Who Will Take Care of Our Mothers?
By: Jessica L Triche

Scope of this Paper
“Increased liability insurance fees, litigation for ‘bad babies’, refusal of some obstetricians to participate in back-up care for family physicians, and a decrease in young family physicians practicing obstetrics”\(^1\) were cited as reasons for the decreasing number of family physicians providing obstetrical care IN 1991! 15 years later, these are the exact same reasons the declining numbers continue.

This report will address the issue of lack of access to obstetrical care in rural North Carolina, more specifically the eastern portions of the state, and how it can result in increased barriers to prenatal care and increased infant mortality rates. Obstetrical care can be provided by obstetricians/gynecologists, family physicians, midwives, and county health departments. This paper will focus on the most recent trends of practicing OB/GYN and family physicians providing obstetrical care within the state and compare it to the previous 15 years. This paper also investigates the reasons why physicians do not practice obstetrics in rural areas and seeks to provide possible solutions to the problem of lack of access.

Background
Primary care physicians include family physicians, obstetricians/gynecologists, pediatricians, and/or general internal medicine physicians. Obstetrical care can be provided by primary care providers in the form of OB/GYN physicians, midwives, and family physicians. There is a need for more obstetricians, while at the same time, numerous barriers to improving access. No recent programs or legislative issues have addressed this issue.

North Carolina is divided into 6 Perinatal Care Regions based on geography. These regions were designed to help evaluate areas where infant mortality was high and to help track prenatal care\(^2\). Much of the data in this report will be divided into the PNC regions. In addition, for this paper, PNC V and VI may be combined together and referred to as “eastern” North Carolina.

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Perinatal Care Regions of North Carolina
### Statement of Primary Problem

In 1991, The North Carolina Academy of Family Physicians stated, in a report, that North Carolina had a crisis involving access to obstetrical care. With too few practicing obstetricians in the state, North Carolina ranked 50th in infant mortality with 12.6 infant deaths per 1000 live births. It was around this time when the decline in the number of family physicians providing obstetrical care began. In 1985, 350 out of 1200 (29.2%) family physicians provided obstetrical care. By 1989 there had been a significant decline in this number, with only 115 of North Carolina’s 1400 Family Physicians (8.1%) providing obstetrical care. 15 years later the crisis of obstetrical care access continues. There has only been a limited amount of changes and only in certain areas of North Carolina. Rural areas continue to be underserved with the largest disparity found in the eastern part of the state.

<table>
<thead>
<tr>
<th>PNC I Western</th>
<th>PNC II Northwestern</th>
<th>PNC III Southwestern</th>
<th>PNC IV Northeastern</th>
<th>PNC V Southeastern</th>
<th>PNC VI Eastern</th>
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<td>Wayne</td>
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<td>Wilson</td>
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In 1991, 19 counties in North Carolina had no obstetrical services at all. Another 18 counties had only one provider of obstetrical services\(^1\). 15 years later there has been little change in the obstetrical access in North Carolina. In 2004, there were 25 counties that had no OB/GYN. Family physicians provide obstetrical care in 3 of these counties for a total of 22 counties without any physician driven obstetrical services. 3 more counties since the 1991 report. An additional 11 counties in NC only have one obstetrician\(^8\). This means that over one-third of the state’s counties face limitations accessing obstetrical care. With only 75% of NC’s OB/GYNs even delivering babies, these limitations are sure to increase\(^13\).

Since 1998, the state ratio of OB/GYN per 10,000 women has stayed exactly the same. Half of the perinatal care regions have seen the ratio decline since 1998. In addition, as of 2004, all but two PNC regions were below the North Carolina average of 2.26 OB/GYN per 10,000 female population. In both 1998 and 2004, all PNC regions except the Northeastern (IV) region were below the US average of 2.86 OB/GYN per 10,000 females\(^2,8\). In many North Carolina regions, a large metropolitan area can skew results so that there appears to be an adequate number of obstetrical care providers. For example, Orange County contains the town of Chapel Hill, along with a medical school and tertiary care hospital, in addition to the numerous clinics that surround it. The OB/GYN ratio per 10,000 females for the perinatal care region that contains the county is 3.06. If Orange County, which has the highest ratio in the state at 8.57, is removed from PNC IV, this number drops to below the national average, a 70% decrease\(2.62\). Subtracting the other county in the region with a medical school, Durham County, the ratio drops to an alarming 1.95 OB/GYN per 10,000 females, 77% lower than the original ratio. This is an indication of how large healthcare facilities concentrated in small areas result in better access to healthcare for a limited number of people. There has also been a continued difference in access to obstetrical care in nonmetropolitan areas compared to metropolitan areas. Since 1998, the ratio of OB/GYNs per 10,000 females has increased only slightly in nonmetropolitan areas from 1.51 to 1.57. However, metropolitan areas continue to have a rate much higher than that of rural areas and the state average. In 2004 the ratio was 2.73 OB/GYN per estimated 10,000 females\(^2,8\). This underscores the barriers rural women in North Carolina face in obtaining obstetrical care compared to their urban counterparts.
Geographically, one can see that there is a trend across the state of physicians decreasing both deliveries and prenatal care. From 2000-2004, 40 counties lost physicians performing deliveries. This exacerbates the already established problem of low provider numbers\textsuperscript{11,12}.

**Percent Change in Physicians Providing Deliveries per 10,000 Childbearing Population**

North Carolina 2000 to 2004

**Physicians Providing Deliveries per 10,000 Childbearing Population**

North Carolina 2004
Also during this time, 37 counties saw decreasing numbers of prenatal care providers and 6 counties that had no physician to even provide routine prenatal care\textsuperscript{11,12}. Although the trend was across the state, the eastern portions had fewer physicians providing obstetrical care to begin with. The result is large geographical areas with no obstetrical services. This means that women who may have been receiving some obstetrical care in their community, planning to deliver at a distant hospital, may now have to travel long distances to even have any prenatal care.

Eastern North Carolina continues to have the worst access to obstetrical care. In 2004, the two eastern perinatal regions, V and VI, had the worst OB/GYN per 10,000 female ratio in the state, a low 1.95. The Eastern region, VI, has seen a decline in the ratio since 1998. Neither eastern perinatal region has significantly increased the ratio of OB/GYNs per population since 1993, compared to the remaining part of the state, which has seen improvement overall. If the major metropolitan county in each region, each with large hospitals and healthcare centers, is removed there is a resulting drop in the OB/GYN per female population ratio. For example, if New Hanover county is removed from PNC V, the OB/GYN per female population ratio drops to 1.46 OB/GYN per 10,000 females, a 25% decrease. If PNC VI loses the physicians in Pitt County, which contains the Brody School of Medicine, there is a 15.4% decrease in the ratio, lowering the number to 1.65 OB/GYN per 10,000 female population.

