APPENDIX A1

Terms of Trade for Health

QUESTIONS
1. Who is made better off, the surgeon or the patient?
2. Is health scarce?
3. How do people trade health?
4. Is using street drugs really “rational” behavior?
5. Who pays when I skip a workout to watch television?
6. Is there trading in health futures?
7. Why is medical care bought and sold differently from other goods?
8. Who is making choices, if most health is determined by genetics, nutrition and environment?

Medical transactions are like, and yet unlike, most of the rest of the economy. Introductory economics books usually begin by studying a perfectly competitive market, where prices alone convey all the information needed to make decisions and operate the economy. This textbook also depends on simplifying assumptions and abstractions to clarify the fundamental forces which lead to economic change. If all of the intricacies of medical care were to be dealt with from the outset, a discussion of health economics could never get started. Therefore we shall often talk about medical transactions as if they were much simpler than they really are so that the basic principles can be discussed first before trying to deal with all of the complexities which might arise. Many of these complexities will be the subject of later chapters: insurance, taxes, malpractice, government regulation. Even with such simplifications, Health Economics
Asks you, the reader, to take a more complete and complex view of the exchange between buyer and seller in the first chapter than most introductory economics texts. You will have to expand your understanding of price theory to cover the provider’s responsibility to maintain professional standards, control quality and make choices on behalf of the patient; the patient’s responsibility to cooperate, provide information, and endure pain and uncertainty; and a payment system where most of the money is pooled with that of thousands of other people in insurance companies or government agencies rather than directly handed from patient to doctor.

As a practical matter, it is helpful if you already have some grasp of the workings of the price system. This appendix chapter A1 provides a brief review of the basic microeconomic concepts of trade, rationality, choice, opportunity costs, and budget constraints in a health context, and extends the discussion into choice over quality and public goods. The topics of production, cost functions, demand and supply, and markets, are covered in Appendix chapters A2 - A4. A review of your old economics textbook will also be useful. If you have not taken a course in economics, it is possible to develop a sufficient background to read Health Economics using these appendix chapters, but it will be a difficult task, and a standard economics text such as Paul Samuelson’s Economics, Campbell McConnell and Stanley Brue’s Economics, or Paul Heyne’s The Economic Way of Thinking is strongly suggested as a supplement.

When someone says “economics” or economic behavior, the sorts of things that usually come to mind; interest rates, unemployment, stock markets—seem far removed from the hospital emergency room. If I asked about your most recent contribution to the health sector of the economy, you might not even think of the little line on your paycheck labeled “HI” (yes, that’s 1.45% of gross that is taken out for Medicare that you probably didn’t realize you were paying every week. No, its not your health insurance, because you don’t become eligible for Medicare until you reach age 65 or become permanently disabled). Health care doesn’t always conform well to the standard models economists use to analyze buying and selling wheat, or rental properties, or the price of gold. However, money drives the health care system just as it does many other activities in a modern industrial society. Furthermore, economic development is by far the greatest cause of improvements in health, and penicillin has probably saved fewer lives than have the GATT agreements (General Agreement on Trade and Tariffs) to liberalize world trade.

WHAT IS ECONOMICS?

If it had to be put into one short sentence, the best words for expressing what economics is all about would be “buying and selling.” Without buyers and sellers there would be no economy—no rich surgeons, nor insurance companies, nor hospital billing departments (or textbook royalties for health economists). To say that there would be no rich surgeons is not just an envious assertion, but a statement of fact. Without an advanced economy, a person could not spend 15 years studying and practicing eye surgery, and hence could not provide a highly specialized form of labor that is so much more valuable than digging ditches, and therefore patients could not reap the benefits of so much knowledge and training.

For a surgeon to be a “seller,” the patient must be a buyer. They both must agree on a price so that an exchange can occur. Obviously the surgeon would like the price to be higher, and patients would like it lower, but both must be satisfied for trade to take place. As economists, we can observe that since there was mutual agreement, the transaction must have
made both the buyer and seller better off. If the surgeon would rather watch television than take on another operation, she would have turned down the case. If the patient would rather have saved the money, or gone to a different surgeon, he could have done so. The insight that both parties must be benefiting if they freely agreed to make a trade is central to an economic vision of the world, and is known as the “Fundamental Theorem of Exchange.”

