

# Investigating a Rural Rotation in the Mississippi Delta: A Qualitative Study in Medical Education

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## Abstract

With access to health care coupled with a severe shortage of physicians being on the forefront of much debate nationally and internationally, rural areas often suffer the worst. Innovations in medical education, such as the creation of rural immersion rotations, are attempting to solve this health crisis. The purpose of this study was to investigate and analyze the narrative writings of 36 fourth-year medical students and primary care residents that participated in a rural immersion rotation in the Mississippi Delta. A grounded theory data analysis led to the emergence of three central themes: professional development, contrast from academic medicine, and alteration of prior perceptions/misconceptions. The findings of this research provided rich data from the perspective of the medical student and resident.

## Key Words

Medical Education, Mississippi Delta, Qualitative Research, Rural Health

## Introduction

As of August 2011, approximately 60% of Mississippi's total population lives in Primary Care Health Professional Shortage Area or HPSA's.<sup>1,2</sup> HPSAs are designated by HRSA "as having shortages of primary medical care, dental or mental health providers and may be geographic, demographic, or institutional (comprehensive health center, federally qualified health center or other public facility)."<sup>1</sup> Jeralynn Cossman, a professor from Mississippi State University specializing in medical sociology and health services issues, argues that certain regions of Mis-

issippi, such as rural areas, are affected more so than others.<sup>3</sup> Demographically, more than half (56%) of all Mississippi physicians are located in four urban areas. According to Cossman, physicians in the Mississippi Delta are slightly more likely to be older and nearing retirement.<sup>3</sup> Cossman suggests this would indicate that future shortages could be hardest felt in the Mississippi Delta, assuming many doctors are approaching retirement and few doctors are in a position to replace them.<sup>3</sup>

With educators at the University of Mississippi recognizing the need for programs to address the shortage of future rural physicians in the Mississippi Delta, educators created a rural rotation specifically focusing in the Mississippi Delta region in Mississippi. The program was initially designed for fourth-year medical students but later became eligible to medical residents. This rural immersion program established ten training sites in seven of the 18 Mississippi Delta counties. Initially, preceptors were board-certified internal medicine physicians but later included family medicine physicians. In the inaugural year of the program, a total of nine fourth-year medical students were recruited.<sup>4</sup> After the expansion of the program to residents in 2010, a total of 17 medical students and residents participated.<sup>4</sup> With more campus-wide awareness growing, the third year of the program recruited a total of 24 medical trainees to participate in this rural immersion program.<sup>4</sup>

## Review of the Literature

The Accreditation Council on Graduate Medical Education (ACGME) reported that "one of the greatest barriers to better focused health workforce policy has been a lack of research into the causes and consequences of shortages."<sup>5</sup> With little

crucial research available, theories about the nature of shortages have been loosely conceived and often not confirmed.<sup>6</sup> Therefore, training for rural practice has become critically important in the context of continuing serious shortages of doctors and other health workers in rural areas. Rosenman and Batman recognized that “the overflow effect,” which is producing more health-care providers and expecting the excess to spill over from the cities into the rural areas, is not effective in solving the rural medical workforce shortage.<sup>7</sup> Barer and Stoddart maintain that no single strategy is likely to be successful, but multiple strategies are required at different levels of education and training, each of which will have a small effect and contribute to an overall substantial change.<sup>8</sup> However, one key series of initiatives that has been shown to be effective involves rural-based medical education.<sup>9</sup>

Strasser and Neusy found that to appreciate the requirements of rural training, it is necessary to understand rural communities, their health service needs, and the nature of rural practice.<sup>10</sup> The earlier work of Strasser discovered there are a series of key parameters that provide the framework, which determines the structure and function of rural health services and how rural practitioners work and the nature of rural practice.<sup>11</sup> Strasser suggested that these parameters or “rural realities” are: geography and demography; the rural culture; rural morbidity and mortality patterns; resource limitations; and workforce shortages.<sup>11</sup> While research of rural training programs has been investigated nationally to a limited extent, there has not been any documented investigation of rural training programs within the Mississippi Delta. In addition, there is needed research in some of the newer modes of medical education theory, such as narrative writing, being incorporated to enhance reflective learning practice and rural training programs utilizing immersion learning principles.

