Gapenski's

CASES in Healthcare Finance

Sixth Edition

GEORGE H. PINK
PAULA H. SONG

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Health Administration Press, Chicago, Illinois
Association of University Programs in Health Administration, Washington, DC

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22 21 20 19 18 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data

Names: Pink, George H., author. | Gapenski, Louis C. Cases in healthcare finance.
Title: Gapenski's cases in healthcare finance / George H. Pink, Paula H. Song.
Other titles: Cases in healthcare finance
Description: Sixth edition. | Chicago, Illinois : Health Administration Press ; Washington, DC : Association of University Programs in Health Administration, [2018] | Revised edition of: Cases in healthcare finance / Louis C. Gapenski, George H. Pink. Fifth edition. [2014]
Identifiers: LCCN 2017043559 (print) | LCCN 2017044359 (ebook) | ISBN 9781567939668 (ebook) | ISBN 9781567939675 (xml) | ISBN 9781567939682 (epub) | ISBN 9781567939699 (mobi) | ISBN 9781567939651 (alk. paper)
Subjects: LCSH: Health facilities—Finance—Case studies. | Medical care—Finance—Case studies.
Classification: LCC RA971.3 (ebook) | LCC RA971.3 .G367 2018 (print) | DDC 616.85/26—dc23
LC record available at https://lccn.loc.gov/2017043559

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984. ♾™

Acquisitions editor: Janet Davis; Manuscript editor: Jane Calayag; Project manager: Andrew Baumann; Cover designer: James Slate; Layout: Cepheus Edmondson

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Health Administration Press
A division of the Foundation of the American College of Healthcare Executives
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Chicago, IL 60606-3529
(312) 424-2800

Association of University Programs in Health Administration
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PREFACE FOR INSTRUCTORS

Healthcare finance can be a fascinating, exciting subject, yet students often regard it as being either too theoretical or too mechanical. The fact is, sound financial decision making requires good theory and analysis, plus a great deal of insight and judgment. The best way to get this point across to students, and to demonstrate the inherent richness of the subject, is to relate classroom work to real-world decision making. When this is done, students learn not only the concepts but also, even more important, how the concepts are applied in practice.

Of course, the most realistic application of healthcare finance occurs in healthcare organizations, and there is no substitute for on-the-job experience. The next best thing, and the only real option for the classroom, is to use cases to simulate the environment in which financial decisions are made.

Purpose

The purpose of this casebook is to provide students with an opportunity to bridge the gap between learning concepts in a classroom setting and applying them in the real world. By using the cases in this book, instructors can help students who have a basic understanding of healthcare finance better prepare for the multitude of problems that arise in practice.

Content

This casebook consists of 32 cases that focus on healthcare finance issues. In general, each finance case addresses a single issue, such as capital budgeting

analysis or revenue cycle management, but the uncertainty of the input data, along with the presence of relevant nonfinancial factors, makes each case interesting and challenging. Because the cases involve both accounting and financial management decisions, they cover the full range of healthcare finance. Furthermore, the cases occur in a wide variety of organizational settings, including hospitals, clinics, medical practices, home health care organizations, integrated delivery systems, and managed care organizations.

Use of the Cases in Courses

The cases can be used in different course formats:

- *Instruction-and-case format*. Some instructors use the cases as assignments in healthcare accounting and financial management courses. A course may include six or seven cases, which the students either present or discuss in class as guided by the instructor.
- *Case-only format*. Some programs with introductory courses in accounting and financial management use the cases in a subsequent course that focuses on the application of finance concepts in healthcare organizations. In this type of course, which consists purely of cases, 14 to 15 cases may be assigned (one per week). The students have had sufficient lecture work in healthcare finance, so at this stage, learning by doing is the best way to prepare them for success in their chosen field.
- *Distance format*. The cases work particularly well in executive MHA programs. Executive students generally bring a great deal of real-world insight into their case analyses, which often makes the discussions livelier than those in traditional programs. In addition, the cases can be worked during the intervals between on-campus sessions, allowing plenty of time for group discussion and analysis.

Regardless of the course format, cases in healthcare finance are best analyzed by teams rather than by individual students. Typically, a team of four or five students is assigned to present a case in class. Teams that are not presenting may turn in written reports and act as members of the board of directors during the presentation. They are responsible for asking

relevant questions of the presenting team and pointing out any deficiencies in the analysis. Teamwork provides excellent experience for students because almost all decision making in business is done in a group environment, and individuals who cannot work in groups are doomed to fail. Students need to learn how to motivate the people who work for them and to be able to work with others in a cooperative manner. An in-class presentation also provides students the opportunity to hone their presentation skills. Healthcare executives constantly state that the ability to communicate is critical to success in business; knowledge of healthcare finance (or any other managerial discipline) is useless unless the individual can communicate his or her ideas to others.

For many instructors, the effective use of this casebook is enhanced by the ancillary materials that are available to those who adopt it:

- Spreadsheet models for students
- Spreadsheet models for instructors
- Case questions
- Case solutions
- PowerPoint presentations

Spreadsheet Models for Students

Spreadsheet analysis has become extremely important in all aspects of healthcare finance, so the cases have accompanying models that allow students to hone and improve their spreadsheet skills. Furthermore, spreadsheet models can reduce the amount of busywork required to perform analyses, giving students more time to focus on finance issues and qualitative factors that are relevant to the decision at hand.

To facilitate spreadsheet use, we developed well-structured, user-friendly models for each case. The spreadsheet models are efficient and hence big time savers, especially when conducting risk assessment using techniques such as sensitivity and scenario analyses. In addition, spreadsheet models allow students to easily create graphics and other spreadsheet output that enhance the quality of both the analyses and the presentations.

As we considered students' use of these models, an important question arose: Should we provide complete models to students, or should students be required to do some (or all) of the modeling themselves? After testing several different approaches, we concluded that the best solution for most

cases is to provide students with complete versions of the case models such that no modeling is required to obtain a base case solution. However, zeros have been entered for all input data in the student versions, so students must identify and then enter the appropriate input data. When this is done, the model automatically calculates the base case solution. However, the models do not contain risk analyses or other extensions such as graphics, so students must modify the models as necessary to make them most useful in completing the cases. The student versions of the case models can be accessed through the Health Administration Press website at ache.org/books/FinanceCases6. Students should visit the site to download the student version models.

Spreadsheet Models for Instructors

Instructor versions of the spreadsheet models are available for all 32 cases. The instructor models differ from the student models primarily in that the input data are intact in the instructor versions—that is, instructors can view the base case solution without entering any data. In addition, some of the instructor versions include additional modeling, such as risk analyses.

Case Questions

In general, cases may be classified as directed or nondirected. Directed cases include a specific set of questions that students must answer to complete the case, whereas nondirected cases (as we use the term) contain only general guidance to point students in the right direction. The primary advantage of nondirected cases is that they closely resemble how real-world managers confront financial decision making, because the cases require students to develop their own solution approach. The disadvantage is that students who stray from the key issues of the cases often do not obtain full value from their effort.

In general, students with more advanced analytical and logic skills and with relevant work experience gain the most from nondirected cases, whereas students who have had less exposure to casework and little or no work experience gain the most from directed cases. The online instructor's resources for this casebook contain a set of case questions for each case that allow nondirected cases to be converted into directed cases. Thus, instructors have the option of using the cases in either way, depending on the experience

of the students, the objectives of the course, and the extent to which cases will be used.