**FUNDAMENTAL THEOREM OF EXCHANGE**

The foundation of market economics is that trade makes both parties better off. People make a deal because they expect that it will provide more satisfaction than not doing the deal. The surgeon and the patient both expect to gain from trade—the surgeon by receiving money and gratitude, and the patient by being healed. It may turn out that the patient dies, and the surgeon gets sued for malpractice, but both made the transaction with the expectation that they would become better off. Trade does not take advantage of people so that one party is made better off at the expense of the other (that is stealing). Trade takes advantage of differences in skills, endowments and tastes so that people can make exchanges that are mutually advantageous.

**TERMS OF TRADE**

The “terms of trade” specify what the buyer is to give to the seller, and what the seller in return is to give to the buyer. When you buy a common object in a store, like aspirin, a simple price such as “$1.29 per bottle of 50” may tell you everything you need to know about the transaction. For services, and for medical care in particular, the transaction is apt to be much more complex. As an example, consider the transaction for a surgical operation to implant an artificial intra-ocular lens (IOL) in a patient's eye to replace the natural lens which has become clouded by cataracts. The patient is to pay a $200 deposit now and $300 more within 30 days after the surgery is successfully completed and all sutures removed. Reduced to its most simple element, the terms of trade in this exchange can be expressed as a money price of $500 for the IOL implant. Yet much more than the $500 is being agreed to in this transaction. The physician agrees to provide not just any artificial lens, but to choose the correct one, continuously monitor the quality of the operation, control adverse reactions to post-operative medications, etc. The patient agrees to make payment in two parts, with a time limit, and may assume the operation will be redone without further charges if the first attempt is not satisfactory. Many of the “agreed upon” conditions (that the physician is licensed and will use only qualified assistants, that she will not try to boost your bill needlessly to increase her fees, that the patient will be informed of any possible adverse consequences, wear bandages as long as necessary and not go sky-diving, etc.) will never be explicitly specified unless some subsequent disagreement and legal action forces the doctor and patient into court.

In the simplified neoclassical model of perfectly competitive behavior with which most textbooks begin, price is the only term that matters in a transaction, and both the buyer and seller are “price takers;” i.e., there are so many buyers, that whether or not one person buys has little influence on the price in the market, so that all buyers must “take” the price as given, and similarly that there are so many firms selling the same product, that no one firm can affect prices, and hence all of them also take the price as given. This uncomplicated model of perfectly
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Competitive price takers is not too distant from reality when purchasing a bottle of aspirin. It works reasonably well for most of the purchases consumers make, and thus can be used to frame the analysis of the economy as a whole. But buying a bottle of aspirin is not representative of most medical decisions, and an elementary model does not capture many of the essentials when life and death decisions are being made in the operating room. While the same principles used to analyze money prices can be applied to other stipulations in the terms of trade, a more detailed and explicit consideration of how transactions are made, what is being exchanged, by whom, and on whose behalf, is required. Although the analysis is thus made more difficult, it also becomes more exciting. Studying the creative adaptations of economic organizations to the special demands of health and medical care reveals the potential of economics as a discipline in a way that the analysis of more standard markets cannot.

VALUE

Why does health care cost so much? Because health is so precious that its value exceeds that of the things we possess. What benefit do I get from spending my money on books or art or cars or clothes if I am dead? Sick and in pain, confronted with the possibility of death, there is almost no amount of money someone would not be willing to trade to get their health back. Health care costs so much because people are willing to pay so much for it. The many years a surgeon spends in training, the billions of dollars government spends on public health, and the comprehensive health insurance plans provided by employers are consequences of the value we as a society place on health care, they are effects rather than causes. We are willing to spend so much on them because what they produce is valuable. If we stopped caring about (or paying for) health, no new magnetic resonance scanners would be built, no surgeon would spend ten years training to do an operation that was not wanted, and our taxes would be spent on highways or national parks instead of AIDS and cancer research. Cows can get just as many diseases as humans, and we could put all those resources to work saving cows, but we don’t. Cows, I am sure, would set priorities rather differently, but they are not paying the bills.

