
The book’s extensive instructor’s manual is divided into four sections:

- Section I: Using Middleboro
- Section II: Teaching Notes
- Section III: Suggested Assignments
- Section IV: Other Materials

This sample includes the teaching notes and suggested assignments for Case 1, “The Community.”

If you adopt this text, you will be given access to the complete materials. To obtain access, e-mail your request to hapbooks@ache.org and include the following information in your message:

- Book title
- Your name and institution name
- Title of the course for which the book was adopted and the season the course is taught
- Course level (graduate, undergraduate, or continuing education) and expected enrollment
- The use of the text (primary, supplemental, or recommended reading)
- A contact name and phone number/e-mail address we can use to verify your employment as an instructor

You will receive an e-mail containing access information after we have verified your instructor status. Thank you for your interest in this text and the accompanying instructor resources.

**Digital and Alternative Formats**

Individual chapters of this book are available for instructors to create customized textbooks or course packs at [XanEdu/AcademicPub](http://www.xanpub.com). Students can also purchase this book in digital formats from the following e-book partners: [BrytWave](http://www.brytwave.com), [Chegg](http://www.chegg.com), [CourseSmart](http://www.coursesmart.com), [Kno](http://www.kno.com), and [Packback](http://www.packback.com). For more information about pricing and availability, please visit one of these preferred partners or contact Health Administration Press at hapbooks@ache.org.
CASE II
TEACHING NOTES

The formulas used to report an organization’s financial ratios are included at the end of this manual.

Case 1: The Community

A typical initial question is “Where is Hillsboro County and Middleboro?” We suggest you answer this question, as it provides an important context especially for analysis related to this initial case. The answer to this question is “anywhere you, the instructor, want it to be.” We suggest you select a specific state. When we use student teams to analyze this case, we frequently assign each team to a different state. Your selection has minor implications given certain analyses. For example, the health profile of Colorado is very different than the profile for Mississippi. Given that Hillsboro County and all cases are fictitious, however, this case can fit anywhere—it is ubiquitous.

Hillsboro County is experiencing slow but significant changes and many related issues and challenges. More are ahead.

A. Change in Hillsboro County

One major change is the shifting locus of the population, business, and healthcare. The economic, demographic, and political center of the county is slowly shifting from Middleboro to Jasper. The new road between Jasper and Capital City will be completed in 12 months. This will accelerate the change. A central question is how all of these changes will develop and affect health and medical care providers serving the county. For example, Capital City Medical Center has already purchased a land option in the Jasper area and expects to construct medical offices for their affiliated physicians.

Middleboro and Jasper also have different types of industries. Middleboro has an aging industrial base that includes heavy manufacturing and is surrounded by an agricultural area. It also has been the healthcare, banking, and political center of the entire country. In contrast, Jasper is developing quickly. Jasper’s industrial park has attracted a broad range of service and light manufacturing industries. Increasingly, Jasper is also becoming a commuter town to Capital City. The future of both cities depends on their industries and their demographics.

This also suggests that Middleboro is very much a high-risk community today and in the future, whereas Jasper has a very positive future. For example, if Carlstand Rayon were to leave Middleboro, the impact on Middleboro would be a game changer. Jasper—with the new road—will benefit from its (closer) proximity to Capital City as well as development in and around Jasper.
Hillsboro County may actually be two distinct areas. The area south of the existing interstate (Statesville and Jasper) may be different from the area north of interstate (Middleboro, Harris City, Mifflenville, Carterville, Boalsburg, and Minortown). This difference includes demographics, economics and many related factors. For example the northern area of Hillsboro County is older and growing slower than the southern area.

Table II-1-A
Hillsboro County Population by Age and Rate of Change

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hillsboro Cty- ALL</td>
<td>144,768</td>
<td>100%</td>
<td>12.6%</td>
<td>141,435</td>
<td></td>
</tr>
<tr>
<td>Southern -1</td>
<td>66,010</td>
<td>45.6%</td>
<td>10.3%</td>
<td>63,597</td>
<td>3.79%</td>
</tr>
<tr>
<td>Northern -2</td>
<td>78,758</td>
<td>54.4%</td>
<td>14.6%</td>
<td>76,878</td>
<td>2.45%</td>
</tr>
</tbody>
</table>

Notes: Southern = Jasper, Statesville. Northern = Middleboro, Harris City, Mifflenville, Carterville, Minortown, Boalsburg.

As can be seen from this example, it is important that students analyze the demographic and community data from multiple perspectives. For example, a downturn in heavy manufacturing—especially in the northern sector—may lead to a lower and different type of demand for occupational health service.

B. Major Health Issues

Hillsboro County is also facing a number of health issues that may deserve the attention of health services providers. Although more relevant data are also included in Case 9, the Hillsboro County Health Department, this case has sufficient data to determine “excess mortality” and related community and population health needs.