Case Solutions

Each case has a comprehensive solution that answers the case questions.

PowerPoint Presentations

Each case has a corresponding slideshow that introduces the main features of the case and spreadsheet model, presents the solution, and then wraps up the case with three key learning points. Instructors may either use these slides as is or customize them to meet unique class needs.

Changes in the Sixth Edition

We have used the fifth edition in numerous courses since its publication and have benefited from many student comments and suggestions. Moreover, we have received suggestions from other instructors who used the previous edition in a variety of settings. This feedback has resulted in many changes, both substantial and minor.

The most substantial change to the casebook involves authorship. The fifth edition was authored by Louis Gapenski and George Pink, but, sadly, Dr. Gapenski passed away in 2016 (see tribute in the About the Authors section). Fortunately, Dr. Paula Song, associate professor of healthcare finance at the University of North Carolina at Chapel Hill, agreed to step in as coauthor.

The cases have been reordered and grouped into specific areas of financial management. They are frequently used in conjunction with the most recent editions of *Healthcare Finance: An Introduction to Accounting and Financial Management* and *Understanding Healthcare Financial Management*; the cases can be mapped to the chapters in the current editions of these books as follows:

Case Number and Title	*Healthcare Finance, 6th Edition Chapter*	*Understanding, 7th Edition Chapter*
1. New England Healthcare	2	2
2. Orlando Family Physicians	2	3
3. Santa Fe Healthcare	2	3
4. Tulsa Memorial Hospital	5	
5. Shasta Faculty Practice	5	
6. Big Bend Medical Center	6	
7. Eagan Family Practice	6	
8. Dallas Health Network	6	
9. Cambridge Transplant Center	7	
10. Cascades Mental Health Clinic	8	
11. Gulf Shores Surgery Centers	9	4
12. Mid-Atlantic Specialty, Inc.	10	5
13. Pacific Healthcare (A)	11	6
14. Senior Care Enterprises	11	6
15. Pacific Healthcare (B)	12	7
16. Seattle Cancer Center	18	8
17. Southeastern Homecare	13	9
18. RN Temps, Inc.	13	10
19. Jones Memorial Hospital	14	11
20. Coral Bay Hospital	15	12
21. National Rehabilitation Centers	15	12
22. Northwest Suburban Health System	15	12
23. Commonwealth Health Plans	17	13
24. River Community Hospital (A)	17	13
25. River Community Hospital (B)		14
26. Mountain Village Clinic	16	15
27. Foster Pharmaceuticals	16	15
28. Clarinda Community Hospital	16	15
29. Milwaukee Regional Health System	16	15
30. St. Benedict's Teaching Hospital	18	16
31. Beachside Health Partners	18	16
32. Bedford Clinics	18	16

Many changes have been made to improve the cases and accompanying materials. Recent changes in the healthcare environment have been incorporated to ensure the cases remain contemporary. Many numerical values have been changed so that revenue and cost figures are more current and so that old case solutions posted on the Internet are no longer relevant. Several typos have been corrected, wording and format improvements have been made, and website URLs have been updated.

Substantial changes have been made to the ancillary materials for the sixth edition:

- *Spreadsheet models for students*. New student spreadsheets have been created for Case 11: Gulf Shores Surgery Centers (Time Value Analysis), Case 12: Mid-Atlantic Specialty, Inc. (Financial Risk), Case 13: Pacific Healthcare (A) (Bond Valuation), and Case 15: Pacific Healthcare (B) (Stock Valuation). The new spreadsheets still require students to perform calculations, but they also provide a template for their answers. All student spreadsheet models have two versions—one set contains tabs with case questions (for the directed case approach), and the other set contains no case questions (for the nondirected case approach). All student spreadsheets are consistent with the instructor spreadsheets.
- *Spreadsheet models for instructors*. These models have been revised to ensure formula accuracy, to incorporate new Excel functions, and to better present results.
- *Case questions*. Since the fifth edition, we have gained a lot of in-class experience with the case questions and made many modifications—to the point that many of the questions included in the sixth edition are completely different from those in the previous edition. We are constantly surprised by the importance of how case questions are worded. For example, a question without "Interpret the results" may lead students to simply submit numerical results without thinking about what they mean. A phrase we have inserted a lot is "Return to base case assumptions" because students confuse different scenarios. Sometimes, other instructors and students themselves have provided us with ideas for new questions that we had not considered before. Our primary goal in making these changes was to improve the pedagogic value of the cases.

- *Case solutions*. Changes to case questions and case numbers necessitated substantial revision of the case solutions. Sometimes, changing one number in a spreadsheet necessitated changing the entire numerical solution and the way it was written.
- *PowerPoint presentations*. In addition to a list of the main features of the case and three learning points, the case solution has been added to the PowerPoint slides. The slides consist of content to be displayed to the class as well as notes to the instructor. Typically, these presentations are each 15–20 slides in length and represent the most important improvement to the ancillary materials for this edition.

We are convinced that these changes will make the casebook even more useful to instructors and more beneficial to students in their quest for healthcare finance competency.

Acknowledgments

This casebook reflects the efforts of many people besides the primary authors. First, several of the cases that appear in this and previous editions were coauthored by Murray Côté, Robert Harmon, Ian Jamieson, Brett Justice, and Paul Phillips. Case 29 (Milwaukee Regional Health System) was coauthored by Scott Hawig, senior vice president of finance at Froedtert Health in Milwaukee, Wisconsin. In addition, colleagues, students, and staff provided inspirational support, as well as more tangible assistance, during the development and class testing of the revised cases. Finally, the Health Administration Press staff was instrumental in ensuring the quality and usefulness of this casebook.

Conclusion

The field of healthcare finance continues to undergo significant changes and advances. Participating in these developments is stimulating, and we sincerely hope that the sixth edition of *Cases in Healthcare Finance* helps students gain a better appreciation for the application of finance principles to healthcare organizations.

A book that raises so many issues will also inevitably generate a variety of opinions regarding both financial theory and practice. Furthermore,

although both the publisher and the authors have placed great emphasis on the accuracy of the cases and accompanying materials, some discrepancies or inconsistencies may remain. We appreciate any comments, corrections, criticisms, and ideas for improving all aspects of the cases and related materials.

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Instructor Resources

This book's instructor resources, which are fully described in this preface, include instructor versions of the spreadsheet models, case questions, case solutions, and PowerPoint presentations.

For the most up-to-date information about this book and its instructor resources, go to ache.org/HAP and browse for the book by its title or author names.

The instructor resources are available to instructors who adopt this book for use in their course. For access information, please e-mail hapbooks@ache.org

PREFACE FOR STUDENTS

There is no better way to learn healthcare finance than by working cases. Of course, a basic understanding of the principles and concepts that will be applied in the cases is necessary, and this knowledge generally is obtained from previous classroom work.

The finance cases in this book present situations that require analysis and judgment regarding financial decision making. Although the emphasis here is on financial analysis, real-world decisions are based as much (perhaps more) on qualitative factors as on the numbers. This means you must consider not only the financial implications of the cases but also the relevant nonfinancial factors before reaching final conclusions and making recommendations.

Working the Cases

All cases have accompanying spreadsheet models. These models can be downloaded from the Health Administration Press website at ache.org/books/FinanceCases6. Note that the input data in these models have been zeroed out. Thus, you will have to enter the appropriate values for these data to get the models to work. Also, note that the models contain only base case analyses. You must add to the models any extensions that the cases require, such as risk analyses and graphics (charts).