SCARCITY

Personal habits such as exercise, sleep, substance abuse, and nutrition are probably more important for health than seeing a doctor. Why then is so much paid for medical care and so little for clean air or a good night's sleep? Air is not scarce. No matter how much you use, there is always plenty more where that came from. Economists say that something is scarce when people want more of it than they have. If I were trapped in a mine accident, then air would be scarce. If we were in a space shuttle where all the air has to be brought from earth, then air would be scarce. Right now, I can just open the window and get as much air as I want, so the issue does not have to be dealt with.

Money is always scarce. Since it can be turned into so many things, people always want more. Most goods are scarce because I could turn them into money, or save money by not buying them. The only things which are free are things like air, or empty milk cartons, which there are too many of. Even these things may become scarce. In poor countries "disposable" containers are almost never thrown away, but reused or made into other objects. If air becomes so used that it is polluted, people may begin to pay for it by purchasing expensive houses on the mountains or at the shore, or begin to charge for that use through gasoline taxes, etc. The price
agreed to under the terms of trade depends upon both value and scarcity, or more precisely, upon demand and supply as these terms will be defined in appendix chapters A3 and A4.

Is health scarce? It may not have seemed so when you woke up this morning. Yet we all know that in the long run we will all die, and most of us will do so by becoming old, and frail, and sick. Health will eventually become the scarcest thing of all. Once life ends, spending money can no longer do much to make you happy (although you could leave some to the university and we would appreciate it). Life is to be lived and enjoyed, now, and some part of that joy may even come from the fact that life has limits. Usually the closer we come to that limit through illness or old age, the more medical care is worth. In part, that is because there is more that is wrong with us which medicine can fix, but even more importantly, as we have less and less health, we are willing to give up more and more goods to keep what health we still have—the terms of trade are shifting in favor of health over goods.

Fortunately most of you are pretty healthy, and there is little need to give up the new CD player you want, or the down payment you have been saving for a car, to keep yourself that way. But suppose you woke up short of breath, with pain radiating through your chest. Then we could talk about putting some serious money into medical care, and you would be very willing to listen. This example may seem far fetched or overly dramatic, but most of the money spent on health care is spent for seriously ill people. How much would you, or someone you know, be willing to pay for a vaccine against AIDS? Even the minor and routine care that you and your classmates may get from a doctor this semester is often sought because “it might be something serious.” You go to have some tests and to be sure that the treatment is proper because the illness might possibly get much worse in the future.

HOW RATIONAL IS BEHAVIOR?

Trade, the exchange of goods and services between people, is necessary for the development of a modern society. Without trade, there could be no specialization of labor, and hence no advanced development of art, culture, government or production. Economics is a social science since it studies how people relate to each other, rather than behavior in isolation. Of course to understand the nature of exchange, we must know or assume something about what motivates individuals to engage in trade. For economists, that assumption is known as “rationality.” This does not mean that consumers always know what is happening, or always behave sensibly, but only that they are more likely to behave in ways that make themselves better off.

Behavior is a word that has a very specific meaning when used by economists. It doesn’t mean whether a person is smiling, or nervous, or always uses proper etiquette. It is the choices that people make among the alternatives available to them. While not entirely different from common usage, or the usage of psychologists, sociologists, historians and political scientists, economics focuses more on decision-making, and how people structure the alternatives they present to others (employees, customers, patients, children) so that they can get what they want. Economists are not philosophers, or even good marketing analysts. They do not ask, “Why?” This limited and pragmatic social science spends most of its time looking for movement, asking only how these decisions change as conditions change.

