



Published in final edited form as:

J Health Care Poor Underserved. 2011 ; 22(4 Suppl): 165–173. doi:10.1353/hpu.2011.0165.

Establishing the Morehouse School of Medicine (MSM) R-CENTER Clinical and Translational Research Web-Portal: The Role of Focus Groups

Dr. Alexander Quarshie, MD, MS,
Morehouse School of Medicine (MSM)

Dr. Adam Davis, PhD,
Morehouse School of Medicine (MSM)

Dr. Gregory Strayhorn, MD, PhD,
Morehouse School of Medicine (MSM)

Ms. Carolyn Weaver,
Morehouse School of Medicine (MSM)

Ms. Cigdem Delano,
Morehouse School of Medicine (MSM)

Ms. Kirby Winters,
SolarVelocity Corporation in Atlanta, GA

Dr. Robert Rice, PhD, and
Ohio State University

Dr. Elizabeth Ofili, MD, MPH
Morehouse School of Medicine (MSM)

Abstract

The Morehouse School of Medicine (MSM) Research Centers in Minority Institutions (RCMI) Center of Excellence in Clinical and Translational Research has developed a research web-portal to foster research development and collaborations. We describe the role of focus groups (FG). Research faculty and staff were organized into three groups by research interest. Each FG discussion had five steps: Brainstorming, Reporting, Card-sorting, Priority-setting, and Discussions. Integration of top priorities across each FG culminated in a final priority-setting step. Each FG generated 45 to 50 unique ideas during brainstorming that were categorized into 10 to 12 unique categories. Final priority-setting captured six top items for the initial design of the portal: ability to identify researchers working on similar research; common data management tools; access to clinical trials information; participant recruitment tools; secure access to research databases; and financial support. Focus groups allowed for a discovery period that generated common themes for the design and customization of the web-portal.

Keywords

Web-portal; focus groups; clinical and translational research

© Meharry Medical College

Please address correspondence to Alexander Quarshie, MD, MS, Research Associate Professor and Director, Biomedical Informatics Unit, Morehouse School of Medicine, 720 Westview Drive SW, Atlanta, GA 30310; (404) 752-8681; aquarshie@msm.edu.

The Morehouse School of Medicine (MSM) Research Centers in Minority Institutions (RCMI) Center of Excellence in Clinical and Translational Research (R-CENTER) is designed to provide the research infrastructure to support a diverse cross-section of the institution's research community. One of the three specific aims of the MSM R-CENTER is to transform the research environment by establishing a robust research and vibrant training environment that fosters innovative, multi-disciplinary clinical/translational research. The biomedical informatics unit (BIU) of the R-CENTER has a long term goal of establishing an integrated standards-based informatics platform to support MSM's Clinical and Translational Research (CTR) investigators. As part of an assessment of research resources at MSM embarked upon by the BIU, it was discovered that research resources needed by investigators to conduct their research were scattered across the institution. Furthermore, many researchers were not aware of the availability of some of these resources or how to access them, resulting in reduced efficiency in the development and implementation of research. In addition, researchers were sometimes not aware of resources to foster collaborations within MSM or among partner institutions. The result of this lack of awareness is sometimes duplication of research efforts among CTR investigators conducting similar research at MSM. To address these limitations, the BIU purposed to create and maintain an institutional CTR web portal that integrates clinical and translational research information, data and knowledge resources, and provides a one-stop-access or single point of entry for researchers across MSM and outside collaborations.

A focus group is a form of qualitative research in which a group of people are asked about their perceptions, opinions, beliefs and attitudes towards a product, service, concept, advertisement, idea, or packaging.¹ The use of focus group discussions in exploratory research, marketing, and the social sciences is well documented. In marketing, focus groups are used for acquiring feedback regarding new products, as well as various topics. Particularly, focus groups allow companies wishing to develop, package, name, or test-market a new product, to discuss, view, and/or test the new product before it is made available to the public. This can provide invaluable information about the potential market acceptance of the product. In the social sciences focus groups allow interviewers to study people in a more natural setting than a one-on-one interview. In combination with participant observation, they can be used for gaining access to various cultural and social groups, selecting sites to study, sampling of such sites, and raising unexpected issues for exploration. In education, Large et al. utilized focus groups to explore design criteria for web portals among children 10 to 13 years of age.² In health care, focus groups have been used to evaluate tools and protocols for patient care. Atreja et al. used focus groups to inform the development of an Internet portal as an innovative care delivery improvement model for patients with multiple sclerosis.³ In nursing, goldsmith et al. used focus groups to identify the current state of nursing handoff practice as well as the functional requirements of a web-based nursing handoff tool to improve patient care and safety.⁴

Focus groups have a high apparent validity—the idea is easy to understand, and the results are believable. They are low in cost, one can get results relatively quickly, and they can increase the sample size of a report by talking with several people at once.⁵ Despite the apparent advantages of focus groups as outlined above in informing the development of new products, very few studies have reported the utility of this methodology in development of new or enhancement of existing informatics solutions to advance clinical and translational research.