Note that, for most cases, there is more than one right answer. Indeed, in some cases, multiple approaches to the solution may be appropriate. The critical issue in presenting your findings is the ability to support your conclusions and recommendations.

An unlimited number of approaches to working the cases exist, and the approach that is optimal for one individual (or group) is not necessarily the best for another individual (or group). That said, here are some suggested steps to help in your casework. (Note that the cases differ in content, and one size [the steps below] does not fit all. Also, note that the guidance given here is generic in nature and does not take precedence over the guidance provided by your instructor.)

1. Scan the case to get an overall idea of the setting, topic, and decision at hand.
2. Look at the accompanying spreadsheet model to get a feel for its structure and the nature of the input data needed.
3. Read the case to identify alternative courses of action and to extract the data needed (typically model inputs) for the numerical analysis.
4. Read all of the case questions (if provided by the instructor) to get an idea of the types of analyses that will be asked of you.
5. Enter the base case data into the spreadsheet model, and check for any problems that might arise, including illogical results.
6. Conduct scenario, sensitivity, and other analyses as needed to either assess risks or make judgments about how uncertainty affects alternative courses of action.
7. Identify the qualitative factors that bear on the decision at hand. Don't forget this step!
8. Reach your final conclusions, which should logically lead to your recommendations.

Most of the information required to successfully work a case is contained in the case itself. However, you may encounter situations in which additional information would allow you either to feel more comfortable in your recommendations or to examine outside-the-box solutions. By all means, feel free to pull data from other sources as needed to create a more complete case solution. In fact, if the data needed are not easily available from other sources, there is nothing wrong with making your own assumptions—as long as they pass the "reasonableness" test.

Making a Presentation

Many of you, either as individuals or as a group, will be required to present your case analysis in class. Generally, your audience will not have written

material to refer to (except perhaps supporting financial statements, numerical tables, and so on). Thus, you must structure your presentation so that it can be easily followed and understood the first time around. Although most cases involve a great deal of detailed information, your presentation will be easy to follow if it is simply and clearly organized.

All effective presentations consist of four parts: (1) introduction, (2) body (analysis), (3) conclusions, and (4) recommendations. The first step in preparing a presentation is to construct the body. This is the analysis that must convince the audience that your conclusions and recommendations have merit. If the body is too long and complex, the audience will not be able to grasp its implications and hence will not understand the rationale behind your conclusions and recommendations. Conversely, an analysis that is too short will appear to be lacking in thought and substance and will raise more questions than it will provide answers. Similarly, a body that is not presented in a step-wise, logical sequence may contain the right information but still not get the job done because the audience just can't follow its logic.

Once the body of the presentation has been prepared, the introduction, conclusions, and recommendations should be added. The introduction serves three purposes: (1) gain the audience's attention, (2) describe the decision at hand, and (3) preview the main ideas that will be covered in the remainder of the presentation.

A presentation can have an excellent introduction and body but still be totally ineffective. There is nothing worse than a presentation that trails off, leaving the audience in the dark as to why they just spent 30 minutes listening. The conclusions must be strong and convincing such that the audience recognizes that a sound and thorough analysis has been achieved. Finally, the recommendations must provide concrete suggestions for action. In essence, the conclusions and recommendations should provide closure for the audience. Any questions remaining at this point should involve technical details as opposed to "What did you say we should do?"

Preparing the Slides

Often, you will be using PowerPoint slides as the basis for the presentations. Don't forget that the primary function of slides is to support your message. Thus, the slides must contain the key elements of the introduction, body (analysis), conclusions, and recommendations. Slides that are irrelevant or confusing detract from the presentation. In addition, showing too many slides is just as confusing to the audience as showing too few slides.

Don't put a great deal of numerical detail on the slides. For example, several years of financial statements on a single slide will not be readable. Similarly, breaking the statements into sections so that they are on multiple slides is a poor idea because the audience will not be able to see all the data at one time. For large amounts of data, handouts are preferable to slides. In short, put the key points on slides, but use handouts to provide the audience with numerical details.

Final Words

When all is said and done, the key to a good case analysis and presentation is preparedness: "Proper prior planning prevents poor performance." This philosophy applies to all phases of casework, including the presentation itself. How many times have you witnessed a presentation that started 15 minutes late because the laptop or projector didn't work or one of the presenters was late? Or, midway through the presentation, a slide either was missing or contained typographical errors? Such small details can cast a shadow of doubt over the analysis and presentation—and hence reflect poorly on the entire effort—but they can easily (and should) be avoided by proper planning.

CASE DESCRIPTIONS

Case 1: New England Healthcare. This case focuses on the development of a premium rate to be offered to a buyer consortium. Students must deal with coverage limitations and copays as well as the basic costs of providing services. In addition, the case requires the conversion of an aggregate per-member per-month cost into subscriber (single and family) premium rates.

Case 2: Orlando Family Physicians. This case involves the measurement of physician productivity, financial performance, and quality of care and the use of those measures in determining pay for performance. Alternative methodologies are proposed in the case, and students must choose among the options given. The case also raises issues about how to ensure that compensation systems can be trusted, understood, equitable, and affordable in addition to providing proper incentives.

Case 3: Santa Fe Healthcare. This case focuses on the problems faced by a physician–hospital organization (PHO) when one of its most important payers proposes that its fee-for-service payment methodology change to a fixed per-member per-month payment. This situation forces the PHO to consider how to handle a full-risk contract that both presents utilization risk and requires the fixed payment and associated risk to be shared among the hospital, specialist physicians, and primary care physicians.

Case 4: Tulsa Memorial Hospital. This case involves the volume break-even analysis of an unprofitable hospital-owned walk-in clinic. Because the spreadsheet model for this case does the busywork, students can concentrate on the problems inherent in volume break-even analysis and its value to

managers in making service decisions. In addition, many qualitative factors play a role in this case.

Case 5: Shasta Faculty Practice. This case focuses on the use of physician extenders in three clinical settings. Students must make judgments about which type of extender (physician assistant or nurse practitioner) is most appropriate for each clinic. In addition, students must perform a cost–benefit analysis to assess the financial impact. The spreadsheet model eases the quantitative burden, but students must make the hard assumptions needed regarding the extender impact on volumes, reimbursements, and costs.

Case 6: Big Bend Medical Center. This case focuses on the question of what constitutes a good cost driver. Students must ponder the fairness of allocating a higher amount of facilities overhead to a department that is being forced to move to a new facility. The case raises many issues regarding cost drivers, fairness, and cost-reduction effectiveness.

Case 7: Eagan Family Practice. This case focuses on the mathematics of cost allocation. Students must use four allocation methods (direct, step-down, double apportionment, and reciprocal) to allocate costs from three support departments to three patient service departments. The case is very mechanical in nature and does not require significant consideration of qualitative issues.

Case 8: Dallas Health Network. This case focuses on using activity-based costing (ABC) techniques to estimate the costs associated with two alternative approaches to providing ultrasound services. Although this case is not complex, it allows students to experience the complexities associated with ABC analysis. The case includes sensitivity analyses on many input variables and considers various qualitative factors that affect the selection decision.

Case 9: Cambridge Transplant Center. This case focuses on the pricing of transplant services. It requires students to do some calculations, but not a large-scale quantitative effort. The primary purpose of the case is to allow students to consider alternative (full vs. marginal) pricing approaches when negotiating with third-party payers. It also emphasizes that, in some situations, marginal costs include marginal fixed costs as well as variable costs.