Economics confines itself to the study of rational behavior. If you spent last Friday night taking a friend with stomach cramps to a hospital emergency room (ER), Saturday night listening
to a another friend’s sad history of failed relationships, Sunday anxiously avoiding the list of all the things you didn’t get done, or went to a night club to blow out your ears listening to a grunge rock band before classes started, you may think that by limiting analysis to behavior that is rational, economics left out most of the things that happened. Not so. Economics does not address what you did, but how your behavior would have changed if conditions changed. If a long line of ambulances outside the hospital made you think that the delay in the emergency room was going to drag on for hours and hours, you would be more likely to encourage your friend to wait until morning so that he could go to his regular doctor or the student health service. Similarly, if the pain had been less severe, you would have been less likely to go to the ER. As the cost (time, pain) changes, the decision is likely to change. This general principle is applied across the board. Raise the price of nightclub admission, and I am more likely to stay home and watch MTV, or review my economics notes. Raise the cost of avoiding housecleaning by having somebody I want to impress call and say that they will drop by, and I will start working down the list of things that need to be done. Give me a really good relationship so that I have someone I want to spend time with, and I will not have as much time to spend listening to sad stories. In each case, the observed behavior, no matter how unreasonable it might seem, changes in a rational way—reduce cost, more likely; raise price, less likely. Such rudimentary responsiveness to changing circumstances is all that is required for behavior to qualify as rational, and it is all that is needed to build the theoretical structures of microeconomics.

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**RATIONALITY**

*Excuse me, Dr. Getzen, but is getting high on street heroin really rational behavior?*

How can persons be acting rationally if they are spending money to kill themselves? The behavior of purchasers of heroin is rational in that it changes in predictable ways when prices or conditions change. If the price of a bag of heroin increases, then addicts will use less and switch to other drugs. If the risk of death from impurities increases, there will be a similar decline in use, and fewer young people will choose to try heroin. The risk of death is one of the prices to which potential heroin users respond. If someone who is using drugs occasionally gets a great job, then they will have more to lose, and therefore will reduce the amount of drugs they use, or switch to more acceptable substitutes.

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**CHOICE**

Choices have consequences. Rational behavior as interpreted by economists is just a recognition of those hard facts. If I eat a cheesesteak and french fries for lunch, then I will feel bloated and guilty until I get to the gym and work off a bit of that grease. If you spend the next three nights studying until 3:00 AM, then you will be tired, less alert in class, and more likely to come down with a cold. If Sam spends $475 on premiums for the student health insurance plan, then he will not be able to go skiing over spring break. If I change the consequences (less grease, academic probation, lower premium), the choices will change.

Suppose I choose to go for a run. It will clear my head, build up my cardiovascular system, and get me away from this health economics textbook. I am “free” to do so, therefore it would seem as if my decision to go for a run is costless, but it is not. To go for a run, I have to give up something else. Perhaps going for a run now means that I won’t be able to watch *Star*
Trek tonight, or the eleven o’clock news, or that I will have to buy dinner instead of fixing something myself in the kitchen, or that I will just skim this chapter and maybe miss a few exam questions instead of really studying all the concepts. The important point is that even though there is no monetary charge for running, I still pay the “opportunity cost” of giving up some other desirable activity.

**OPPORTUNITY COST**

The “opportunity cost” of my run is what I have to give up to take it. The above example may seem a little confusing, since four different things are mentioned which could be displaced to make time for my run. However, life is usually full of just such multiple choices, so we should try to deal with them from the outset. Which one is appropriately used to measure my opportunity cost? It depends entirely upon my choices, my behavior. Since I haven’t watched the eleven o’clock news in years, and wouldn’t tonight, whether or not I go for a run, it is not relevant to my choice. On the other hand, if I have never missed Star Trek, and won’t tonight regardless, then giving up Star Trek isn’t a relevant alternative either. Therefore it comes down to skimming the chapter or paying $7.00 for takeout food to save myself the half-hour I would have spent cooking. As a conscientious student, I choose to give up some spending money instead of some of my grade. Formally, opportunity cost is defined as “the highest valued alternative foregone.” In this case that is not the news, or Star Trek, or my grade (although it could have been) but is the value of what I actually give up, the $7.00 that must be given up to get a take-out dinner.

Making a decision is like making a deal with myself. I am both buyer and seller. I “buy” the time for the run by “selling” the half-hour I would have spent cooking. Moreover, I make another transaction, replacing the lost cooking time with the take-out food. This transaction is external and shows up in the national income accounts of the United States as $7.00 spent on take-out food. As a decision-maker, I am a trader. I traded time in one activity (cooking) for time in another activity (running), and then I traded money ($7.00) for time (30 minutes) by getting hot take-out food. Even when the transaction is internal, we can still analyze the terms of trade. The price of time, in terms of time, is 1:1. If I want 30 minutes to spend running, I have to give up 30 minutes doing something else. The trade-off of time for money is $7.00 for 30 minutes. Thus for this decision, the price of time is $14 per hour.