Thirteen of the state’s counties with no OB/GYN provider are located in PNC regions V and VI. In PNC V, six counties have a decreasing trend in OB/GYNs per population ratio and 3 counties had no obstetrician from 1993-2004. In PNC Region VI, 11 counties show a decreasing trend in practicing OB/GYN physicians. Ten counties do not have an OB physician. Table 1 demonstrates how eastern North Carolina has not significantly increased the number of obstetricians in deficient counties, while the remaining parts in the state have seen improvement.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>PNC V and VI (Eastern NC)</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counties with NO OB/GYN 1993</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Counties with NO OB/GYN 2004</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Counties with One OB/GYN 1993</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Counties with One OB/GYN 2004</td>
<td>5</td>
<td>6</td>
</tr>
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</table>
The decline in family physicians practicing obstetrics has also contributed to the obstetrical care access problem. In 1985, 350 out of 1200 (29.1%) North Carolina family physicians provided obstetrical care. This number was greatly reduced by 1989 when only 115 out of 1400 (8.14%) family physicians practiced obstetrics. Although the percentage has increased slightly since 1989, it has leveled off recently. In fact, after a spike in 1994 of 15.2%, the numbers once again declined. Another 2004 calculation demonstrates that the 2004 percentage is actually a lower than the 10% listed in Table 2. The recalculated percentage is 8.6% 2,8. This is just above what it was 15 years ago! The percentage is also much lower than the national average. Across the US, the percentage of family physicians providing obstetrical care was 22.4% in 2004, over double North Carolina’s percentage that same year27. From 2003 to 2004, over half of the physicians that stopped performing deliveries in NC were family physicians. This makes up a lopsided proportion since family physicians make up only 10% of all physicians delivering babies13.

### Trends in Physicians Delivering Babies

<table>
<thead>
<tr>
<th>Year</th>
<th>OBGs</th>
<th>OBGs Delivering</th>
<th>% OBGs</th>
<th>OBGs Delivering</th>
<th>% OBGs</th>
<th>FPs</th>
<th>FPs Delivering</th>
<th>% FPs</th>
<th>OBGs Delivering</th>
<th>% OBGs</th>
<th>FPs</th>
<th>FPs Delivering</th>
<th>% FPs</th>
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<tbody>
<tr>
<td>2000</td>
<td>919</td>
<td>651</td>
<td>70.8%</td>
<td>74.8%</td>
<td>77.8%</td>
<td>78.1%</td>
<td>76.2%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2001</td>
<td>937</td>
<td>701</td>
<td>74.8%</td>
<td>78.1%</td>
<td>76.2%</td>
<td>960</td>
<td>78.1%</td>
<td>10.2%</td>
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<tr>
<td>2002</td>
<td>954</td>
<td>742</td>
<td>77.8%</td>
<td>78.1%</td>
<td>76.2%</td>
<td>981</td>
<td>9.9%</td>
<td>9.9%</td>
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<tr>
<td>2003</td>
<td>960</td>
<td>750</td>
<td>78.1%</td>
<td>78.1%</td>
<td>76.2%</td>
<td>228</td>
<td>9.9%</td>
<td>9.9%</td>
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<tr>
<td>2004</td>
<td>981</td>
<td>748</td>
<td>76.2%</td>
<td>76.2%</td>
<td>76.2%</td>
<td>227</td>
<td>9.9%</td>
<td>10%</td>
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</table>

**Table 2**

A major factor in the decline in number of both family physicians practicing obstetrics and the number of OB/GYNs in rural areas is the overall decline in the number of physicians entering the primary care field and, more pertinent to this paper, the decline in numbers of family physicians. Many areas continue to have a shortage of family physicians. Eastern portions of North Carolina continue to lag behind the state average in family physicians per 10,000 population. PNC Region V has not significantly increased this ratio since 1998. Nine counties in PNC VI had 2 family physicians or less. These were the same counties with no obstetricians2,8. A recent study within North Carolina shows that the population of the state is increasing as the growth of the number of primary care physicians slows down13.
The number of new family physicians and obstetricians in the state is lower than other fields of medicine. 19% of new physicians in 2004 were internists (specialty not specified), 13% were family medicine, 9% pediatrics and only 5% were OB/GYN. The remaining 54% of new physicians were specialists of some sort. Much of the growth seen within the internal medicine field is related to the increasing number of residents specializing within the field. More students and residents have become interested in areas such as dermatology and cardiology due to better work hours and higher pay. This decreases the number of primary care physicians.

Newly Licensed Patient Care
Primary Care Physicians in North Carolina

Source: NC Health Professions Data System, Sheps Center from data Provided by the North Carolina Medical Board

New NC Primary Care MDs 2004

The decreasing trend in primary care physicians is evident when looking at primary care residencies. In 1990, the number of Family Medicine interns over the previous 2 years had declined by over 16%. Also by this time, interest in primary care among students had declined by over 38%. Since the initial 1991 NCAFP report, this number has continued to decline. At the Brody School of Medicine in 2006, only 12% of the class entered a Family Medicine residency program. This is almost half the average for the past 10 years (23.4%). The other North Carolina medical schools have also seen a decrease in graduating students entering family medicine residencies over the past 10 years. There has been an average decrease of 32% over the past 4 years compared to the previous 4 years (Table 3). Adding to the problem, Duke closed its Family Medicine Residency program in the Spring of 2006 and will no longer be accepting new residents into the program.

Table 3

<table>
<thead>
<tr>
<th>North Carolina Medical School</th>
<th>Average Percentage Graduating Students entering Family Medicine Residency Program 1995 through 1999</th>
<th>Average percentage Graduating Students entering Family Medicine Residency Program 2000 through 2004</th>
<th>Percent Change in Graduating Students Entering Family Medicine Residency Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brody School of Medicine</td>
<td>26.19</td>
<td>17.76</td>
<td>-32.2</td>
</tr>
<tr>
<td>Duke University</td>
<td>5.18</td>
<td>3.02</td>
<td>-41.7</td>
</tr>
<tr>
<td>Wake Forest University</td>
<td>14.82</td>
<td>10.24</td>
<td>-30.9</td>
</tr>
<tr>
<td>UNC-Chapel Hill</td>
<td>15.74</td>
<td>12.18</td>
<td>-22.6</td>
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</table>
North Carolina medical schools have also experienced a decreasing trend in the number of students entering primary care. The Brody School of Medicine saw the percentage of students entering all primary care residencies drop in 2006. Despite the drop, the percentage this past year was equal to the average over the past 10 years, 68%. One reason this average has been maintained is the increasing number of internal medicine and medicine/pediatrics students graduating. 36% of students included in the primary care count were entering Internal Medicine (including specialties), Internal Medicine/Pediatrics, or Internal Medicine/Emergency Medicine fields. With the exception of 2006, the number of OB/GYN students has decreased over the past 4 years.

**The Patient’s Point of View**

What is the affect of these barriers? In North Carolina, women continue to experience barriers to prenatal care. Prenatal care is important to detecting pregnancy risks and complications and improving the health of both mother and child. In 2001, 81% of NC women were able to obtain prenatal care during the first trimester. Although this was up from 4 years earlier, it is still well below the Healthy People 2010 goal of 90%. A 2003 NC Pregnancy Risk Assessment Monitoring System (PRAMS) report stated that 18.4% of women reported barriers to receiving prenatal care. Of the group of women who experience barriers, almost a third could not get an appointment any earlier during their pregnancy. This is most likely the result of the low numbers of practicing obstetricians. Twenty five percent of women experiencing barriers did not have enough money or insurance. An additional 5.6% did not have transportation. The remaining 38.1% cited various other reasons. The eastern portions of NC experience the greatest barriers. PNC V women stated they experienced barriers 23.3% of the time. PNC VI women experienced barriers 20% of the time. Both are above the state average. Pregnant women in the Southeastern perinatal region (V) were most likely to cite not being able to get a prenatal appointment at an earlier date as their barrier. This occurred much more frequently than the state average, 37.2% of the time. The PRAMS survey also addressed the distance to the prenatal care provider. Eastern North Carolina women must drive longer distances to reach the closest obstetrical care provider. 10.2% of women living in PNC V drive over 30 miles for an appointment with a prenatal care provider. 8.6% of women living in PNC VI also experience this barrier. The state average of pregnant women driving over 30 miles for care is 6.7%. What is even more remarkable is the fact that in both eastern NC regions, over 61% of these women have to drive this distance, as it is the closest provider. Taking into account the decreasing number of physicians providing these services this percentage is surely to increase over the next few years.