Case 10: Cascades Mental Health Clinic. This case focuses on a budgeting variance analysis of four managed care product lines. Because of the large number of required calculations, the accompanying spreadsheet model does the mathematical busywork. To add to the mathematical complexity,

the case involves both utilization and enrollment differences. Although the calculations are somewhat mechanical, there is ample room for student interpretation and recommendations.

Case 11: Gulf Shores Surgery Centers. This case focuses on the mechanics of time value analysis. The case is meant to make students think about the time value process and understand the underlying calculations.

Case 12: Mid-Atlantic Specialty, Inc. This case focuses on basic financial risk concepts. Its goal is to give students a sound understanding of the three types of financial risk (stand-alone, corporate, and market) and their implications for decision making in healthcare organizations.

Case 13: Pacific Healthcare (A). This case focuses on the mechanics of bond valuation as opposed to the managerial decisions inherent in floating a bond issue. Much of the bond valuation work is at the basic level, but the case delves into yield to call and expected rate of return when an issue has a sinking fund.

Case 14: Senior Care Enterprises. This case focuses on the mechanics of the bond refunding decision. The accompanying spreadsheet model does the mathematical busywork. The case presents three refunding options and asks students to make a specific choice. In addition, several qualitative issues are presented.

Case 15: Pacific Healthcare (B). This case takes students through the mechanics of stock valuation (not the managerial decision process that surrounds a new stock issue), including both the constant and nonconstant growth dividend models.

Case 16: Seattle Cancer Center. This case looks at the equipment leasing decisions facing a hospital. The case requires students to perform both lessee's and lessor's analyses. It brings out many side issues, including the correct discount rate, the uncertainty of residual value, the impact of cancellation and per procedure clauses, and the effects on both parties of leveraging the lease.

Case 17: Southeastern Homecare. This case focuses on the estimation of a business's cost of capital, including both corporate and divisional costs. Because the required calculations are relatively simple, the accompanying spreadsheet model is very basic. However, students must grapple with numerous conceptual issues regarding both estimation methodologies and the interpretation and use of the cost of capital once it is estimated.

Case 18: RN Temps, Inc. This case examines the capital structure decision for an investor-owned company that franchises "rent-a-nurse" businesses. Here, the primary analytical tool is a zero-growth model that calculates stock price under alternative capital structures. However, the case also examines the impact of financial leverage on accounting profits and asks students to consider the business's value under two theoretical models (Modigliani-Miller and Miller). The case also requires students to consider qualitative factors in making the final decision.

Case 19: Jones Memorial Hospital. This case focuses on a capital investment decision that involves the use of alternative technologies. Complicating the analysis is that one technology frees up inpatient beds for alternative purposes (backfill). The case examines a simplistic replacement analysis, which also makes students consider the differences between replacement and new project analyses.

Case 20: Coral Bay Hospital. This case contains a traditional (no nuances) capital budgeting analysis, including cash flow estimation, decision measures, risk assessment, and risk incorporation. In evaluating the financial attractiveness of a proposed outpatient surgery center, students are confronted with many of the problems that occur in such analyses. An accompanying spreadsheet model helps with the calculations. This is a good case for illustrating Monte Carlo simulation.

Case 21: National Rehabilitation Centers. This case focuses on the advantages of making significant capital investments in stages rather than as a large single investment. It uses decision tree methodology to determine project risk and to illustrate the benefits of abandonment. The accompanying spreadsheet model permits students to spend more time on conceptual matters and takes the tedium out of the calculations.

Case 22: Northwest Suburban Health System. This case investigates three alternative proposals for a hospital system's print shop, including closure and outsourcing all work. It also requires students to grapple with several technical issues related to discounted cash flow analysis, such as the handling of non-normal cash flows. Finally, the case examines the strategic issue of entering the commercial (for-profit) printing market.

Case 23: Commonwealth Health Plans. This case requires the financial statement analysis of a managed care firm. It presents two years of data and discusses benchmarking against primary competitors and the industry.

Case 24: River Community Hospital (A). This case requires the financial statement analysis of a 210-bed hospital, including financial and operating ratio analyses. The accompanying spreadsheet model does most of the calculations, so students can focus on analysis, interpretation, and recommendation for managerial actions.

Case 25: River Community Hospital (B). This case, which builds on the information given in Case 24, focuses on the development of a hospital's forecasted financial statements. It encompasses both forecasting and financial accounting considerations. Although the accompanying spreadsheet model provides a framework for the forecasting process, students must modify the model to incorporate appropriate forecasting techniques. In addition, students must make an extensive set of assumptions about both the future of the hospital industry and the operations of one particular hospital.

Case 26: Mountain Village Clinic. This case is a traditional cash budgeting exercise. It calls for students to develop six monthly budgets, a daily budget for a single month, and a worst-case budget. The spreadsheet model, which reduces the amount of busywork required, facilitates sensitivity analyses regarding both patient volume and collection experience. The case presents students with the opportunity to discuss many facets of cash management.

Case 27: Foster Pharmaceuticals. This case focuses on the basics of receivables management. A start-up drug company is used to illustrate such concepts as average collection period (days sales outstanding), aging schedules, uncollected balances schedules, and the cost of carrying receivables. To complicate matters, these concepts must be applied to multiple customers.

Case 28: Clarinda Community Hospital. This case leads students through an inventory decision process involving supplier selection and optimal ordering quantity (and hence inventory level). The case focuses primarily on the economic ordering quantity model, although students must also categorize inventory items according to the activity-based costing model.

Case 29: Milwaukee Regional Health System. This case focuses on the revenue cycle management process. Students are required to choose appropriate metrics to measure both overall performance and performance within each revenue cycle function. In addition, students must compare both hospital and clinic metric values against national benchmarks and suggest improvement actions where needed. The case also requires students to calculate and

compare chargemaster prices to actual reimbursement amounts for several different payers.

Case 30: St. Benedict's Teaching Hospital. This case explores the valuation of a not-for-profit hospital for possible acquisition by another not-for-profit hospital. In addition to the numerical analysis, the case raises several issues related to control after the merger. Although the accompanying spreadsheet model does the busywork, students must think a great deal about the impact of the merger on both entities and future cash flows.

Case 31: Beachside Health Partners. This case focuses on the analysis of a proposed joint venture involving three equity partners: a hospital and group practice as general partners and individual physicians as limited partners. Students must consider both the costs of capital for the partners and the allocation of cash flows to the equity participants. In addition, the case addresses several qualitative issues, including the risks associated with new, unproven technology as well as the ethical and legal issues involved in income-generating referrals.

Case 32: Bedford Clinics. This case requires students to value a family physician group practice. The case provides data to allow students to use both discounted cash flow and market multiple methodologies. Because of a host of qualitative and quantitative issues, the ultimate answer here is filled with uncertainties. The spreadsheet model helps with the calculations.

PART I

THE HEALTHCARE ENVIRONMENT

CASE 1

NEW ENGLAND HEALTHCARE

PREMIUM DEVELOPMENT

New England Healthcare is a regional not-for-profit managed care company headquartered in Hartford, Connecticut. Currently, the company has more than 1 million enrollees in 25 different plans offered in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. Recently, a consortium of employers—including major companies such as IBM, GE, and Prudential—contacted New England to bid on a managed care (health maintenance organization) contract the consortium will offer to its 75,000 employees and family members in and around Nashua, New Hampshire.