**BUDGET CONSTRAINTS**

As long as there is more where that came from, I may not care too much about giving up the seven green one-dollar bills which I take from my pocket. Unfortunately, if I keep on eating out, I will run out of money. I will get evicted from my apartment, have my car repossessed, and not be able to register for classes next semester. There is a limit to my wealth. If I am smart, I will budget my money so that I do not go broke. Actually, even if I am not very smart, as soon as Visa, Mastercard and my friends get tired of loaning me money, that budget will be enforced whether I like it or not. Recognizing that each choice has consequences is a first step in making your life better. Understanding that there is an overall constraint on your sum total of all choices is a more complete level of understanding. It is the recognition of a budget constraint.
The sum total of all my purchases must be paid for, that is, must fit within my budget. If I spend an extra $7.00 today, I will then have to give up ten cups of morning coffee, or a movie, or two magazines, or something else. If I did not have to give up anything, then I would not be “paying” for the takeout food in any meaningful sense; my budget would not be constrained. It is possible to increase the amount of money in your budget by working more. However, to do so you must give up some leisure. The extra money is not free, you have to pay for it with your time. Just like money, time is scarce.

Time is even more fixed than money in that you have just 24 hours each day. Also, to use your money as a consumer you must have time. Given time, you can get money. Or, you can spend your time meditating, hunting for berries in the woods, or writing poems in the sand. At least you are alive. If you have money, but no time left, the money is worthless. Death is the ultimate budget constraint. Once the sum total of all your hours is gone, there are no second chances, no credit advances—and no more decisions to make. While all economists acknowledge that scarcity is fundamentally defined by the consumer’s lifetime, the awareness is more acute among health economists because the business of medical care is life and death decisions.

SAVINGS AND INVESTMENT

I could cover a $7.00 shortfall in my budget by reducing the amount I put into savings at the end of the month. That would cost even more in the long run, since my savings are a form of investment. The reason that I am willing to forego a pizza for some little numbers in a bankbook is that the value of the consumption given up this month is more than compensated for by the increased value in consumption that I will be able to enjoy twenty years from now. By deferring consumption, I can invest not only in money or the goods money can buy, but also in my health.

It is difficult to improve your health once it has deteriorated. Spending money on medicine once you are seriously ill is a little like spending money on your car after the engine has begun to burn oil: regular maintenance is a lot cheaper. How healthy you are when you get old depends not so much on the medical care you get then, but all of the things you have done to and for your body over the years. Taking some of your time each week to work out, and giving up some tasty junk foods (donuts, french fries, ice cream sundaes) can help you to live longer and to feel better in the future. Some people would call such behavior health consciousness, or following a healthy lifestyle. As economists, we call it savings and investment. What I am doing is reducing consumption now (less tasty ice cream), so that I can consume more (have greater enjoyment) in future years. I invest in my body by working out, just as a firm invests in a manufacturing plant by doing maintenance and construction.

QUALITY

In the hurry to find the final budget impact of my decision to go running, several possible alternatives have been rushed past. I could probably find some takeout food that is cheaper than $7. Instead of spending 30 minutes to cook a meal I could just make a sandwich or eat a couple of bowls of cereal. Either way, I would be getting a lower quality dinner. The budget constraint is binding on quality as well as quantity. Quality is particularly important as an element of health care decisions not only because they often involve life and death, but because a patient usually consumes only one unit of medical care at a time. Quantity is often not a relevant factor in medical decisions. It doesn’t
help if a mediocre surgeon offers to give you a second operation at half-price. The only trade-off that you make is in the quality of the procedure. Goods for which only one unit is consumed may be called “unitary goods.”

Since there is no quantity dimension, quality dominates decisions regarding the consumption of unitary goods. I am not going to eat 3, 4, 5 or 6 dinners, I will only eat one. If I ask for two salads and an entree, I would still consider that one dinner. If the second salad makes the meal cost more, that would be regarded as an increase in quality. Other goods that tend to fall into the unitary category are houses and automobiles. Of course some people have more than one house, or more than one car, but most of the decisions concern quality rather than quantity.