Strasser and Neusy maintain that, since the mid-1980s, research evidence has been accumulating regarding the specific range of knowledge and skills required by rural physicians.<sup>13</sup> Hayes and Gupta suggested that such evidence has led to the inclusion of specific curriculum content on rural health and rural practice in undergraduate medical programs and in rural-based family medicine residency programs.<sup>12</sup> These advances in medical school curricula content were brought about when researchers compared rural physicians to their metropolitan counterparts and found that rural physicians carry a higher workload, provide a wider range of services, and carry a higher level of clinical responsibility in relative professional isolation.<sup>13</sup> Also, Hogenbirk et al. discovered that these characteristics hold true for all rural health care professionals, such as nurses and pharmacists.<sup>13</sup>

Medical educators have responded with curricular reform that includes the use of learning communities and community-based education that is responsive to local needs.<sup>14</sup> Strasser and Neusy argue that immersion learning has emerged as a strategy that addresses both educational and societal needs.<sup>10</sup> Also, rural practitioners often become integral members of the community that they serve; they have a significant public health role that may

range from issues such as clean water and sanitation to community education.<sup>10</sup> On the other hand, the community serves an integral role to the learner because the local communities and health care workers become medical educators.<sup>15</sup> Furthermore, Crampton et al. suggested that the student is not just the receptacle of experience and teaching, but an active and necessary member of the health care team. The end result is that all team members become teachers and relationships start to develop.<sup>15</sup> Irby and Wilkerson discovered that some US medical schools have instituted rural clinical education programs that included an immersion component in rural communities.<sup>14</sup> These dramatic trends in health care coupled with new theories of learning have prompted significant changes in medical education.<sup>14</sup>

## Methods

The choice of a qualitative research design was determined given benefits related to the realm in medical education. Chretien, Ginsburg, and Hauer suggest that the fit between medical education and qualitative research is a natural one.<sup>16</sup> “Qualitative research is particularly well-suited to providing data on needs assessments, program development, and curriculum evaluation, and helps us understand not just what outcomes were achieved, but also the process, impact, and unintended effects.”<sup>16</sup> The inclusion criteria for the research population was limited to fourth-year medical students and primary care residents of the University of Mississippi Medical Center, who self-selected to participate in this particular rural immersion program and provide a journal upon completion of their rotation. A total of 36 journals were collected prior to analysis of the data. The type of data collected and analyzed is classified as narrative inquiry.

A grounded theory approach was utilized for this particular study. Grounded theory exists at the most abstract level of various forms or pure empirical description, such as found in life histories, simple data presentations, and other phenomenological approaches to exact reports of what is happening.<sup>17</sup> Furthermore, the purpose of grounded theory method is to build theory that is faithful to and illuminates the area under study.<sup>18</sup> From the data collected, a series of coding was used for data analysis, which consisted of open coding, axial coding (or theoretical coding), and selective coding (or constant comparative coding). Trustworthiness was ensured by the researcher utilizing a research partner. The researcher served as a detached peer and outside coder.<sup>17</sup> In order to protect the rights of human participants involved within the research, proper steps were taken to obtain permission from the Institutional Review Board (IRB).

## Results

Three themes emerged from the data analysis process: professional development, contrast from academic medicine, and alteration of prior perceptions/misconceptions. These three themes are grounded in the data analyzed. Furthermore, the use of direct quotations was largely used to support the findings of this particular research. These quotations provided insight into

the participant's live experiences during their rural rotation in the Mississippi Delta. A tabulated overview of the participant demographics was created, which consist of their participation year, educational classification, and corresponding clinical site location (see Table 1).