New England's approach to premium development starts with the recognition that the premium received from employers must cover two different categories of expenses: (1) the cost of providing required healthcare services (medical costs) and (2) the cost of administering the plan and establishing reserves (other costs). Reserves, which typically are required by state insurance regulators, are necessary to ensure that funds are available to pay providers when medical costs exceed the amount collected in premium payments. As a not-for-profit corporation, New England does not explicitly include a profit element in its premium. However, the reserve requirement is set sufficiently high that income from reserve investments is available to fund product expansion and growth; in effect, a portion of the reserve requirement constitutes profit.

New England uses a multistep approach in setting its premiums. First, a base per-member per-month (PMPM) cost is estimated for each covered benefit of the plan. When the premiums are initially established for a new subscriber group, the base PMPM costs are usually developed on the basis

of historical utilization and cost data. If data are available on the specific subscriber group, as with the consortium contract, these data are used. Otherwise, the base PMPM costs are based on utilization and cost data from one or more proxy groups, which are chosen to match as closely as possible the demographic, utilization, and cost patterns that will be experienced under the new contract. In addition, any utilization or cost savings that will result from New England's aggressive utilization management program is factored into the premium.

Second, the base PMPM cost is adjusted to reflect the dollar amount of copayments to providers as well as the estimated impact of copayment and benefit options on utilization and hence medical costs. Copayments, which are an additional source of revenue to the provider panel, reduce New England's medical costs and thus lower the consortium's premium. Furthermore, the higher the copayment, the lower the utilization of that service, especially if it is noncritical.

Finally, limitations are set on the benefits package. The more restrictive the benefits package, the lower the costs associated with medical services. The result of these adjustments is an adjusted PMPM cost for each service. The costs are then summed to obtain the total medical PMPM amount.

To estimate the total nonmedical PMPM amount, New England typically adds 15 percent to the total medical PMPM amount for administrative costs and 5 percent for reserves. The sum of the total medical and total nonmedical amounts—called the *total PMPM amount*—is the per member amount New England must collect each month from the consortium to meet the total costs of serving the healthcare needs of the plan subscribers (the employees).

After the total PMPM amount is calculated, it must be converted into actual premium rates for individual and family coverage. Using data provided by the consortium, New England estimates that 45 percent of subscribers will elect individual coverage, while the remaining 55 percent will choose family coverage. New England plans to offer the consortium a two-rate structure, under which employees may elect either single or family coverage. Data from the consortium indicate that family coverage, on average, includes 3.5 individuals; thus, all else the same, the premiums for family coverage should be 3.5 times as much as for individual coverage. However, children typically consume fewer healthcare services, on a dollar basis, than do adults, so the final premiums must reflect such differentials.

Here are the factor rates for obtaining individual and family premium rates:

Single factor: 1.216	Family factor: 3.356

In setting the specific premium rates, New England must ensure that the total premiums collected, which would be paid by both employer and employees, equal the estimated total calculated using the PMPM rate. The 75,000 members who would be served by the contract consists roughly of 12,000 individuals and 18,000 families. Thus, 75,000 × Total PMPM amount must equal (12,000 × Single premium) + (18,000 × Family premium). **(Note that all the data in this case are for illustrative purposes only and do not reflect current healthcare costs.)**

Exhibit 1.1 is a partially completed copy of the worksheet New England uses to establish the total PMPM amount and the premium rates on any contract. The worksheet is a relatively easy guide for implementing the procedures just described. Exhibit 1.2 contains the relevant cost and utilization adjustment factors for a variety of service and copayment options. Adjustment factors are the decisions made on the appropriate service and copay structure, which feed into the calculations for each service's medical PMPM amount, as shown in exhibit 1.1.

The consortium has furnished New England with a significant amount of data on its employees' current utilization of healthcare services. The employees' inpatient cost and utilization data are as follows:

Average daily fee-for-service charge	$2,800
Utilization ($100 copay)	500 days per year per 1,000 members

Note, however, that a recent survey of New Hampshire hospitals indicates that most managed care contracts call for per diem payments in the range of $2,000 to $2,400. In addition, New England's experience with similar employee groups indicates that moderate utilization management would result in 400 to 450 inpatient days per 1,000 plan members.

Exhibit 1.3 shows the current cost and utilization data for other facility services, including skilled nursing care, inpatient mental health care, hospital surgical services, and emergency department care. The employees' utilization data for primary care services are as follows:

Current number of primary care visits ($5 copay)	3.4 per year per member

New England routinely pays primary care physicians a capitated amount based on an annual cost of $200,000. It assumes that one primary care physician can handle 4,000 patient visits per year. The employees' utilization and cost data for specialist office visits are as follows:

Current number of specialist office visits ($0 copay)	1.5 per year per member
Current cost per visit	$92.65

Note that the total PMPM amount shown in exhibit 1.1 may be modified to reflect anticipated medical cost inflation. This adjustment is especially critical if the total PMPM premium is based on relatively old cost data. The cost data provided in this case can be assumed to be two years old: The data are from the previous year, and the contract would not be in place for yet another year. Also, note that the premium calculation in exhibit 1.1 does not include certain medical services, such as routine vision and dental care, chiropractic services, durable medical equipment, out-of-network services, and pharmacy benefits. The consortium specifically requests that the initial premium bid exclude such "rider" services. However, if New England is chosen to submit a final premium bid, the consortium will likely request pricing on one or more riders.

Finally, with no guidance from the consortium regarding the level of services desired or the copay structure, New England intends to offer three choices to the consortium: low cost, moderate cost, and high cost. The low-cost (to the consortium) plan requires higher copays from employees and has more limitations on covered services. The high-cost plan has lower copays and fewer limitations. The moderate-cost plan falls between the two extremes.

You have recently joined New England Healthcare as its marketing analyst. Your first task is to develop the bid presentation to the consortium.

EXHIBIT 1.1
New England Healthcare: Premium Development Worksheet

I. Medical Expenses

	Base PMPM Cost	*Copay Adjustment Factors*		*Adjusted PMPM*
		Cost	*Utilization*	
Facility Services				
Inpatient:				
Acute	$			$
Skilled nursing				
Mental health				
Substance abuse	0.41	1.0000	1.0000	0.41
Surgical procedures				
Emergency department				
Outpatient procedures	3.43	1.0000	1.0000	3.43
Total facilities				
Physician Services				
Primary care services				
Specialist services:				
Office visits				
Surgical services	9.00	0.9544	1.0000	8.59
All other services	23.67	0.8659	0.9100	18.65
Total physicians				
Total medical PMPM amount				

II. Nonmedical Expenses

Administrative	
Reserves	
Total nonmedical PMPM amount	

III. Total Expenses

Total PMPM amount	

IV. Premium Rates

	Single	*Family*
Rate factor		
Premium rate		

EXHIBIT 1.2
New England Healthcare: Cost and Utilization Adjustment Factors

	Patient Copay Amount	*Copay Cost Adj. Factor*	*Copay Utilization Adj. Factor*
Facility Services			
Inpatient acute	$ 0	1.0000	1.0000
	100	0.9851	0.9750
	150	0.9777	0.9600
	250	0.9642	0.9200
Skilled nursing	$ 0	1.0000	1.0000
Mental health:			
30-day limit	$ 0	1.0000	0.9524
	100	0.9805	0.9286
	150	0.9707	0.9143
	250	0.9532	0.8762
60-day limit	$ 0	1.0000	1.2000
	100	0.9845	1.1700
	150	0.9768	1.1520
	250	0.9628	1.1040
90-day limit	$ 0	1.0000	1.2500
	100	0.9851	1.2188
	150	0.9777	1.2000
	250	0.9643	1.1500
Surgical procedures	$ 0	1.0000	1.0000
	100	0.9231	1.0000
	150	0.8846	1.0000
	250	0.8077	1.0000
Emergency department	$ 0	1.0857	1.0250
	15	1.0000	1.0000
	25	0.9429	0.9850
	50	0.8000	0.9550