Having budget decisions made over quality rather than quantity tends to complicate economic analysis. While it is reasonable to assume in many cases that price per unit remains constant as the quantity increases or decreases, any change in quality must make the price different if the quality decision has budget relevance. Hence “qualities” cannot be simply added up or multiplied to arrive at a total spending limit the way quantities can. At least the analysis of quality tends to be less ambiguous for health care than for many other goods. While a fine meal in a french restaurant would usually be considered high quality, after two months in Paris I might have such a desire for a burger, shake and fries that I would be willing to pay more for them even though they are lower quality. A vegetarian would consider a noodle stir-fry higher quality than steak tartare at any price. With music, art and movies, personal tastes vary widely, and quality can be extremely subjective. For medical care, tastes are quite uniform in that all patients usually prefer the treatment that provides them with the longer life and better health. While a person may like to put a lot of pepper in food to give it zest, or leave out the sugar in the recipe to make it sour, the patient will not want the operation to be more painful, or make it harder for his eyes to focus after they heal, or have a higher rate of post-operative mortality.

PUBLIC OR PRIVATE CHOICES?

For some goods, there is only one “unit” which we all consume collectively. The atmosphere is an example. Quality is the only relevant dimension. If my problem with the air is that it has a lot of pollution, then opening the windows or turning on a fan does not increase quantity in any economically meaningful sense. Air quality, the legal system, national defense, cancer research, transportation networks and other goods which are similarly universal in consumption are known as “public goods.” Being universal does not exempt them from scarcity. Improving air quality has a cost. Public funds, although much larger than those of any individual, are still subject to a budget constraint. The price of better air must be paid by giving up some other public goods, or by all of us giving up some of our private goods by paying higher taxes.

Smoking has been banned on airplanes, trains and buses, and within the office buildings of many firms, universities and hospitals. Air quality has been improved without paying for pollution control equipment, or raising taxes. Does this mean that these improvements in air quality came without a price tag, that no trade-offs had to be made? Of course not. Listen to the smokers gripe, or to the complaints of non-smoking libertarians who worry that the next distasteful behavior to be banned is drinking, or sex, or guns. While it does not appear that anything has been bought or sold, a transaction has in fact taken place. The opportunity cost of a smoke-free workplace was a discernable, but small, loss of personal liberty. This is the “price” of the gain in air quality. By a series of votes, people have made it clear that this is a price they are willing to pay—and just as
clearly that some other measures advocated by health advisors are too costly to be implemented. Even though such collective relationships are inherently complex, involving millions of people, the fundamentals of opportunity cost, budget constraints and trade-offs still apply. The insights of price theory can be used to analyze what will happen.

"Private" and “public” are polar concepts which represent extremes. Few goods are so purely private that they are entirely unregulated with regard to safety, ingredients, disposal, etc., and few goods are so public that there are no differences between individuals with regard to use or quality. The economic organization of medical care clusters more services toward the public end than is immediately apparent. Even though each of us goes individually to the hospital ER, in a small city we must all go to the same ER and therefore get pretty much the same quality of care. Of course the mayor will get better service than a homeless person who is brought in off the street, but the mayor will be operated on by the same surgeon, with the same nursing staff, and might well end up in the same room on different nights. In a large city with many hospitals there is somewhat more variation, but patients are rarely able to choose for themselves. Contrast that with the purchase of a coat, or a birthday cake, or even a wheelchair. There are many more choices and much more control over quality.

Payment systems also tend to make medical care into a public good for large groups of people. All of the employees in a firm often have the same insurance plan. Therefore the mail clerk and the executive vice president are equally valued customers of the hospital. In Chapters 3 and 4 we will examine how the pooling of funds into insurance for payment of medical expenses can distort choices and obscure the nature of the budget constraint.