We therefore describe the role of the focus groups process as an innovative model in the development of a CTR web portal to foster research development and collaborations among minority faculty researchers, trainees and external partners.

Methods

Purpose

The purpose of this qualitative study was to demonstrate the utility of the focus group process in the development of a clinical and translational research (CTR) web portal to foster research development and collaborations among minority faculty researchers, trainees, and external partners.

Participants

Participants consisted of faculty, staff and trainees at MSM. The faculty included key stakeholders involved in the conduct of CTR such as investigators (clinical, community, translational and basic scientists), epidemiologists, biostatisticians, informaticians, and administrators, including chairs of departments and members of institutional review board.

Procedures

The focus group (FG) process used was designed to elicit the maximum amount of information in a short period of time. The entire process lasted between one to two hours depending on the size of the group. Three focus groups were formed based on research interests of basic science, clinical and population science. Groups were limited to between eight and 16 participants. Focus group discussions (FGD) were facilitated by an external consultant, with biomedical informatics and academic research expertise (RR).

The FG process had five steps or phases. These phases were designed to culminate in a final priority-setting step. These phases are described below:

1. **Brainstorming:** This phase was designed to maximize the generation of ideas and to all but eliminate discussion other than questions. Group members were asked to use 3×5 cards and write down one idea per card. The charge to each FG is described below. This step is time-limited. Participants were given between 10–15 minutes; however, they were told that they could still generate new cards during the Reporting Phase.
2. **Reporting:** This is the phase where the entire process could be sidetracked. Participants were asked to read the ideas on their completed cards. A group scribe wrote each idea on newsprint. Ideas were presented to the group in a round-robin fashion to prevent domination of ideas presentation by one or two people. The expectation was that all group members would participate. Ideas were numbered as they were read for consistency between the newsprint and card. This phase sometimes required the facilitator to paraphrase or condense an idea into a ‘newsprint’ bite. It was important to the integration of the process that group members were not permitted to challenge an idea or question the presenter’s intention. Clarification of the idea is a process that the facilitator assumes as acceptable words are crafted for the newsprint. Duplicate ideas were not presented. Group members were asked to create two piles of cards: presented and duplicate.
3. **Card-sorting:** Once the reporting phase was complete, all the presented cards were collected. The group selected a moderator to manage the sorting of cards into categories. Participants were expected to define the categories *ad hoc*. There was no limit to the number of categories. Participants could decide to collapse or expand group definitions as the process unfolded.
4. **Priority-setting:** Once the ideas had been sorted into categories, the facilitator then asked the group to set priorities. Priorities are required by any organization due to a number of functional impediments, including resource allocation and time required

to deliver a solution. Group members were assigned a fixed number of votes determined by the combination of the number of group members and ideas generated. It is important to provide enough votes to provide discrimination of important ideas without diluting the impact of the focus group with indiscriminate filtering of the ideas.

5. Discussion: The results of the priority-setting were reviewed with the group, including an open discussion of the process and the results.

Charge given to each focus group—The FG facilitators began by saying, “The MSM R-Center, as part of its communication plan, will develop a portal to serve the MSM Research and external audience. The purpose of this focus group is to gather the requirements and expectations of research faculty and staff for such an offering.

“Thus, we are asking you today, through this process, to articulate all the relevant needs, wants, and requirements for such a portal.

“There are no limits on suggestions or ideas. Topics that can be addressed include content, navigation, esthetics, web applications, local and national resources and any other topic that will help serve this community through electronic communication.”

Statistical analyses

Descriptive statistics were used to summarize the findings of each FG. These are presented as frequencies and percentages in tabular formats. Integration of data across the three FGs was then performed by first consolidating the categories across the three FGs into five common themes or categories, then summing up the votes across the items that were combined, and rank ordering to select the top ranked items. High priority items were considered as items with three or more votes *a priori*.

Results

Focus group 1

This FG consisted of four MSM faculty and four administrators. The group was expanded to include four members of MSM Information Technology (IT) staff. While the group of eight faculty and administrators participated in brainstorming and categorization of the results from brainstorming, the four MSM IT staff did not participate in the priority-setting task. The IT staff were included to appreciate first-hand the user requirements that would inform the selection of appropriate IT solutions for the design and implementation of the webportal.

This FG articulated 45 unique ideas, needs, and wants during the brainstorming phase. These ideas were categorized into 9 categories in the results of the card sorting or category generation phase as shown in Table 1.

Focus group 2

This FG consisted of 10 MSM faculty including department chairs, clinical, community and basic scientists. This FG articulated 45 unique ideas, needs, and wants during the brainstorming phase that were sorted into eight categories in the card-sorting phase as shown in Table 1.