EXHIBIT 1.2 (continued) New England Healthcare: Cost and Utilization Adjustment Factors

	Patient Copay Amount	*Copay Cost Adj. Factor*	*Copay Utilization Adj. Factor*
Primary Care Services	$ 0	1.0352	1.0150
	5	1.0000	1.0000
	10	0.9472	0.9800
	15	0.8593	0.9500
	20	0.7713	0.9200
	25	0.6834	0.8900
Specialist Services			
$0 PCP copay	$ 0	1.0000	1.0000
	5	0.8897	0.9730
	10	0.7795	0.9590
	15	0.6692	0.9450
$10 PCP copay	$ 0	1.0000	0.9920
	5	0.8897	0.9600
	10	0.7795	0.9460
	15	0.6692	0.9320
$20 PCP copay	$ 0	1.0000	0.9680
	5	0.8897	0.9360
	10	0.7795	0.9220
	15	0.6692	0.9080

PCP: primary care physician

Note: New England uses various incentive systems to control utilization of specialty services. One system requires PCPs to assess a copay for each specialist office visit.

EXHIBIT 1.3
Consortium Employee Utilization and Cost Data: Other Facility Services

Skilled nursing facility care	25.2 days per year per 1,000 members
Current average daily cost	$650
Inpatient mental health care ($0 copay)	64.4 days per year per 1,000 members
Current average daily cost	$740
Hospital-based surgery ($0 copay)	41.7 cases per year per 1,000 members
Current costs	$1,800 per case
Emergency department care ($15 copay)	132 visits per year per 1,000 members
Current costs	$250 per visit (see note)

Note: The emergency department cost is the total charge for facility services, some of which would be covered by the $15 copay.

CASE 2

ORLANDO FAMILY PHYSICIANS

PAY FOR PERFORMANCE

Orlando Family Physicians is a medical group practice located in Orlando, Maine. The practice has four family practice physicians and a medical support staff consisting of a practice manager, two receptionists, four nurses, two medical assistants, two billing clerks, and one laboratory technician. Data relevant to the practice are shown in exhibits 2.1 through 2.3.

Orlando is organized as a partnership, with each physician having an equal share. Although the practice manager has the authority to make the day-to-day business decisions, all strategic decisions are made jointly by the partners. In addition, Orlando uses a local certified public accountant (CPA) to prepare and file its taxes and to act as a financial advisor when needed.

At Orlando, the current policy is to provide equal compensation to all four physicians. Last year, each physician was paid the same monthly salary ($12,500). At the end of the year, profits that were not needed for reinvestment in new assets were divided equally among the partners ($30,000 each). Although this "equal pay for equal work" policy has been in place since Orlando was founded in 1996, it has caused growing discontent among the partners. Not surprisingly, each of the physicians believes that he or she works harder than the others and hence should receive greater compensation. In addition, the physicians recognize the importance of putting away some profits to pay for new medical equipment that will replace aging items and expand the range of services offered.

A recent survey by the Medical Group Management Association indicated that less than 10 percent of group practice family physicians are compensated on a straight salary basis, while the majority are compensated on the basis of productivity. Of those compensated according to productivity

measures, about half are paid solely on productivity and half receive a base salary plus a bonus component based either on productivity alone or on productivity and other measures. (For more information on the Medical Group Management Association, see www.mgma.com.)

To reward those physicians who truly work harder and to create the incentive for all physicians to be as productive as possible, the partners instructed the practice manager to assess the current compensation system and to recommend any changes that would improve the system.

You are the practice manager at Orlando Family Physicians. As a start, you scheduled a meeting with the partners to gain some initial guidance. At this meeting, the partners agreed that any proposed system must have the following five characteristics:

1. *The system must be trusted.* Physicians must trust not only the data used but also the integrity and competency of the individuals who administer the system. The compensation model itself may be sound, but a lack of faith in either the data or the administration of the system will lead to a lack of confidence in the entire system.
2. *The system must be clearly understood.* In the search for the perfect system, practice managers tend to create a model that is overly complex, and hence the links between pay and performance cannot be easily identified. If the physicians cannot easily identify what performance is necessary to increase pay, the system will not have the desired results.
3. *The system must be perceived to be equitable.* If the physicians do not believe that the system is fair—that is, those physicians who contribute more are paid more—it is doomed to fail.
4. *The system must create the proper incentives.* A fundamental objective of any compensation plan is to maintain the financial viability of the organization. Thus, the model must create incentives that promote behavior that contributes to the success of the group. Furthermore, the incentives offered must be large enough to encourage physicians to change behavior.
5. *The system must be affordable.* The costs of implementing and administering the system must be reasonable. Furthermore, the total amount of incentive compensation paid must not impair the ability of the practice to cover its operating costs, replace existing assets, or acquire new assets.

The general agreement among the physicians is that the compensation system should consist of a base salary plus some form of pay-for-performance scheme. For example, each physician might receive a base salary of $6,000 per month, and the remaining compensation would be based on some measure(s) of performance.

Even with this agreement, the task of making recommendations for change in the physician compensation system is daunting. After all, many systems are available, each with its own strengths and weaknesses. To gain a better appreciation of the possible choices, you downloaded from the Internet several articles about pay for performance. Then, you met with Jennifer Wong, Orlando's CPA, to learn about the alternative systems used at other practices. After several meetings with Jennifer, you conclude that the following potential measures might be appropriate for Orlando's pay-for-performance plan.

Productivity Measures

- *Number of patient visits.* This measure is a simple count of the annual number of patient visits for a physician, regardless of the time per visit or type of patient. More patient visits indicate higher physician productivity.
- *Work relative value units (RVUs)*. Jennifer consulted with another group practice that uses RVUs to measure productivity. RVUs form the basis of physician compensation for Medicare services. Under this system, each physician service has three relative value components: (1) physician work, (2) practice expense, and (3) malpractice expense. More work RVUs indicate higher productivity.
- *Professional procedures*. This measure is a simple count of the annual number of procedure codes (such as injections), regardless of the time per procedure, type of procedure, or reimbursement amount. More professional procedures indicate higher productivity.

Financial Measures

- *Gross charges.* This measure is the total gross charges generated by a physician during the year (discounts, allowances, and costs are ignored). Gross charges are easily identified from the current billing system used by the practice. More gross charges indicate higher physician financial performance.

- *Net collections*. This measure is the total collected revenue generated by a physician during the year (gross charges minus discounts and allowances; again, costs are ignored). Net collections are also easily identified from the current billing system used by Orlando. More net collections indicate higher financial performance.
- *Net income.* This measure is the total net income (before physician compensation) generated by a physician during the year. As stated, gross charges and net collections are easily identified from the current billing system used by Orlando. However, this measure requires allocation of practice costs to individual physicians. With limited data at hand, one possible solution is to divide the total costs of the practice into fixed and variable components and then allocate the fixed component equally to all four physicians and allocate the variable component on the basis of some measure of resource utilization, such as professional procedures. Higher net income indicates higher financial performance.