Another indication of the barriers women face in North Carolina is the percentage of women who state they receive their prenatal care at hospital clinics and health departments. The PRAMS report assessed this trend. The average percentage of women receiving prenatal care at hospital clinics and health departments is 11.5% and 16.5%, respectively. 66.8% of pregnant NC women receive their care from a private physician. However, in the two most poorly served obstetrical care areas, PNC V and PNC VI, the percentages of those receiving care with private physicians are lower. In PNC V, only 58.2% receive care from an MD or HMO according to the survey. Seven percent receive care in a hospital clinic and an additional 13.1% receive care at health departments. In PNC VI, only 56.7% of pregnant women in this area say they visit private physicians. 16.5% of women obtain care from a hospital clinic and 21% say they go to the health department for their care. This difference is a direct reflection on the low numbers of physicians practicing obstetrics. Both PNC V and VI have the lowest ratios of OB/GYN to 10,000 females. For many of these women, health departments and hospital clinics are the only means they can obtain prenatal care.
Why the Problem Should be Addressed

“Research has associated a lack of adequate obstetric care with increased infant mortality, low birth weight, and poor maternal and child health outcomes.” Women who do not receive prenatal care, or start late in the pregnancy are three times as likely to have children with low birth weight and are five times more likely to die than those who receive prenatal care on time. Prenatal care is important in detecting problems with pregnancy, congenital defects, and high risk factors such as alcohol and drug use among women. The lack of physicians providing obstetrical care can create barriers to prenatal care for women in rural areas, which results in many of these problems. A Washington State study shows that women who have to go outside their community to a hospital that has labor and delivery facilities are more likely to have complications during the childbirth. Children from these areas also have higher rates of prematurity than babies in other areas. This study also showed newborns in “high-outflow” areas generate more expensive hospital charges and have a longer length of stay than newborns in areas that have greater access to obstetrical care. High-outflow areas are those in which over 2/3 of births to women in a region do not occur in the local hospital. The authors give several explanations for these trends. The first is the further women have to travel to obtain obstetrical care, the harder it is to obtain continuous and routine prenatal care. For some women, because of long distances and transportation problems, they begin prenatal care later on in the pregnancy. For others, the distance is so great that they many not even receive prenatal care at all. Going to hospitals outside the community also creates risks. Time between the onset of labor and arrival at the hospital is increased, creating potential complications. There is also the added stress of going to a facility that one is not familiar with.

In 1988, North Carolina ranked last in the United States in infant mortality with a rate of 12.6 deaths per 1000 births. It was at this time that the state began to initiate programs that were designed to help reduce the infant mortality numbers. Although infant mortality has greatly improved, now at 8.8 deaths for every 1000 births, it still ranks 45th in the nation. The gap between the national and state average has also begun to increase again as the national rate declines. The increasing gap and the poor ranking indicate that women in North Carolina need more services and easier access to maternal and infant care services.
Certain rural regions and counties continue to have infant mortalities far worse than both the NC and US averages. Perinatal Care Regions III, V, and VI continue to have very high infant mortality rates. The highest rates are in the eastern regions. The latest 2005 numbers have just been published and these regions have, once again, seen an increase in infant mortality rates. PNC V climbed from 10.2 to 10.4 and PNC VI climbed from 9.4 to 10 infant deaths per 1000 births. This occurred despite the fact that the state rate remained steady during the past year. Areas III and V have worse infant mortality rates than in 1998 increasing from 7.4 and 9.8 to 9.2 and 10.4, respectively. The decreasing numbers of physicians providing obstetrical care, both OB/GYNs and family physicians, has caused this increase. Also consistently throughout this time, the nonmetropolitan regions of NC continued to have infant mortality rates well above the state average at 9.6 infant deaths per 1000 births. Infant mortality levels will not correct without improving access to obstetrical services within the state.

Barriers to Practicing Obstetrics

**Liability**

Why is obstetrical care one of the hardest hit areas regarding medical liability? The field is considered a high risk one. Both the mother and the child are considered patients and the physician can be held liable for the child up until the age of 18. In addition, medical malpractice cases involving infants tend to be the most expensive. Overall, in 2000, “of 28 medical specialty groups, OB/GYNs ranked first in the number of claims and the highest average cost of defending against a claim”19. Like all physicians, family physicians are also feeling the effects of the increasing costs of liability.

So what does it cost to practice obstetrics in North Carolina? That can depend on whether you are an OB/GYN or a family physician practicing obstetrical care. One medical liability provider, Medical Protective, even alters the rates based on the location of the physicians. Medical Protective charges almost $30,000 more for OB/GYNs practicing in eastern NC counties compared to those in the central and western portions of the state. Unfortunately, these medical malpractice premiums are higher in regions where there are already low numbers of obstetrical providers. According to the North Carolina Department of Insurance, in North Carolina the average medical malpractice premium for a practicing obstetrician/gynecologist is almost $70,000. The average premium for a Medical Mutual client is higher
at $82,000. In 1998, these premiums were much lower, with the average OB/GYN paying about $33,000 for malpractice insurance. There were also more companies offering coverage. The increase in average malpractice liability, in that span, was an outstanding 115%29. A Virginia study conducted in 2004, showed that North Carolina obstetrical/gynecology medical liability rates may have been even higher, at $60,000-$155,000 per year37. This number was also cited by a source from the NC Hospital Association21.

It costs less for a family physician to purchase malpractice insurance. However there is a marked difference in premiums between family physicians who practice obstetrics and those who do not. The average cost of medical malpractice for a family doctor without obstetrical services is $11,000 if no surgical procedures are included in the practice. This rate increases to almost $17,000 if minor procedures are included. However the average cost more than doubles when obstetrics is added to the practice, with the average premium costing over $35,000. Once again the premiums are higher for Medical Protective clients in PNC V and VI, the eastern portions of the state. Medical Mutual of NC bases premiums for family physicians on how many deliveries are performed. The more deliveries a family physician performs, the closer the rates will be an OB/GYN29. If there are less than 50 deliveries, the premium is $19,402. If there are less than 100 deliveries a year the premium increases to $34,734. If a family physician delivers more than 100 babies a year, the medical liability premium skyrockets to that of an OB/GYN, $82,083 a year39. In 1998, the average liability premium for a family physician performing no surgeries was about $4800 and $6500 if minor surgeries were included. This rate increased to over $16,000 if the physician performed deliveries. This average does not calculate the Medical Mutual premiums which are based on number of deliveries, which was not available in print. Adding this in, the rates would be even higher. Since 1998 there has been a 51% increase in liability premiums for family physicians practicing obstetrics29.