Table II-1-B
Significant Health Needs (Excess Mortality) Facing Hillsboro County

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>2019 Number of Hillsboro County Deaths</th>
<th>Reference Rate per 100,000 Note 1</th>
<th>2019 Expected Number of Hillsboro County Deaths – Note 2</th>
<th>Z Scores: Notes 3 &amp; 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease of the Heart</td>
<td>367</td>
<td>192.7</td>
<td>279</td>
<td>5.27</td>
</tr>
</tbody>
</table>
### Cerebrovascular Disease

<table>
<thead>
<tr>
<th>Disease</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerebrovascular</td>
<td>78</td>
<td>25.4</td>
<td>36.8</td>
<td>6.8</td>
</tr>
<tr>
<td>Influenza and</td>
<td>37</td>
<td>5.9</td>
<td>8.8</td>
<td>9.74</td>
</tr>
<tr>
<td>Pneumonia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Reference Rate (unadjusted) US Death Rates per 100,000 as found in National Vital Statistics Reports, Volume 65, Number 4 (June 30, 2016) Deaths, and Final Data for 2014 DHHA, CDC, and National Center for Health Statistics.
2. Expected number of Hillsboro County Deaths = Reference Rate per 100,000 X Hillsboro County population in 100,000s (e.g. 144.768).
3. O= Observed (actual) Number of Deaths. E = Expected Number of Deaths using Reference rate x population in 100,000s. (4) Z = (O-E)/SQRT of E) to be statistically significant with 95% confidence that a difference exists, the Z score must be 1.96 or higher.
4. Using the data on Table 1.11 Hillsboro County, Resident Deaths By Cause of Deaths as explained the difference between the actual and expected number of deaths is not statistically significant (Z score below 1.96). For this analysis, as explained, the number of deaths from Malignant Neoplasms, Chronic Lower Respiratory Disease, All accidents Alzheimer Disease Diabetes Mellitus, Nephritis et al and Intentional Self Harm was within expectations using the all US reference rate.

Table II-1-B is an example using the latest available “all US cause specific death rates.” It indicates statistically significant “excess mortality” associated with specific causes of death.

The Vital Statistics reported for Hillsboro County also need to be considered. We recommend appropriate rates calculated using Hillsboro County data and then compared with the rates for an assigned state. Again, Z scores can be used to assess significant differences (especially helpful given the small size of the Hillsboro County numbers).

Hillsboro County has other specific health needs that may need to be acknowledged in the strategic plans for many health service providers. Data in this case are sufficient for an analysis of the health status of Hillsboro County population.

### C. Utilization of Health Services

A comprehensive analysis of the Hillsboro County and its communities should include an assessment of the utilization of its health service system serving Hillsboro County.
### Table II-1-C
Hospital Utilization: 2019

<table>
<thead>
<tr>
<th>2019 Hospital Utilization</th>
<th>2019 Population</th>
<th>2019 Patient Days per 1,000</th>
<th>2019 Discharges per 1,000</th>
<th>Average Length of Stay (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hillsboro County</td>
<td>144,768</td>
<td>600.0</td>
<td>110.0</td>
<td>5.45</td>
</tr>
<tr>
<td>Jasper</td>
<td>51,230</td>
<td>504.8</td>
<td>93.1</td>
<td>5.42</td>
</tr>
<tr>
<td>Middleboro</td>
<td>48,502</td>
<td>666.8</td>
<td>124.2</td>
<td>5.37</td>
</tr>
<tr>
<td>Statesville</td>
<td>14,780</td>
<td>603.4</td>
<td>103.4</td>
<td>5.84</td>
</tr>
<tr>
<td>Harris City</td>
<td>12,835</td>
<td>659.8</td>
<td>123.2</td>
<td>5.36</td>
</tr>
<tr>
<td>Mifflenville</td>
<td>11,253</td>
<td>655.6</td>
<td>117.7</td>
<td>5.57</td>
</tr>
<tr>
<td>Carterville</td>
<td>2,198</td>
<td>656.1</td>
<td>125.1</td>
<td>5.24</td>
</tr>
<tr>
<td>Minortown</td>
<td>2,005</td>
<td>562.1</td>
<td>96.8</td>
<td>5.81</td>
</tr>
<tr>
<td>Boalsburg</td>
<td>1,965</td>
<td>674.8</td>
<td>116.5</td>
<td>5.79</td>
</tr>
</tbody>
</table>

The three community-wide health utilization metrics included in Table II-1-C are basic measures of hospital inpatient utilization. They can be compared with national and state-specific metrics. Residents of Jasper appear as outliers in the county, probably due to the town’s younger demographic profile.