Quality Measures

- *Average patient satisfaction.* This measure is an average of the patient satisfaction scores for a physician. Higher patient satisfaction scores indicate higher physician quality.
- *Blood pressure control.* This measure indicates whether a physician met a target for blood pressure control among the patients seen during the year. The Centers for Medicare & Medicaid Services (CMS) sponsored the Physician Group Practice (PGP) Demonstration, which ended in 2010 but has been extended under the program PGP Transition Demonstration (see https://innovation.cms.gov/initiatives/physician-group-practice-transition/). Under the PGP, participating physicians are eligible to earn separate quality payments if they meet performance targets on a variety of quality measures. Blood pressure control is one of the quality measures that apply to all Medicare beneficiaries who meet age and sex criteria. Attaining the target indicates higher quality.
- *Breast cancer screening*. This is another PGP Demonstration quality measure that applies to all Medicare beneficiaries who meet age and sex criteria. Attaining the target indicates higher quality.

Of course, any combination of these measures could be used, making a wide variety of solutions possible.

Armed with this information, you held another meeting with the partners and Jennifer to understand their views regarding physician compensation. The meeting had three agenda items: (1) Should pay for performance be based on productivity, financial performance, and/or quality? (2) What total dollar amount should be allocated to performance pay versus base salary? (3) What amount of net income (after physician compensation) should the practice target?

At the beginning of the meeting, all agreed that the physicians who contribute most to Orlando should receive the highest compensation. However, they could not reach an agreement on how to define "contribute most." For example, one physician stated that work effort is the most meaningful measure. "Let's just use the number of patient visits—it's simple, and we all agree that more visits require more work," he argued. But this was challenged by another physician, who stated that many of her patients are elderly and chronically ill who require much more time per visit than do younger, healthier patients. Work RVUs are another basis of measuring productivity, but the physicians weren't sure about using the data from a billing system for such a purpose. Another physician argued that the real money is in procedures. Historically, physicians have been paid relatively well for diagnostic and treatment procedures, and group practices that do a lot of procedures have done well financially. Therefore, it makes sense to reward those physicians who perform higher numbers of professional procedures. But another physician was uncomfortable with rewarding such a narrow part of clinical practice. "Besides," he said, "I am getting older and don't do as many procedures as I once did."

Next, the discussion turned to financial performance measures. Although one physician strongly believed that gross charges were the best measure, another countered that (1) gross charges do not reflect reimbursement amounts and (2) gross charges generated at the expense of high costs do not financially help the practice much. Jennifer jumped in at that point, saying that the strength of the net income measure is that physicians are held responsible for both revenues and costs. Thus, physicians would have the incentive to be more productive (generate more revenues) while reducing the costs associated with operating the practice. However, the cost allocation required for calculation of net income can only be roughly estimated, so it will be difficult to convince the physicians that the allocation has true economic meaning.

Performance pay based on quality was the last item discussed. One physician stated that too much emphasis is placed on money. If the physicians do not provide high-quality medical care and keep their patients happy, there will be no patients and hence no revenues. Thus, she argued, "Patient satisfaction is just as important as revenue generation." In addition to the patient satisfaction issue, one partner noted that Orlando physicians provide care to many Medicare beneficiaries. "It's important to gain experience with the pay-for-quality approach that CMS is supporting," he argued. However, the reaction to this comment was mixed. Two partners thought the whole idea of rewarding physicians for practicing good medicine is ludicrous. One commented that the profession is in a sad state of affairs if physicians have to be paid extra to do what is right. On the other hand, another partner stated that if this were the trend among payers, it might be wise to build similar quality guidelines into Orlando's compensation system.

At the end of the discussion on agenda item 1, one physician stated, "It's clear we don't agree on how to measure performance, so why don't we just use all of the measures? Then everybody will be happy." The thought of using all of the measures made you shudder because of the complexity of interpreting the results and the administrative burden that would be required.

Then, the meeting turned to agenda item 2: the actual amount to be allocated to performance pay. One physician suggested that, because they could not agree on how to measure performance, compensation should be composed mostly of base salary and only a small amount of performance pay—say, $10,000 per physician. This brought a chorus of "why bother" from the other physicians. "This isn't enough of an incentive for anything—after all, we spend more than that on lattes," one joked. In contrast, another physician stated, "I'd prefer to base all of our compensation on performance. Who can argue with productivity, financial performance, and quality?" After a prolonged discussion, the only agreement reached was that the dollar amount allocated to performance pay should be high enough to make physicians pay attention to performance but should be less than the amount of base salary.

Agenda item 3 revolved around the target net income (after physician compensation). In contrast to their dissension on the other agenda items, all of the physicians readily agreed that the net income after physician compensation of the practice has to be at least $70,000 to pay for new medical equipment that the practice requires.

At the end of the meeting, you could tell that the task of revising Orlando's compensation system would not be easy. None of the approaches initially identified could be ruled out. Furthermore, you are given only broad direction on the dollar amount to be allocated for performance pay. Your major hurdle is to develop a system that would be supported by all four partners. Thus, the ability to "sell" the system to the partners is just as important as the system itself.

To ensure an orderly approach to the assignment, you decide to (1) use the historical allocation between base salary and performance pay as a starting point, (2) assess the sensitivity of physician pay to the various performance measures, and (3) recommend the system you believe is best for Orlando. Finally, you recognize that the merits of alternative compensation systems are influenced somewhat by the nature of the practice's revenue stream (reimbursement). Almost half of Orlando's revenues come from Medicare and Medicaid, and the remainder comes from commercial insurers, including managed care plans. Some of the managed care plans were using capitated payment systems several years ago, but today all of Orlando's payers use fee-for-service methodologies.

EXHIBIT 2.1
Orlando Family Physicians: Historical Support Staff Salaries

	Number of Employees	*Total Compensation*
Practice manager	1	$ 75,168
Receptionists	2	48,652
Nurses	4	237,000
Medical assistants	2	52,615
Billing clerks	2	62,165
Laboratory technician	1	46,788
Total		$522,388

EXHIBIT 2.2
Orlando Family Physicians: Historical Financial Data

Gross charges	$2,242,648
Net collections	$1,747,059
Practice expenses:	
Support staff salaries	$ 522,388
Facilities cost	298,351
Supplies cost	136,257
Total practice expenses	$ 956,996
Net income before physician compensation	$ 790,063
Physician compensation:	
Base salaries	$ 600,000
Bonus	120,000
Total physician compensation	$ 720,000
Net income after physician compensation	$ 70,063

EXHIBIT 2.3
Orlando Family Physicians: Historical Physician Data

	Physician Identifier				
	A	*B*	*C*	*D*	*Total*
Patient visits	4,023	3,567	3,966	4,244	15,800
Number of RVUs	4,667	5,055	5,475	4,967	20,164
Professional procedures	6,255	6,972	7,287	6,742	27,256
Gross charges	$527,820	$535,841	$602,675	$567,312	$2,242,648
Net collections	$422,256	$401,881	$421,872	$501,050	$1,747,059
Average patient satisfaction score	89	80	87	94	
Blood pressure control target met?	Yes	Yes	Yes	No	
Breast cancer screening target met?	No	Yes	No	No	

RVUs: relative value units

Notes:
1. The RVUs listed are work RVUs, which are only one of the three components used in Medicare physician reimbursement.
2. Over the past five years, the average annual amount reinvested in the practice was $65,000.
3. Patient satisfaction scores are measured using a 100-point scale.