<table>
<thead>
<tr>
<th>Medical Liability Cost</th>
<th>OB/GYN</th>
<th>Family MD(minor procedures)</th>
<th>Family MD w/ OB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>$33,000</td>
<td>$6500</td>
<td>$16,000</td>
</tr>
<tr>
<td>2006</td>
<td>$70,000</td>
<td>$17,000</td>
<td>$35,000</td>
</tr>
<tr>
<td>Percent Change</td>
<td>+115%</td>
<td>+162%</td>
<td>+51%</td>
</tr>
</tbody>
</table>

Although, on paper, the malpractice premiums are less expensive for family physicians overall, one must keep in mind that the annual income is less for this field. In 2004, the average income among American Academy of Family Physicians(AAFP) members across the country was $143,000. In the South Atlantic region, which includes North Carolina, the income was lower, at about $138,00030. These incomes do not differ greatly from incomes in 1998. The mean income for AAFP physicians in 1998 was $134,000. For the South Atlantic region, the income was not significantly different from 2004, with an average of $137,50030. Family physicians across the nation make slightly more money if they perform deliveries. In 2004, the AAFP average salary for these physicians was $150,000. However, in North Carolina’s South Atlantic region, the average income for family physicians performing deliveries was an astounding 11% less than those who do not deliver babies30! The average income of all physicians in 2004 was $180,000, no change from 2003. A Medical Economics Magazine study showed that family physicians saw a 2% decrease in average income from 2003-2004. This study also indicates that rural physicians
make an average of $15,000 less than urban doctors. The current highest salaries are among specialists, including an average of $400,000 for invasive cardiologists, $300,000 for noninvasive cardiologists, and $266,000 for dermatologists. The lower averages are among the primary care physicians. OB/GYNs earn an average of about $200,000. These changes come during times of increased inflation. For family physicians, this relatively stagnant average income in combination with increased inflation and medical liability costs have caused many to stop obstetrical services. For many students, this has led them to pursue alternative fields of medicine.

<table>
<thead>
<tr>
<th>Average Income</th>
<th>1998</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>OB/GYN</td>
<td>$195,750</td>
<td>$200,000</td>
</tr>
<tr>
<td>US Family MD</td>
<td>$134,000</td>
<td>$143,000</td>
</tr>
<tr>
<td>NC Family MD</td>
<td>$137,500</td>
<td>$138,000</td>
</tr>
<tr>
<td>NC Family MD w/ OB</td>
<td></td>
<td>$122,900</td>
</tr>
<tr>
<td>US Family MD w/ OB</td>
<td></td>
<td>$150,000</td>
</tr>
</tbody>
</table>

What is the result of increasing liability costs? In 2003, the American Medical Association (AMA) declared that North Carolina was in a crisis condition secondary to medical malpractice liability. There are 19 other states also in a crisis condition. In other crisis states physicians have moved to states with lower premiums, restricted the types of patients they were willing to see, and have even closed their practices. Physicians in North Carolina may follow suit. According to the NCAFP Issue Brief #3, there were 26 counties without obstetricians in 2003. "In many of those counties, Family Physicians provide the only obstetrical and delivery care available." A survey of NCAFP members at this time showed that of the 12.7% of members who practice obstetrics, 93.1% consider malpractice issues as a concern. 86.9% of Academy members stated their medical malpractice premiums increased, in one year, an average of 57.87%. Only 65.7% of those practicing obstetrics still perform deliveries and 25% of these are considering stopping this service. Most surveyed stated that increasing malpractice costs were the predominate reason to stop delivering babies. If these NC family physicians were to stop delivering, almost a quarter of them stated that their patients would have to leave their community to find care. The AAFP website lists tables that shows that 13.7% of Academy members in the South Atlantic region (includes NC) deliver babies. This is much lower than the national rate of 22.5%. North Carolina has an even lower rate. Of those who do not provide OB deliveries, 9.2% cited liability costs or suits as a factor and an additional 3.1% stated that the hospital did not have an OB department.

A study conducted in Texas indicated that 23% of Family Physicians had stopped providing obstetrical care from 1999 to 2005. Reasons for no longer providing the service included the high cost of medical malpractice and the need for liability reform. Another recent study of West Virginia physicians demonstrated that 40% are considering stopping obstetrical care, retiring, or leaving the state secondary to rising medical malpractice premiums. Family physicians in Washington State experienced a 75% increase in liability premiums from 2000-2004, more than that of OB/GYNs. Half of the family physicians faced restrictions by their medical malpractice insurer. Most of these restrictions involved vaginal births after cesarean deliveries and high-risk patients. OB/GYNs did not have these restrictions placed as often. 27.4% of the Washington family physicians decreased the number of deliveries in this time span. Family physicians, in addition to having the largest premium increase, also had the highest per-delivery rate liability insurance, more than $300 per delivery. These barriers have resulted in less family physicians providing obstetrical services, increased call time for those still practicing, and decreased referral sources in the state.
Reimbursement

Low reimbursement is another factor preventing both family physicians and OB/GYNs from practicing obstetrics. Medicaid is a major factor in low reimbursement. Family physicians provide many obstetrical services to the Medicaid population. For example, in Maine, 44% of all family physician labor and delivery care was for Medicaid recipients. This is a much greater proportion than OB/GYNs in the state who see 29% of their labor and delivery patients covered by Medicaid. “The purpose of Medicaid is to remove a barrier to access by providing payment to providers for services delivered to Medicaid beneficiaries.” However, Medicaid pays less for reimbursement than Medicare and private insurance. This problem is even more relevant when one factors in that rural physicians tend to see a higher percentage of these patients. According to the AAFP, across the nation Medicaid patients make up 17.3% of family medicine patients in rural areas. This percentage is higher in the South Atlantic region, which includes North Carolina, where a quarter of family medicine patients are covered by Medicaid. “Over one-third of all births are paid for by Medicaid.” This, itself, creates a barrier for low income women since many physicians will not provide obstetrical services to Medicaid patients. Rural areas also tend to see a disproportionately higher number of uninsured patients. This, too, results in problems for physician reimbursement.

Lack of OB/GYN Support

Lack of support from local obstetrician/gynecologists is another reason why some family physicians cannot provide obstetrical services. In rural areas, family physicians may require a backup OB/GYN to assist in surgical deliveries, complicated pregnancies, and emergency deliveries. A study done in SC demonstrated that less than one half of OB/GYNs surveyed believe that family physicians should provide pregnancy care. The percentage of those in support was higher if the OB/GYN worked in an area with a family physician who provided obstetrical care. Obstetricians over age 60 were also more likely to support a family physician providing OB services. This raises the concern of what will happen to obstetrical access when these physicians retire. A Virginia physician states that family physicians in the state have similar problems. Many OB/GYN doctors are unwilling to provide C-section backup because providing this service increases their own premiums.

Lifestyle

Lifestyle concerns are also reasons why family physicians and obstetricians/gynecologists are shying away from providing obstetrical services. 57.1% of family physicians surveyed by the American Academy of Family Physicians stated they had no desire to practice obstetrics. Studies indicate that this lack of desire was related to lifestyle issues. When some family physicians in the southeast were asked their reasons for not providing obstetrical services, many also stated lifestyle limitations and call schedules as deciding factors. Medical students, hear about the “horrors” of work hours for OB/GYNs and how it prevents them from having a “normal” life. They are told how family physicians practicing obstetrics also face these lifestyle limitations. Some have changed their career plans because they wanted to find a field that would allow for more family time. These lifestyle concerns are barriers for many upcoming physicians.