## Professional Development

The first theme that emerged was the concept of participants reflecting on their professional development as a result of this particular clinical rotation. Participants often acknowledged becoming more autonomous. One medical student wrote:

*"I find that this rotation has given me plenty of autonomy. I am free to order whatever lab test I see fit and with each patient I present my treatment plan..." (Participant 1).*

Participants were also able to reflect on their professional development in regards to gaining confidence in their clinical skills. One resident commented:

*"Fairly busy morning with high volume of DM [diabetes mellitus] management. I am becoming more comfortable adjusting insulin dosing" (Participant 8).*

There were also instances when autonomy and gaining confidence merged. For instance, one resident stated:

*"I made rounds at \_\_\_\_\_ Hospital and now feel comfortable seeing patients on my own" (Participant 14).*

Participants also acknowledged areas of emotional growth within this theme of professional development. One medical student reflected:

*"I don't feel bad anymore about not being able to examine her [patient]. I initially viewed it as a defeat, but I am learning to not take things so personally" (Participant 12).*

One medical student noted an area of needed growth in their professional development by the following statement:

*"I realized I am not as efficient when it comes to noticing when a disease process is presenting. The signs can be subtle" (Participant 27).*

## Contrast from Academic Medicine

The second theme that emerged was noted when participants stated how this rotation was a divergence from their clinical experiences in academic medicine. Participants often felt a sense of belonging. One medical student wrote:

*"I didn't feel like just another medical student; I felt I was wanted and needed" (Participant 19).*

Another medical student commented on how in the academic setting their experiences were more observing than participating:

*"It's so much different when doing a procedure than merely watching. As students we normally watch and rarely get to do!" (Participant 24).*

One medical student remarked how the academic setting does not prepare future physicians on the business management portion of practicing medicine.

*"Nowhere else in medical school training we get to work in a private physician's clinic and learn the ins and outs of running a successful practice" (Participant 32).*

Another medical student suggested their idea for improving the relationship between training in the academic setting versus real-world medicine:

*"The way rotations are set up for junior and senior medical students is NOT a reflection of real-life medicine. I also think every student should spend at least one month in a community setting in the specialty they wish to pursue. This is the only way to improve the real-world understanding of what practice will be like if we chose to practice in a non-metropolitan area" (Participant 34).*

Participants also contrasted how clinical decision-making can be different. One resident noted:

*"How ironic that in training we are told to limit antibiotics in clinic to prevent resistance and then in the private sector they are so widely distributed to appease patients" (Participant 29).*

## Alteration of Prior Perceptions/ Misconceptions

The final theme that emerged from the data analysis was the concept of participants changing prior perceptions and sometimes misconceptions as a result from this experience.

An example of a participant changing their perception of practicing in a rural setting is noted when a medical student stated:

*"When I started this rotation, I was not really at all considering doing general practice and didn't expect that to change. However, I am considering it much more seriously after this rotation. I kind of like the idea of being a small-town doctor. I would like to be able to fill that role" (Participant 5).*

One resident reflected on how their experience not only altered their view of practicing medicine in an underserved area but could have impacted their previous clinical experiences:

*"The benefits of working here far outweigh the negatives . . . I wish I had it [rotation] earlier in my first year. The things I've learned here would have helped me in a number of my previous rotations . . . It has definitely made me consider working in an underserved community after graduation.*

**Table 1:** Participant Demographics

PARTICIPANT NUMBER	PARTICIPATION YEAR	EDUCATIONAL CLASSIFICATION	SITE LOCATION City – County
1	2009	Medical Student	Greenwood – Leflore Co.
2	2009	Medical Student	Cleveland – Bolivar Co.
3	2009	Medical Student	Belzoni – Humphreys Co.
4	2009	Medical Student	Belzoni – Humphreys Co.
5	2009	Medical Student	Vicksburg – Warren Co.
6	2010	Medical Student	Belzoni – Humphreys Co.
7	2010	Medical Student	Lexington Holmes Co.
8	2010	Resident	Belzoni – Humphreys Co.
9	2010	Medical Student	Cleveland – Bolivar Co.
10	2010	Medical Student	Belzoni – Humphreys Co.
11	2010	Medical Student	Belzoni – Humphreys Co.
12	2010	Medical Student	Lexington –Holmes Co.
13	2010	Resident	Vicksburg – Warren Co.
14	2010	Resident	Vicksburg – Warren Co.
15	2010	Medical Student	Cleveland – Bolivar Co.
16	2010	Resident	Cleveland – Bolivar Co.
17	2010	Medical Student	Greenville – Washington Co.
18	2011	Resident	Greenwood – Leflore Co.
19	2011	Medical Student	Lexington – Holmes Co.
20	2011	Medical Student	Vicksburg – Warren Co.
21	2011	Medical Student	Lexington – Holmes Co.
22	2011	Resident	Mound Bayou – Bolivar Co.
23	2011	Resident	Mound Bayou – Bolivar Co.
24	2011	Medical Student	Belzoni – Humphreys Co.
25	2011	Medical Student	Belzoni – Humphreys Co.
26	2011	Medical Student	Belzoni – Humphreys Co.
27	2011	Medical Student	Cleveland – Bolivar Co.
28	2011	Medical Student	Belzoni – Humphreys Co.
29	2011	Resident	Cleveland – Bolivar Co.
30	2011	Resident	Mound Bayou – Bolivar Co.
31	2011	Resident	Mound Bayou – Bolivar Co.
32	2011	Medical Student	Yazoo – Yazoo Co.
33	2011	Resident	Mound Bayou – Bolivar Co.
34	2011	Medical Student	Vicksburg – Warren Co.
35	2011	Resident	Mound Bayou – Bolivar Co.
36	2011	Resident	Mound Bayou – Bolivar Co.