CASE

3

SANTA FE HEALTHCARE

CAPITATION AND RISK SHARING

Santa Fe Memorial Hospital is a community hospital in Green Bay, Wisconsin. Recently, the hospital and its affiliated physicians formed Santa Fe Healthcare, a physician–hospital organization (PHO). Santa Fe is close to signing its first contract to provide exclusive local healthcare services to enrollees in BadgerCare (the Plan), the local Blue Cross Blue Shield of Wisconsin HMO. For the past several years, the Plan has contracted with a different Green Bay PHO, but financial difficulties at that organization have prompted the Plan to consider Santa Fe as an alternative. In the proposed contract, Santa Fe will assume full risk for patient utilization. In fact, the proposal calls for Santa Fe to receive a fixed premium of $200 per member per month from the Plan, which it then can allocate to each provider component in any way it deems best using any reimbursement method it chooses.

Santa Fe's executive director, Dr. George O'Donnell, a cardiologist and recent graduate of the University of Wisconsin Nonresident Program in Administrative Medicine, is evaluating the Plan's proposal. To help do this, Dr. O'Donnell hired a consulting firm that specializes in PHO contracting.

The first task of the consulting firm was to review Santa Fe's current medical panel and estimate the number of physicians, by specialty, required to support the Plan's patient population of 50,000, assuming aggressive utilization management. The results in exhibit 3.1 show that Santa Fe's medical panel currently consists of 249 physicians, whereas the number of physicians required to support the Plan's patient population is only 59. Note, however, that Santa Fe physicians serve patients other than those in the Plan. Thus, the total number of physicians required to treat all of Santa Fe's patients far exceeds the 59 shown in the right column of exhibit 3.1.

The second task of the consulting firm was to analyze Santa Fe physicians' current practice patterns. Clearly, utilization, and hence cost, is driven by Santa Fe's physicians and that variation in practice patterns is costly to Santa Fe. Results of the analysis show significant variation in practice patterns, both in the physicians' offices and in the hospital. For example, exhibit 3.2 contains summary data on hospital costs by physician for three common diagnosis-related groups (DRGs). Consider DRG 470 (major joint replacement). The physician with the lowest hospital costs averaged $12,872 in costs per patient, the highest-cost physician averaged $24,638, and the average cost for all physicians was $14,999. The consulting firm commented that reducing this variation is important because Santa Fe is at full risk for patient utilization.

The third task of the consulting firm was to recommend an appropriate allocation of the premium dollars to each category of provider. Specifically, the contract calls for Santa Fe to receive $200 per member per month, for a total annual revenue of $200 × 50,000 members × 12 months = $120 million. To reduce potential conflicts about how to divide the $120 million among providers, the consulting firm proposed a "status quo" allocation that would maintain the current revenue distribution percentages shown in exhibit 3.3.

The final task of the consulting firm was to recommend provider reimbursement methodologies that create appropriate incentives. In the contract, Santa Fe assumes full risk for patient utilization, so the consulting firm recommended that all component providers be capitated to align cost minimization incentives throughout Santa Fe. Furthermore, capitation of all providers would eliminate the need for risk pools, a risk-sharing arrangement that Santa Fe has never used. In addition to the consulting firm's report, Dr. O'Donnell decided to ask Santa Fe's new operations committee for a short report on the current line of thinking among Santa Fe's major providers. The committee provided the following information.

Santa Fe Memorial Hospital

Historically, the profitability of Santa Fe Memorial Hospital has been roughly in line with the industry. Last year, when the hospital received about 75 percent of charges, on average, the hospital achieved an operating margin of about 3 percent. However, hospital managers are concerned about its profitability if the Plan's proposal is accepted. The managers believe that controlling costs under the full-risk contract would require extraordinary efforts and that the most effective way to control costs is to create a subpanel

of physicians to participate in the capitation contract. When asked how the subpanel should be chosen, the operations committee recommended choosing the physicians who would do the best job of containing hospital costs.

Primary Care Physicians

Many of the primary care physicians are dissatisfied. On average, primary care physicians receive only about 60 percent of charges and are concerned about being penalized by accepting utilization risk for the Plan's enrollees. Primary care physicians know that they are paid less and believe that they have to work much harder than do the specialists. Furthermore, primary care physicians believe that the specialists supplement their own incomes by overusing in-office tests and procedures. Some primary care physicians are even talking about dropping out of Santa Fe to form their own contracting group, taking away the entire capitation payment from the Plan and contracting themselves for specialist and hospital services.

Specialist Care Physicians

The specialists believe that the primary care physicians refer too many patients to them. The specialists do not mind the referrals as long as their reimbursement is based on charges because, on average, they receive 90 percent of charges. However, if they are capitated, the specialists want the primary care physicians to handle more of the minor patient problems themselves. Also, whenever the subject of subpanels is raised, many of the specialists become incensed. "After all," they say, "the whole idea behind the PHO is to protect the specialists." Both sets of physicians—primary care and specialist—agree that the hospital is hopelessly inefficient. Said one specialist, "No matter how much revenue the hospital receives, it still seems to barely make a profit."

To respond to the Plan's proposal, Dr. O'Donnell and Santa Fe's executive committee must decide whether to accept the recommendations of the consulting firm.

You have been hired to advise Dr. O'Donnell and the executive committee regarding these challenges. Because your report will serve as the basis of Santa Fe's implementation plan if it accepts BadgerCare's contract, the report must address the concerns raised by the physicians and the hospital. Furthermore, the report must include specific recommendations on how to implement these changes.

EXHIBIT 3.1
Santa Fe Healthcare: Physician PHO Members and Estimated Needs for 50,000 Enrollees

Specialty	*Number in PHO*	*Estimated Need per 50,000 Enrollees*
General medicine	42	20.9
Pediatrics	15	4.1
Total primary care	57	25.0
Anesthesiology	9	2.5
Cardiology	12	1.4
Emergency medicine	10	2.5
General surgery	13	2.7
Neurosurgery	3	0.3
Obstetrics/gynecology	27	5.4
Orthopedics	11	2.5
Psychiatry	19	1.9
Radiology	8	3.0
Thoracic surgery	0	0.4
Urology	5	1.3
Other specialties	75	10.1
Total specialists	192	34.0
Grand total	249	59.0

EXHIBIT 3.2
Hospital Costs for Three Common DRGs by Physician

DRG	*Description*	*Minimum*	*Average*	*Maximum*
470	Major joint replacement or reattachment of lower extremity without MCC	$12,872	$14,999	$24,638
871	Septicemia or severe sepsis without MV; 96+ hours with MCC	4,271	13,729	17,394
291	Heart failure and shock with MCC	6,498	10,849	18,015

MCC: major complication or comorbidity; MV: mechanical ventilation
Note: This exhibit is based on historical costs related to the old severity-unadjusted DRGs. In the future, the cost data will be related to the new severity-adjusted Medicare severity diagnosis-related groups (MS-DRGs).

EXHIBIT 3.3
Santa Fe Healthcare: Proposed Allocation of Premium Dollars

PHO administration/overhead	13%
Paid to in-system physicians	
Primary care	10
Specialists	18
Ancillary services	5
Administration/profit	1
Paid to in-system hospital	38
Paid for prescription drugs	10
Paid to out-of-system providers	5
Total premium dollar	100%

PART

II

COST BEHAVIOR AND PROFIT ANALYSIS