Small hospitals

Another reason many physicians cannot practice obstetrics in rural areas is that small, regional hospitals do not have labor and delivery facilities because of financial constraints. Rural hospitals face the same increasing medical liability premium increases as individual providers. Some hospitals have had to close down or discontinue obstetrical services due to this. According to a source at the North Carolina
Hospital Association, the number of small hospitals in rural North Carolina has decreased dramatically over the past 5-10 years. Increasing malpractice costs and low reimbursement is the main reason. This source states that rural hospitals have seen even higher premium increases than listed with the NC Department of Insurance21.

**Resident Training**
Deficiencies in obstetrical training among family physicians can also contribute to the problem. Many family physicians feel they have not had adequate obstetrical training during their residency. Although most physicians feel comfortable performing vaginal deliveries, many do not receive training in surgical deliveries and emergencies. Some hospitals will not grant family physicians obstetrical privileges due to this, again decreasing access in certain areas. Medicaid pays only the delivering physicians so that if a family physician worked with a mother during labor, but the patient ultimately needs a C-section, the physician performing the surgery would get reimbursed, not the family doctor who participated in hours of care. If the family physician had been trained and then granted surgical privileges, she would have received the reimbursement21.

**Recommendations**

1). **Promote and Support Primary Care in Rural North Carolina**

*Background*
The underlying issue of the lack of obstetrical services within North Carolina is that of the dwindling numbers of primary care physicians. Obstetricians and family physicians have seen the greatest decline of new graduates within the fields of primary care. This is a nationwide trend, although rural North Carolina seems be one of the hardest hit areas. North Carolina must increase the numbers of obstetricians and family physicians in rural areas. There should be increased emphasis on family physicians to practice obstetrics. The National Rural Health Association stated in 2005 that Family Physicians providing obstetrical care is a key element to maternity care in rural areas15. An example of the importance of family physician driven obstetrical care is in Maine where, out of all labor and delivery care services, family physicians were responsible for 37% compared to only 16% in urban areas38.

“Rural-raised individuals are more likely to practice in rural areas”35. Studies have shown that medical students from rural areas have a greater interest in practicing in an underserved area. In fact, one study showed that to increase the number of students entering a family medicine residency, those accepted should come from smaller towns and rural areas and have attended public universities7. When an individual from a rural area expresses interest in family medicine, the result is a greater likelihood that the student will commit to this goal35.

The Physician Shortage Area Program(PSAP) of Jefferson Medical College(JMC) is a program established in 1974 that was designed to increase the number of rural family physicians in the state of Pennsylvania. The program has been very successful since its implementation. Students are admitted with emphasis placed on having grown up in a rural area and on their interest in practicing family medicine in a rural or underserved area. The students must still meet the academic requirements of the program. Over the years, students within the program have had similar grades, graduation rates, and admission qualifications as their classmates not enrolled in the program. Although the students have the similar credentials, two thirds of PSAP students were not accepted to other schools, and may not have even been accepted to JMC, without the PSAP progrimm37. Each year, about 15 students are admitted
based on this criteria. Once accepted, students are matched up with a family medicine faculty mentor. The student can meet on a regular basis with the mentor throughout the 4 years to discuss rural medicine, family medicine, or career goals in general. PSAP students are also required to take a third year clerkship in a rural area, and must take a fourth year sub-internship in family medicine. In addition, PSAP students receive a small amount of financial aid in the form of repayable loans. Although it is expected that these students will enter a family medicine residency, and eventually practice in a rural area, there is no regulation in place to control these decisions. Graduates from PSAP constitute 21% of rural Pennsylvania family physicians who graduated from the state’s medical schools. However they only make up 1% of the physician population. When all schools and international medical school graduates are added, the PSAP students make up 12% of all rural family physicians in Pennsylvania. Across the United States, over one-third of the program’s graduates were practicing in rural areas. This is compared 11% of the other graduates of JMC who practice in rural areas. The PSAP students were also eight times more likely to become a rural family physician than non program students.

What is most remarkable about the Physician Shortage Area Program is the very high retention rate. 87% of PSAP graduates were still practicing in rural areas 5-10 years after their initial establishment. A more recent study showed that 68% of PSAP graduates were still rural medicine doctors in the same area 11-16 years after their initial establishment. JMC graduates who did not participate in the PSAP program only remained in the same rural area 46% of the time. It takes seven years to train a physician. Because of the length of training, if a rural physician only practices in the same area for seven years, there is no net increase in the number of providers. This is problematic as the number of graduates entering the field of family medicine, and those who have an interest in rural medicine, have declined. The net result will be a decrease in rural providers if there is not an increase in duration of practice in these areas. The longer a physician stays in a rural area, the greater the impact she has on the supply of physicians in that area because there is less of a need for this training. For example, increasing the length of a physician staying in a rural area from seven to fourteen years is equal to training two rural physicians who practice for only seven years. Doctors who have remained in a rural area for their whole career have a 5 times greater impact than someone who only stays seven years. The results are even greater when one factors in how much it usually costs to recruit a new physician to a rural area if there is a high turnover rate. Another positive effect of rural physician retention is continuity of care for the population. The problem with many of the loan repayment plans and the National Health Service Corps (NHSC) program is many physicians will leave the area once the obligation is up. The average retention time for an NHSC participant is 2-4 years which is typically equal to the commitment time. Only 23-27% of NHSC doctors remain in rural areas for an extended period of time. The Physician Shortage Area Program of Jefferson Medical College has been the only program that has demonstrated a large increase in the number of rural family physicians and long term retention of physicians in these areas.

What are the most important factors in these students practicing in rural areas? A rural background and the desire to be a rural family physician seem to be the most important factors. Other influencing factors are initial interest in family medicine, being enrolled in the PSAP, being a NHSC participant, male, growing up in a rural area, and participating in a rural family medicine preceptorship in the 4th year of medical school. Of the graduates of JMC who had 4 or more of these indicators, 34.3% were practicing rural primary care compared to 3% who did not have any of the indicators. One of the most influential factors in the study was participation in a rural medicine preceptorship. Over 17% of these students were practicing rural primary care at the time of the study. Another influential factor was growing up in a rural area, with over 12% of graduates with this background practicing rural primary care. An interest in
family medicine as a first year student was a common factor in 14% of graduates practicing rural primary care. In addition, of the first year students who had a desire to practice in a rural area, 14% were practicing primary care in a rural region. Almost a quarter of those graduates studied who were PSAP participants were practicing rural medicine\textsuperscript{37}. Students who did not participate in the PSAP program, but who grew up in a rural area and came into medical school with a desire to practice family medicine were 78% as likely to practice rural primary care as a PSAP graduate, an indicator of the importance of these two factors in admission criteria. They were also 75% as likely to stay in the rural area compared to the PSAP graduates. Less than 2% of non-PSAP students who did not have these two factors practiced rural primary care. The difference in the greater number of PSAP graduates staying in rural areas is related to the additional factors in the program. It is important that the rural background and desire to practice family medicine are considered together since, when combined, these students are twice as likely to practice rural primary care medicine compared to those with only one of the two factors\textsuperscript{37}.