Focus group 3

This FG consisted of eight participants including members of the Institutional Review Board (IRB), study coordinators and research faculty. The group articulated 45 ideas during the

brainstorming phase that were sorted into 10 categories as summarized in Table 1. Results of the priority setting are summarized in Table 2.

Integration of group data

Five common themes were identified for the purposes of integration: Collaboration, Content, GUI (graphical user interface), Resources and Training. The 25 unique categories generated from all combining all the three FGs were collapsed into the five themes/categories. The results of the consolidation are shown in Table 3. The results of the summing up of votes and rank ordering of items are shown in Table 4. Based on the rank ordering, the final integrated priority setting captured the following top six items: 1) ability to identify researchers working on similar research areas, 2) common data management platform, 3) access to clinical trials with contact information and synopsis, 4) participant recruitment tools, 5) secure access to research databases, and 6) financial support.

Discussion

The focus group process is essentially a discovery process that was utilized to identify the top six items or requirements by MSM investigators, staff and trainees for the initial design and content of the R-CENTER CTR web-portal. As just noted, the final priority-setting step captured the following top six items: 1) ability to identify researchers working on similar research areas, 2) common data management platform, 3) access to clinical trials with contact information and synopsis, 4) participant recruitment tools, 5) secure access to research databases, and 6) financial support.

An important initial step in the development of such an application is the ability to define clearly the different audiences that the application aspires to serve. One must understand who the application is being created for and the corresponding goals, because different audiences have different needs, skills, and interests.^{6,7} These are factors that are critical to the usability of the application. FG is a method that can ensure that the real needs of real audiences would be satisfied. In addition, FGs have proved an effective, and relatively inexpensive, means of assessing users' needs.⁷ To allow for broad representation of stakeholders across MSM, participants for the three FGs were selected from basic, clinical, community and translational research departments, programs, centers and institutes, clinical departments, educational programs, as well as all core research support units such as biostatistics, informatics, and institutional review board. In addition, a number of faculty researchers serve in multiple capacities, a phenomenon quite common in minority institutions. Three focus groups were therefore adequate to cover all the relevant stakeholders and also allowed for saturation of themes. It is remarkable that the three groups consistently identified common needs and each generated 45 items during the brainstorming sessions. The focus groups were consistent in generating common themes. Access to information, tools, data and collaborators by the research community are pressing needs as the research enterprise competes for limited funding dollars. The top six items identified will be discussed under three broad domains:

1. Access to collaborators: New funding initiatives by the National Institutes of Health (NIH) are fostering and often require collaboration across disciplines and institutions. A typical Clinical Trial Portal includes a database of clinical research Investigators. The Investigator Database profiles the experience and capabilities of each Investigator and includes an online survey and ranking application to help study teams select the best Investigator for a given study.⁸ This is consistent with the top priority item identified from our FG process where investigators wanted a utility in our portal to foster research collaborations within MSM and across partner institutions. A number of institutions and CTSA's such as the Atlanta Clinical and

Translational Science Institute have developed research collaboration applications that also serve this purpose. This requirement was helpful in incorporating into our portal all these resources thus providing a one-stop-access point for collaborative tools for our research community.

2. Access to data: This entire request is a very complex and technology intense requirement of the research community. Research is about data, and having a portal that provides a secured centralized place with uniform standards for secure data management and access are very important to our research community. These requirements identified through our FG process are shared by many institutions and organizations conducting research. This requirement allowed us to design a secured access interface with multiple layers of access within the portal. For instance, MSM investigators can access the portal for research databases, but only investigators who are credentialed to access specific databases can do so. This requirement also allowed us to consider having a research information warehouse and an Honest Broker Protocol that permits faculty access to de-identified or anonymized datasets. The CTSA program is working on middleware to enable the creation of federated database access that might be considered as a potential solution to MSM faculty needs to datasets across clinical and research databases. Additionally, the research portal will provide enabling technology for staff to access publicly available databases and datasets.
3. Access to resources: This need of the research community fits well under the purview of a research portal. For instance, funding opportunities emerged as one of such needs in our findings. The name of the research game is funding. Groups 1 and 3 expressed the need to have a set of tools that permits a researcher to find funding. Unfortunately, there is not a single portal that lists all local, regional, national, and international funding. The MSM research portal has therefore been designed to provide a link to <http://grants1.nih.gov/grants/guide/> where a researcher can perform a keyword search for NIH funding initiatives as well as links to other internal and external grant funding resources. Developing a common strategy to discover and incorporate other resources for research into the MSM research portal will be an ongoing activity critical to the final discovery tool the researcher community will use locate resources.