Inpatient Occupancy and Average Length of Stay (ALOS) also need to be considered. In 2019, MIDCARE Hospital recorded occupancy of 70.8% with an ALOS of 5.94 days, and Webster Health System recorded an occupancy rate of 65.6% and an ALOS of 4.92 days.

### Table II-1-D Hospital Market Characteristics

<table>
<thead>
<tr>
<th>2019 Hospital Market Analysis</th>
<th>MIDCARE Hospital</th>
<th>Webster Health System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on 2019 Patient Days</td>
<td>Dependency Ratio (%) -1</td>
<td>Market Share % - 2</td>
</tr>
<tr>
<td>Jasper</td>
<td>21.9</td>
<td>46.4</td>
</tr>
<tr>
<td>Middleboro</td>
<td>49.2</td>
<td>83.5</td>
</tr>
<tr>
<td>Statesville</td>
<td>11.6</td>
<td>71.3</td>
</tr>
<tr>
<td>Harris City</td>
<td>3.1</td>
<td>20.3</td>
</tr>
<tr>
<td>Mifflenville</td>
<td>9.0</td>
<td>66.9</td>
</tr>
<tr>
<td>Carterville</td>
<td>1.8</td>
<td>69.3</td>
</tr>
<tr>
<td>Minortown</td>
<td>1.8</td>
<td>88.8</td>
</tr>
<tr>
<td>-----------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>Boalsburg</td>
<td>1.5</td>
<td>60.2</td>
</tr>
</tbody>
</table>

This table reports specific 2019 market attributes for each hospital in Hillsboro County.

Note 1: The Dependency Ratio indicates what percentage of a specific hospital’s total patients resides in a specific town. Note 2: In contrast, Market Share indicates what percentage of a specific town’s patient days were provided by a specific hospital.

In other words, in 2019, MIDCARE hospital depended on Jasper for 21.9% of its total patient days. MIDCARE Hospital had 46.4% of the total of all patient days generated by Jasper residents.

The Dependency Ratios by town should total 100% (excluding the relatively small number of patients who do not reside in one of the County’s communities). Market share percentages may or may not total to 100% depending on the number of patient days generated by town residents outside of the county in other hospitals. For example, in 2019, MIDCARE and Webster Hospitals had a total market share in Jasper of 64.5% (45.4% + 18.10)% indicating that 35.5% of the total patient days generated by Jasper residents were provided by out of county (e.g., Capital City) hospitals. For Boalsburg the opposite is true; the market shares for MIDCARE and Webster total 100% indicating that no patient days from Boalsburg were generated outside of Hillsboro County.

A significant utilization question is whether Hillsboro County will have two hospitals located in Middleboro, especially given the changing dynamics in the Jasper market. Data in the case also is sufficient to assess the number and type of physicians in Hillsboro County, health insurance plans, and the number of Intermediate Care and Skilled Care nursing home beds in the county.
SECTION III
SUGGESTED ASSIGNMENTS

This section is organized into two parts. Part A provides assignment questions by case. Part B provides suggested assignments to link the Middleboro cases with leading textbooks in healthcare management published by Health Administration Press.

PART A: ASSIGNMENT QUESTIONS BY CASE

1. The Community
2. Hillsboro Health
3. Physician Care Services, Inc.
4. Middleboro Community Mental Health Center
5. Webster Health System
6. MIDCARE, Inc.
7. Medical Associates
8. Jasper Gardens
9. Hillsboro County Health Department
10. Other

1. The Community

A. Demographic and Population Analysis

We need an analysis of the population changes and characteristics in Hillsboro County. Please address each of the following questions, and provide appropriate quantitative justification to support your conclusions and recommendations.

1. Over the past five and ten years, which of the communities located in Hillsboro County have grown faster than the overall rate of population increase in Hillsboro County? Over the last five and ten years, which of the communities in Hillsboro County have grown slower than the overall rate of population growth in Hillsboro County?

2. What should we expect the population to be in 2025 for all towns located in Hillsboro County?

3. To what degree does the age profile of Hillsboro County resemble the overall age profile demographic of the United States? Which towns in the county are the “oldest” and the “youngest”?

4. Assess the implications of your findings related to the delivery of health services in the county.

B. Nursing Home Need Study
National statistics indicate that approximately 3.9 percent of the population 65 or older is in nursing homes. Historically, nursing homes in Hillsboro County have an average occupancy of 94 percent. Does Hillsboro County currently have a sufficient number of nursing home beds? Are additional nursing home beds needed as of today and/or by 2025? If yes, indicate where in Hillsboro County you recommend any additional nursing home beds be located.