Proposal

The state of North Carolina should increase its efforts to promote and support primary care, both financially and philosophically. A greater emphasis should be placed in the eastern portions of the state. The Brody School of Medicine at East Carolina University was developed to help increase the number of primary care physicians in this part of the state. The medical school and training hospital is located in Pitt County, North Carolina. The counties surrounding Pitt, and those more northeast, still have some of the greatest deficiencies in both OB/GYNs and family physicians. Although these numbers would be much worse without the area medical center, the numbers indicate the need for more emphasis placed on primary care in this region. The state should consider increased funding to support the primary care fields at Brody, especially that of the Family Medicine Department. From day one of medical school, the school and hospital should continue its efforts to promote primary care among students. The school does an excellent job of this already. However, with the changing medical environment making specialty fields more financially appealing, North Carolina should assist the school in promoting the notion of primary care. Although the Brody School of Medicine should be at the forefront of this effort to increase primary care, funding should be provided to all schools. North Carolina should assist in funding all medical school Family Medicine clinics that serve a majority of Medicaid and uninsured patients. Funding can be used for various areas, including patient care and medications.

North Carolina should provide scholarships to students from rural North Carolina areas with an interest in family medicine or other primary care field. For many rural NC students, who come from a lower income background, attending medical school is only an expensive dream. By instituting scholarship programs throughout all North Carolina medical schools, the number of students from rural areas entering primary care programs will increase. Studies have shown that a rural background is one of the most important factors that contribute to the commitment to practice family medicine in a rural area. All medical schools in the state should offer at least two scholarships for rural North Carolina students who have lived in a rural region for the majority of their life. There should also be funding provided for recruitment and education about primary care geared towards rural North Carolina high schools.

The Physician Shortage Area Program, established at Jefferson Medical College, is a wonderful, effective model that has successfully increased the number of rural family physicians in Pennsylvania. Medical schools across the nation are beginning to implement similar programs to increase the number of rural physicians\textsuperscript{21}. The Brody School of Medicine, which has a mission to increase primary care in rural, underserved areas in Eastern North Carolina, should implement a program similar to this. Two thirds of
students accepted into the PSAP program had the desire to practice rural medicine and the academic qualifications to be accepted into medical school but were overlooked at other medical schools. This is probably the case at all medical schools. A program similar to the PSAP would allow the students with these desires the opportunity to fulfill their dream of practicing rural medicine.

Although scholarship funding would increase the number of students, a PSAP-like program is a more cost effective way to admit a larger number of students with rural medicine interests. The costs of implementing a similar program involve funding administrative positions to oversee the program, funding for faculty to participate as mentors, and financial aid costs. The Brody School of Medicine already has family medicine faculty that encourage students to enter the field of family medicine. It is reasonable to assume that many faculty members would be willing to serve as mentors for the program’s students. In addition, BSOM already has clinics in surrounding rural communities that can serve as locations for the required rural clerkship. A program similar to the one at JMC would not be difficult to implement. Academic admission criteria would remain the same, with more emphasis placed on rural NC students interested in Family Medicine. At least 5 students in each class should be admitted with this requirement. Once initiated, Brody can be a model for other medical schools within the state. North Carolina should provide schools with additional funding to help offset any costs of implementing the program. An increase in the number of rural physicians in the state would be worth this funding. The shortage of obstetric care is not limited to the eastern portions of the state and all medical schools should consider implementing the program. By increasing the number of family physicians in rural North Carolina, in addition to implementing some of the following recommendations regarding obstetrical care, will increase obstetrical care access in the underserved areas.

2) ROCI-like incentive program.

Background
In 1988, the Rural Obstetrical Care Incentive (ROCI) was enacted in NC to counteract the decreasing number of physicians providing obstetrical care. The program paid the difference in medical liability up to $6500 for each physician that provided obstetrical care in rural areas. Midwives, General Surgeons, OB/GYNs, and Family Physicians were all included in this incentive program. A study at this time determined that rising medical malpractice premiums were forcing physicians to reduce or discontinue their obstetrical activity. North Carolina realized that rural areas would be the hardest hit by this trend. The state had already witnessed a 20% decrease in 4 years. The ROCI program sought to balance some of the increasing costs to provide obstetrical care in these underserved areas. The program worked with the NC county Health Departments to provide prenatal care and deliveries. In order to receive the funds, each county must have met any of the following criteria: no public or private services within the county; no public prenatal clinic within the health department, hospital, or primary care center that serves the low income population; has a public prenatal clinic but no doctor or midwife on staff or no backup physician; waiting list of over 28 days at a prenatal clinic; 50% or more resident births occur outside county lines; 5-year infant mortality rate or premature birth rate is worse than state average; 50% or fewer physicians practicing obstetrics in the county serve Medicaid patients; over 15% of resident live births are to women who receive prenatal care from public clinics; the percentage of resident live births to women who initiated prenatal care in the first trimester is below state average, and the percentage of live births to women seeking prenatal care in the third trimester is above state average. In each of the initial 3 years of ROCI, the number of participating counties and physicians increased. A survey conducted by the NC Division of Maternal and Child Health showed that the number of physicians providing prenatal care in the first 25 counties to enter the program increased by 8.9% by the end of the first 2 years. By 2001, the
last year ROCI was funded, 212 physicians or midwives were providing obstetrical care to women in 43 health departments across rural North Carolina. These providers were responsible for 14% of NC deliveries alone. This number does not even include the percentage of prenatal care. As recently as May, 2000, the Comprehensive Child Health Plan of the NC Institute of Medicine asked for increased funds as incentives in other areas of the state. Unfortunately, the ROCI program ended in 2002 after the beginning of the state budget crisis.

What happened when ROCI was initiated? One county OB/GYN, who was working in an underserved area as part of the National Health Service Corps, stated that ROCI was one of the reasons he would remain in the area to practice once his obligation was up. Both he and his practice partner state that ROCI allowed them to continue providing for the large number of women on Medicaid who visit their practice. In another county, one family medicine practice was going to stop at least one of their physicians from delivering babies due to increasing malpractice costs. However, using ROCI funds and a local health department, they were able to continue the obstetrical services with no change. Another OB/GYN practicing in a rural area was planning to stop his obstetrical services at the local health department. The ROCI funds provided him with an incentive to continue the services. The incentive program also helps attract physician partners who can provide obstetrical care services at practices that had not offered them before. This occurred in at least one of the 7 counties surveyed in 1991. Many of the counties interviewed also discussed the strengthening of relations between the health departments and local physicians. The communication improved the continuity of care between women receiving prenatal care at the health departments who were being referred to area providers for the actual delivery. The ROCI incentive also brought higher quality physicians to the health department. The number of obstetricians more than tripled at one county health department. The departments also state that due to the increased number of physicians providing care, wait times have been reduced and the clinics were able to extend the hours of service. This is important to health departments in large, busy counties where the clinic is the only means of prenatal care. If a ROCI type program is implemented, it would be possible that women would be able to get an earlier appointment at the health departments, decreasing the rate of late prenatal care.