**WHY STUDY HEALTH ECONOMICS?**

The necessity of making public choices is a major reason for studying health economics. Personal market decisions cannot lead us to a better health care system because so many of the decisions are inherently political and collective. Throughout most of history, a rising standard of living due to aggregate economic growth has been more important in improving health and longevity than the personal medical care received by individuals (see Chapter 15 for further discussion of this point). People often ignore nutrition and lifestyle changes that could have a major impact on health at low cost, while purchasing insurance to cover heart surgery and chemotherapy that are very expensive but do little to improve average life expectancy. Yet even when medicine is quite limited in what it can accomplish, that small hope may be immensely better than the painful alternative. Thus large sums will be spent for a modest chance of a cure.

Rising medical costs are among the most pressing of the problems facing government today. The economics of something so valued and so varied deserves special study. Almost any issue of interest to economists; anti-trust, production function analysis, managerial incentives, interest group politics, forecasting, or macroeconomic fluctuations, can be found in health care. Rapid technological change and explosive growth in spending also make medicine a good test case for revealing both the stresses and the resilience of our economic system.

**SUMMARY**

1. Trade is not the goal of health care, but it is the means. In order for people to get what they want from the system, exchanges between patients and providers must be made.
economics is the study of how those transactions are made, and of the bottom line results. Using the analytical tools of economics takes effort, but exposes the processes and uncertainty in the life and death decisions of medical practitioners. By revealing the inner workings, including self-interest, bias, greed and altruism, economics makes health care more interesting to study.

2. The Fundamental Theorem of Exchange is that for a trade to take place, both the buyer and the seller must feel that it makes them better off.

3. The terms of trade are the specifics of a transaction. Only in a very simple exchange are all of the terms of trade captured in the money price.

4. Value is not inherent in a good, but in the trading relationship. Value is what you are willing to give up to get something, what you are willing to trade for it. If you don’t have to give anything up for it, then the good is not scarce, and hence has no value. Health is scarce because we have to give up a lot (time, money, fatty foods) to keep it.

5. Opportunity cost is the most general measure of value. It is defined as “the highest valued opportunity foregone.” People make trades to try to give themselves better choices, that is, to reduce the opportunity costs of the actions. Only when you have to choose does cost or value matter, and therefore economics is sometimes called the science of choice.

6. Rationality, which is the essential assumption of economics, means only that the choices people make change when the costs of actions change. It does not mean that people act sensibly, or make perfect choices, or think of profits. Addicts, professors, the mentally retarded and many one-celled organisms all display what economists would call rational behavior when they cut back on behaviors as the risk of dying from them increases.

7. All of our choices are constrained by the resources available. While economists most often analyze changes in the budget constraints imposed by money incomes, the ultimate budget constraint is the time a person has to live.

8. The choice between consuming now or having more in the future is one of savings and investment. The subjective price of deferring consumption is your personal rate of time preference, and the price that you are paid is the interest rate. Giving up consumption now to build a healthy body through exercise, giving up some of your paycheck to build a retirement account, or working hard on weekends to build the value of a business, are all forms of investment.

9. Two major complexities in the economics of health are that most of the choices are made with regard to quality rather than price or quantity, and the uncertainty regarding the effects of medical care upon health.

10. Some choices can only be made by society as a whole. Such things as air quality, cancer research and malpractice laws are all public goods. Pooled financing through insurance can make medical care into a form of public good even though services are provided and consumed in private transactions between doctor and patient.

11. Among all goods, health is most valued, since it is hard to enjoy much if you are dead. Many crucial choices regarding the health care system require explicit analysis because they must be made politically on the basis of what is good for all, not purely on an individual basis like
ordinary purchases. **Technological change and rising costs** test the ability of the economy to respond, making medical care a useful case study in organizational dynamics. Yet throughout most of history, **economic growth has been more important than medicine in improving health and increasing longevity**. Studying health economics helps us to understand both how and why.

**PROBLEMS**

1. How can an economist maintain that I am better off if I paid $780 for an operation that made my twisted knee worse rather than better?

2. Is it rational to smoke cigarettes?

3. What determines the value of knee brace?

4. Are public choices better or worse than private choices?

5. Is exercise scarce?

6. When we say an economic model is “rational,” do we mean that it is about what you ought to do rather than what you are actually likely to do when faced with real world temptations?

7. What is the opportunity cost of going to the doctor to be checked for skin cancer?

8. What is the primary budget constraint facing an 84 year old billionaire?