*Before this rotation I wouldn't have ever given it a second thought" (Participant 30).*

Participants also re-evaluated prior misconceptions. For instance, one medical student stated:

*"Most people think that general internists make less than 200K per year, but the physicians in this office are making 2-3x this amount . . . I have always thought that internists were underpaid . . . This is a huge misconception" (Participant 34).*

Another medical student commented:

*"I had been to the Delta before but had never been in the area of medicine. I actually expected the place to be rundown and in a poor condition based on what I heard about the Delta . . . Before this experience I only knew what I heard about the Delta healthcare. I see the Delta in a brighter light. When I finish my training in family medicine, I will definitely consider practicing in the Delta" (Participant 19).*

An example of a resident expressing this concept was found in the following statement:

*"I'm actually starting to like doing clinic work, something I've disliked in residency and grown to hate . . ."* (Participant 29).

## Conclusion

As referenced in the review of literature there is a lack of research and knowledge of rural training programs as a whole, and this gap in research has been linked to be a fundamental cause of the physician shortage. Therefore, the findings from this qualitative study suggest that the use of narrative inquiry can be an asset in the realm of medical education. For instance, when the Mississippi Delta is often cited in health publications, there are generally negative connotations implicated regarding its poor health outcomes. Because of these connotations, it would be reasonable to assume future physicians form perceptions or biases regarding the health and health care in Mississippi Delta. Pathman, Konrad, Dann, and Koch argue it is primarily perceptions that link the multitude of factors to retention in underserved areas, and perceptions can be inaccurate.<sup>19</sup> As evidence of the third theme, participant attitudes, insights, and future career decision-making featured in the journals could dispel some of these incorrect perceptions toward practicing medicine in the rural Mississippi Delta.

Additional knowledge of rural training programs better informs medical educators on how to make decisions concerning facilities for practices and rural clinic and hospital partnerships to better accommodate the teaching and training of medical students and residents. Furthermore, promoting educational collaboration between rural physicians of the Mississippi Delta and the University of Mississippi Medical Center could lead to training

consortiums to integrate clinical experiences and teaching commitments. The importance of this promotion could alleviate the load of overburdened staff and resources while improving the health of many rural Mississippi Deltans.

Future research should continue to invest in and investigate rural immersion programs, such as this one. While studying quantitative research in the rural physician shortage is useful, perhaps future research can investigate this issue using mixed methodology. Qualitative results, such as the ones focused on in this research article, can be a great source in providing richer data on the social issues behind this phenomenon.

## Limitations

One limitation of the study is noted geographically. Although the research setting included multiple site locations, which are all considered rural counties by US Census Bureau data, the research only utilized seven of the 18 Mississippi Delta areas. Therefore, the findings of this research may not be applied in broader contextual terms representing all areas of the Mississippi Delta. Since qualitative methodology was utilized, which centered on the lived experiences of the participants, the findings of this research cannot be generalized to the larger population of medical students and residents.

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