Proposal
I propose that North Carolina should reinstate a similar program. Looking at the ROCI criteria, the PNC V and VI regions in NC would be eligible for funding based on the high numbers of women using public clinics as their prenatal care provider and higher than state average infant mortality rates alone. If these PNC regions were broken down into counties, I am almost certain they would all meet one of the criteria, and indication of the severity of this problem in the region. In North Carolina, the 22 counties without obstetrical care providers would also be eligible. In addition, many of the remaining counties would meet the other ROCI criteria. It is evident that there is still a need for this program. The pieces are already in place. North Carolina Health Departments are located in every county in the state and most offer prenatal care. Some health departments even include referrals for deliveries and postpartum follow-up. The collaboration between these departments and private physicians via a ROCI type program can be used to increase obstetrical care access, especially in eastern North Carolina. By partnering with the health departments, there is continuity among the patients. The physicians will also have access to more staff and decreased call time.
Why would a similar incentive program work now? For many new physicians, the added cost of medical liability is detrimental to practicing obstetrics in rural areas, which tend to have smaller practices and more uninsured and/or Medicaid patients. The malpractice premiums are higher in the most poorly served areas of the state, a factor that deters physicians from practicing in these areas. If some of this liability is waived or paid for, physicians wavering between practicing obstetrics and not would choose the OB route. One physician stated that half of family physicians in the Navy practice obstetrics. In the Navy liability costs are covered North Carolina can consider offering financial incentives to OB/GYNS who begin practicing in PNC V and VI. Although helping to offset the cost difference between practicing in an eastern county versus a central or western one would be an option, offering increased awards to help with all of the premiums would serve the state even more. For family physicians, who are more likely to practice in a rural area, a financial incentive would increase the percentage of those practicing obstetrics. The malpractice cost more than doubles to add obstetrical care. North Carolina can help pay this difference to those practicing in the underserved counties, especially in PNC V and VI, where help is needed the most. Family physicians have the potential to be a big source of obstetrical care in underserved areas. However, adding obstetrics to the practice adds to the cost. An incentive program would help family physicians by offsetting this cost.

An alternative incentive plan is to offer financial incentives to obstetricians in rural areas who agree to work with and/or “back up” Family Physicians. Since many family doctors cite lack of OB/GYN support as a reason they cannot practice obstetrics, this incentive may help offset the difficulties some have in finding a willing OB/GYN to back them up in a rural area. In counties where there are multiple family physicians but limited OB/GYNs, the incentive would work to entice the obstetrician to serve as a back-up. With the knowledge of community obstetrical back-up, a family physician would be more likely to provide the initial obstetrical service and call on the back-up in emergencies or high risk settings. This incentive would also help improve communication and relationships between the two fields. A partnership can also be created, which leads to the formation of a “shared care system.” Increasing obstetrical care access will allow North Carolina women to more easily receive prenatal care. Women will have an easier time making their OB appointments if there is a shorter distance to drive. The overall result will be healthier newborns and decreased infant mortality. The overall benefits of increasing obstetrical care access will offset the costs of an incentive program.

3) Shared Maternity Care.

Background

Shared-Care was developed by the American Academy of Pediatrics(AAP) and the American College of Obstetricians and Gynecologists(ACOG). Shared Care is a model of maternity care management in which prenatal and postnatal care and the actual delivery are split between different providers. The most common shared model is that of a family physician providing the prenatal care and then involving an obstetrician/gynecologist in the second trimester who will ultimately deliver the child. The primary care physician would initiate prenatal care and is responsible for the following visits and follow-up: initial workup and labs, triple screen, scheduling ultrasound and consider being present to facilitate continuity, draw routine 28 week labs, group B strep culture, schedule the appointment with physician performing delivery at 18-20 weeks and again during third trimester and after 40 weeks if necessary. The AAP and ACOG protocol states that there is continuity of care since the woman will continue to see the family physician throughout her pregnancy but also has familiarity with the OB/GYN who will be performing
the delivery. If electronic charting is used, medical records pertinent to the patient can be shared. Labs drawn by each physician would be forwarded to the other so that no tests would be repeated.

There are many advantages of shared care. Reduced prenatal costs, more favorable outcomes for both mother and child as a result of improved, continuous care, decreased waiting times and work load at public clinics and health departments, and a shorter travel time and distance for the patient are all benefits. A study performed in Florida demonstrated that both the primary care doctor who performs prenatal care and the doctor performing the delivery “experienced increases in income, professional satisfaction, practice diversity, numbers of complete families in the practice, and reduced malpractice risk” compared to groups that did not provide obstetrical care. The shared care model can help keep medical liability premiums down for family physicians. Some medical malpractice carriers base premiums on whether the family physician provides obstetrical care or not. They are separated into Class 1-4, with premiums increasing with the higher class based on services offered. One physician using the shared care model states that it is important to distinguish that the family physician is only providing the prenatal care in order to keep premiums down. In addition, there are CPT codes geared towards shared care that help with payment. In an article, Dr Larimore states that there has not been enough emphasis placed on teaching medical students and residents about the shared care system. A more recent article written by NC’s own Dr Shannon Dowler, describes some additional benefits of shared care. The article states that the community obstetrician will also benefit from the system. Their office will see a decrease in office visits for Medicaid and uninsured patients, higher reimbursement for delivery, equal liability costs, and more time to focus care on high risk patients and gynecological services, which leads to higher income. For the patient, prenatal care may be cheaper, especially if the care is provided at a public health center. The patient also stays in the “medical home.” For some family physicians shared care may be a more financially viable option to providing deliveries. This system will still ultimately provide the mother with full obstetrical care as it creates a partnership with an obstetrician in the area. An obstetrician may be more likely to provide services at a neighboring underserved county only a few times a pregnancy compared to if she provided the full care.

Dr Gina Boyle, previously a private physician with The Carilion Health System in Virginia used a shared maternity care model from 1999 until 2004. There was a very high satisfaction rate and only one patient transferred care solely to the OB. Postpartum, many of the patients suggested that family and friends use the program and state they would use it again. Dr Boyle states that she enjoyed using the shared care model and still promotes it to residents who train with her in South Carolina. However, she said the insurance companies have made the model harder to use. Many companies have not allowed the family physician to provide only prenatal care and no deliveries without being charged the malpractice premium for a provider with delivery services. This has caused some family physicians to steer away from the idea. Areas that have used and still use the shared care model have increased obstetrical care access in underserved areas. She states obstetricians are more likely to support shared care if there is a shortage of OB/GYN in the area and they are familiar with the family physician.

Alternative
Canada uses a more elaborate shared care model. Over the past 10 years Canada has also experienced a severe decline in the number of family physicians providing obstetrical care with deliveries. The country realized the importance of these family physicians and their tendency to work in rural areas and developed a system called the Maternity Center. This is a facility that allows family physicians to provide obstetrical care while utilizing people from all areas of medicine. The center is staffed with a nurse
practitioner, a social worker, a lactation consultant, and outreach and education specialists. In addition, the family physicians share call time with an area OB/GYN who also assists with emergency consults and deliveries. Average call time was 1 in 10 days, which has contributed to improved lifestyle, one of the factors that had kept Canadian physicians from practicing obstetrics. The center seems to be similar to a health department with two major exceptions: the family physicians are the basis of the program and there is full obstetrical care provided. Both physicians and patients have been satisfied with the program. Other areas in Canada have developed similar centers. This Canadian model is a combination of a shared care system and a system similar to what the ROCI program established and can be used as a model for North Carolina today.

