Biomedical Library; and Assistant Professor, Department of Biomedical Informatics; Vanderbilt University Medical Center, 2209 Garland Avenue, Nashville, TN 37232

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