Conclusion

In conclusion, the FG process is an iterative discovery process that generated common themes vital to the design and customization of the CTR web-portal. The three focus groups successfully brainstormed a plethora of ideas for incorporation into the MSM research portal. The sorting and priority setting yielded a finite set of high priority items. Participating faculty and staff shared new and unique ideas/suggestions for effective collaborations.

Acknowledgments

This research was supported by grant number 1 U54 RR026137, UL1 RR025008 and grant number 2R25RR017694-06A1 from the National Center for Research Resources (NCRR), a component of the National Institutes of Health (NIH).

Notes

1. Henderson L, Naomi R. Managing moderator stress: take a deep breath. You can do this! *Marketing Research*. 2009; 21(1):28–9.

2. Large A, Beheshti J, Rahman T. Design criteria for children's web portals: the users speak out. *Journal of the American Society for Information Science and Technology*. 2002; 53(2):79–94.
3. Atreja, A.; Mehta, N.; Miller, D., et al. One size does not fit all: using qualitative methods to inform the development of an internet portal for multiple sclerosis patients. *AMIA*; 2005. p. 16-20. (symposium proceedings)
4. Goldsmith, D.; Boomhower, M.; Lancaster, DR., et al. Development of a nursing handoff tool: a web-based application to enhance patient safety. *AMIA*; 2005. p. 256-60.(symposium proceedings)
5. Marshall, C.; Rossman, GB. *Designing qualitative research*. 3. London, England: Sage Publications; 1999.
6. Vaki, E.; Dallas, C.; Dalla, C. *The cultural applications: local institutions mediating electronic resources (deliverable D18): usability guidelines*. London, England: CALIMERA; 2005.
7. Boehm B. A spiral model of software development and enhancement (*ACM SIGSOFT Software Engineering Notes*). *ACM*. 1986 Aug; 11(4):14–24.
8. EoGuy, B. *Clinical trial portal*. New York, NY: IFPMA; 2002.

Table 1

SELECTION OF DISTINCT THEMES BY FOCUS GROUPS

Themes-Focus Group 1	Themes-Focus Group 2	Themes-Focus Group 3
Accessibility	Marketing	Participant Resources
Collaboration	Collaboration	Collaboration
Content	Content/Resources	Community Resources
Integration	Integration	Funding
Look & Feel	Reporting	News
Navigation	Navigation	Research Resources
Regulatory	Training	Compliance Regulatory Resources
Security	Security	Project Portal
Support		Translational Research
		Student/Researcher Training

Table 2

EXAMPLE OF PRIORITY SETTING SHOWING TOP PRIORITIES (WITH 3 OR MORE VOTES) BY FOCUS GROUP 3

Category	Votes	Item
Collaboration	3	List of current Morehouse School of Medicine research projects for collaboration
Funding	3	Funding announcements with keyword searches
Participant Resources	3	Research Participant Resources
Project Portal	3	Active Projects: Info/descriptions
Research Resources	3	Research Protocol Bank (directory of expertise)

Table 3**RESULTS OF INTEGRATION AND CONSOLIDATION OF CATEGORIES ACROSS ALL 3 FOCUS GROUPS**

Final Category	Original Category
Graphical User Interface	Accessibility
Collaboration	Collaboration
Resources	Community Resources
Resources	Compliance Regulatory Resources
Content	Content
Content or Resources	Content/Resources
Content	Funding
Content	General Information
Content	Integration
Graphical User Interface	Look & Feel
Content	Marketing
Graphical User Interface	Navigation
Content	News
Resources	Participant Resources
Content or Resources	Portal Project
Resources	Regulatory
Content or Resources	Reporting
Resources	Research Resources
Graphical User Interface	Security
Training	Student/Researcher Training
Graphical User Interface	Support
Training	Training
Resources	Translational Resources
Graphical User Interface	Usability

Table 4**RESULTS OF FINAL INTEGRATED PRIORITY SETTING SHOWING ITEMS WITH 3 OR MORE COMBINED VOTES BY ALL THREE FOCUS GROUPS**

Category	Item description	Votes
Collaboration	Ability to identify researchers working on similar research areas	17
Resources	Common Data management/extraction platform	12
Resources	Access to clinical trial info with contact info and synopsis	12
Graphical User Interface	Access to research databases (secure)—view, query, analysis, reports, studies	9
Resources	Access to shared participants once they completed a trial & are interested in new trials	7
Resources	Find financial support	6
Content	Ability to collect adverse event capture area for Institutional Review Board & RSA	5
Content	Atlanta links—traffic, weather, news	4
Resources	Research Protocol Bank (directory of expertise)	3
Resources	Virtual Reference Library	3
Resources	Web Mashup to get a return from the portal to get info against multiple databases	3
Graphical User Interface	Built in mechanism for tracking use & sun setting of use—statistics	3
Content	User specific grant opportunities—choose preferences	3
Collaboration	Conferring: webinars, video conferencing/etc. (real-time)	3