Proposal
North Carolina can benefit by encouraging the shared care model. For many family physicians, obstetrical care is not a financially viable option. However, many of these same physicians enjoy women’s health. Women’s health is a reason why some family physicians chose their field over Internal Medicine, which does not focus on issues relevant to women’s health. Providing prenatal care allows a family physician to continue to follow the patient and then be available for newborn care. In the shared care model there would be no loss of continuity of care. Physicians would increase their prenatal care services if a community obstetrician would perform the delivery. There are 43 counties in NC with less than 2 OB/GYN physicians. In many of these counties there are several family physicians. The shared care model would allow these family physicians to provide the prenatal care to women in the county, increasing obstetrical access in these undeserved areas. In turn the obstetrician would have more office time for other surgeries to generate income to help offset the rising malpractice premiums. As another incentive, the family physician can even agree to refer gynecological surgeries to that physician.

North Carolina medical schools, OB/GYN and Family Medicine residency programs should provide information to students and doctors regarding the shared care model. The state malpractice insurance providers should also be educated on the system. I believe this would help differentiate between the model and that of family physicians actually performing the surgeries. This keeps premiums affordable. For some women, long distances keep them from receiving prenatal care on time, or not at all. Prenatal care services need to be made more accessible in order to improve the health of the mother and baby. Although increasing the number of physician providers in an underserved area is the best solution to this access problem, increasing the availability of the service, and decreasing travel distance to prenatal care providers, may help some women receive care they would not have otherwise.

4) Increased emphasis on obstetrics for students and residents of Family Medicine.

Background
“Successful programs have an environment that encourages family practice maternity care”. This statement comes from a study conducted in 1997. The statement backs up an earlier study that indicated that family physicians who practice obstetrics were more likely to have had increased time with obstetrical training during residency. Another factor that was found to be strongly correlated with family doctors providing obstetrical care was the presence of a family medicine attending physician performing obstetrical care during residency. Higher numbers of deliveries within the Family Medicine department and exposure to family physicians with the ability to handle complicated deliveries were also associated with an increased rate of practicing obstetrics after residency. Each NC Family Medicine Residency program trains residents in obstetrics. However, due to the current healthcare trends and increasing costs, there has not been as much interest obstetrics among the residents. In 1997, the Residency Review
Committee required that all family medicine residencies have a faculty member attending births with the residents. After one year, there was a resulting increase of 5% in graduating family medicine residents providing obstetrical care, including deliveries, in their first year of practice. A study conducted in 1997 showed that the more emphasis placed on obstetrics in family medicine at the residency program, the more likely graduating residents would practice obstetrics. The UNC Chapel Hill Department of Family Medicine was aware of this trend earlier on and restructured their program to put a greater emphasis on obstetrics in 1995. The result was a dramatic increase in the number of residents who practice obstetrics in their first post-training position. Prior to the implementation, only 27.5% of their graduates provided prenatal care or deliveries. After the implementation, from 1995-2001, the average increased to 52%. One of the changes in the program included having faculty members as role models. Family physicians who were not interested in obstetrics could ask not to be involved in teaching. This allowed those truly interested in teaching obstetrics to have more contact with residents. The new service within the program was called the Maternal and Child Health (MHC) service. During the intern year, residents would continue to rotate through the OB/GYN department. However, the second and third year residents would rotate through the Family Medicine’s MHC service. The number of deliveries increased each year and residents were able to get more experience. This program provided 6 more weeks of obstetrical experience than required by the Residency Review Committee for Family Medicine. The program also emphasized continuity and the care of mother and child throughout and after the pregnancy. Two partnerships were created when the MHC provided delivery options to the local health department and to local private physicians. The partnership with the private physicians allowed them to provide the prenatal care while residents would perform the delivery. This is similar to the shared care model. The program has also strengthened the legitimacy of family physicians performing obstetrical care. This program allowed residents to work with the OB/GYN service and also in their own department. The service has grown enough to be able to participate in hospital committees and earn a voice in the hospital. Resident evaluations indicated that this program has been a positive implementation for the Family Medicine Program at UNC. The overall assessment by the study’s authors states that family medicine programs can help increase the number of residents practicing obstetrics by altering the curriculum in a manner similar to the MHC.

Another study which surveyed Family Medicine Residencies across the nation also demonstrated that having family medicine faculty members precept deliveries increases the number of residents likely to include obstetrics in their first practice. The greater the number of faculty members performing deliveries, the greater percentage of residents who will practice obstetrics. Programs that had 0 family physicians taking obstetric call, had 13.3% of residents practicing obstetrics. 1-3 faculty members increased the rate to 25.2%. The numbers gradually increased to a maximum of 62.1% practicing obstetrics in programs with 8 or more faculty members providing obstetrical services. In fact, programs where family physicians were the only supervising faculty had significantly higher rates than residencies with both OB/GYN and family physicians as supervisors. The number of deliveries per month also effected the percentage of residents likely to perform obstetrics. More than 10 deliveries a month almost doubled the rate of residents practicing obstetrics after graduation. Overall this study showed a 5% increase in the percentage of family physicians practicing obstetrics and a 16% increase in the actual number.
Proposal
I propose that Family Medicine residencies across the state implement this concept of family medicine driven obstetrical care. There is a shortage of obstetrical care access across the state, more so in the eastern regions. According to the AAFP, Family Physicians in rural areas are more likely to provide obstetrical care than in urban areas. However, these numbers are currently too low to make up for the shortage\(^{22}\). North Carolina’s Family Medicine residencies need to have more family physicians who provide obstetrical care and who can perform more difficult deliveries on staff. The program should attempt to increase the number of deliveries per month. In addition, the programs should have 2\(^\text{nd}\) and 3\(^\text{rd}\) year residents experience obstetrical care within their own department instead of through the school’s Obstetrics/Gynecology department. By implementing the aforementioned strategies of emphasizing obstetrics within the family medicine department, there will be a large increase in these rural obstetrical care providing physicians. Within OB/GYN residencies there also needs to be education regarding the abilities of family physicians providing obstetrical care. This could improve the barriers that some family doctors have in finding supportive obstetricians within the community. It is pertinent that both OB/GYN and Family Medicine residency programs across the state emphasize the importance of obstetrics in rural areas. In order for there to be an improvement in obstetrical care access, there needs to be a source of the care. Residency training is this source.

Conclusions
North Carolina has a problem with obstetrical care access across the state with even greater barriers in the eastern regions. Comparing recent data to a 1991 report on similar data, one can see that not much has changed, except for the date. There continues to be a low number of obstetrical care providers, especially in rural North Carolina. The eastern areas of the state see the greatest deficit. In addition the number of family physicians providing obstetrical care in the state is declining. The result of this poor access is a high infant mortality rate that puts North Carolina near last in that category. Something must be done. I feel that the state of North Carolina has the power to help this problem. There are many barriers to obstetrical care access in the state, the ones state. The aforementioned recommendations are only a start to the solution. The solution is multifold. It lies within financial incentives and with North Carolina’s future physicians, found in medical schools and trained in residency programs. By improving obstetrical care access in North Carolina, the state as a whole will improve its health. It’s time to start knocking down these barriers.

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