C. Health Priorities

In order to assess and improve health services in Hillsboro County, we need a comprehensive understanding of population characteristics and anticipated changes. For example, the need and demand for health and medical care are both critically linked to demographic characteristics. Based on your answers to Question 1, indicate your five most significant assessments involving Hillsboro County and its communities. For each critical assessment, indicate your rationale and assess its significance on the health and healthcare services in Hillsboro County.

D. Hospital Comparison

We need an analysis of hospital utilization, cost, and quality in Hillsboro County. Consider average length of stay (ALOS), hospital admissions and patient days per 1,000 population, and other appropriate statistics. Answer the following questions, and provide appropriate quantitative justification to support your conclusions and recommendations.

1. Indicate significant conclusions concerning 2019’s countywide and town-specific hospital utilization statistics. Are local hospital utilization statistics in keeping with national rates and statistics?

2. What should be the number of 2020 and 2025 hospital discharges and patient days generated by the population in Hillsboro County? For each, include your demographic forecast.

3. This will require you to estimate national hospital utilization statistics (e.g., ALOS, patient days per 1,000). Indicate the anticipated number of inpatient patient days and occupancy for MIDCARE and Webster Hospital.

4. Assess the significance of your findings on the health and healthcare services in Hillsboro County.

E. Physician Type Analyses

We need a comprehensive understanding of the number and type of physicians in Hillsboro County. Address each of the following questions, and provide appropriate quantitative justification to support your conclusions and recommendations.
1. Based on available national statistics (e.g., physician/population ratios), does Hillsboro County have a significant excess or shortage of physicians? We define “significant” as meaning 15% too many or 15% too few.

2. Excluding hospital-based specialties (e.g., pathologists), what medical specialties (e.g., general internal medicine) are in excess of national standards?

3. As of 2019, how many additional physicians are needed in what specific medical specialties?

4. Assess the significance of your findings on the health and healthcare services in Hillsboro County.

F. Health Needs Study

We need an analysis of the health needs in Hillsboro County. Please address each of the following questions and provide appropriate quantitative justification to support your conclusions and recommendations

1. Assess Hillsboro County’s mortality statistics (Table 1.11 and Table 1.12 in the book). Is Hillsboro County experiencing significant “excess” mortality associated with specific causes of death? Are Hillsboro County’s causes of death in accordance with or significantly different than disease-specific national or state rates and specific trends?

2. Compare the health insurance coverage in Hillsboro County with national statistics. Is Hillsboro County similar or different than the overall United States?

3. Assess the significance of your findings on the health and healthcare services in Hillsboro County.

G. Vital Statistics Analysis

Assess Hillsboro County’s vital statistics (Table 1.10). Indicate whether the rates experienced in Hillsboro County are in accordance with national rates and trends. Assess the significance of your findings on the health and healthcare services in Hillsboro County.

H. County-Wide Disaster Planning

As you are aware, under a new federal and state program administered by the office of the governor, every county has the opportunity to apply for a planning grant (potentially), followed by implementation funding to better prepare for large-scale disasters. Each municipality in our county and all licensed health facilities and schools have existing disaster plans. Some of our larger employers also report having such plans. An analysis two years ago indicated that the number of first responders (police, fire, and EMT) in Hillsboro County per 1,000 residents is within 5 percent of national averages for a rural
area. As such, we believe that we have sufficient infrastructure to address accidents and related issues.

For the grant, we need to propose six to ten actions that could significantly enhance our area’s ability to address large-scale weather disasters and/or other types of large-scale disasters that would involve a significant area response. Provide your list of six to ten actions with rationale.

I. Hillsboro County Health Analysis

Using the available data, indicate the top ten health challenges facing residents in this county. Use the state of ______________ for purposes of reference. Note that Capital City is not in Hillsboro County. For Hillsboro County, list your findings in priority order with explanations and rationale. What are the implications of your findings on the organized health services in the county?

J. Hillsboro County vs. Capital City

Compare and contrast the health status of residents in these two areas. Your analysis should include vital statistics and disease-specific death rates. Are these two adjacent areas similar or different? Why? What are the implications?

K. Regional Economic Analysis

We need a regional economic analysis that indicates the anticipated five-year economic future for the major industries in Hillsboro County. Using North American Industry Classification System (NAICS) codes and related national analyses, assess the future markets for Carlstead Rayon, River Industries, Master Tractor, US Parts, National Yearbook, Office Pro, Chicken Farms, Inc., and the Middleboro Trust Company. Which of these industries is expected to grow, remain approximately the same, or diminish in sales and employment? Given this information, what is your assessment of the regional economy?

L. Community Health Needs Assessment

You have been asked to complete the section of the Community Health Needs Assessment for Hillsboro County, with a specific charge to identify opportunities for collaboration between public health organizations/functions and healthcare organizations/functions. Draft a 2–3 page discussion on this subject.