Teaching Medicine in the Age of Limited Resources - What Can We Do to Make It Work? And How Do We Do It?

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The Topics

- The financing of teaching in the United States- past and present
- Teaching faculty- who they are and the problems with finding them
- The teaching Team at Emory/Grady Hospital: who they are and what they do

The Topics

- The Schedule and the 80 hour work week
- The Teaching Problems
- How to Teach
- What to Teach

Teaching Medicine in the US

- Teaching medicine in the US has become a serious problem!
- Why is that?
- Life has changed from the "Glory Days"
  - In the past, what was charged, was what was paid
  - Both Medicare (national health insurance for the elderly) and private insurance paid what the doctors charged
  - Clinical doctors (even academic teachers) made a lot of money and so they could see patients and still have time to teach!
  - It was great!!

Teaching Medicine in the US

Life has changed from the "Glory Days"

- In the past, research grants were easier to get; it did not take as much time and there was a good chance that reasonably good grants would be funded with not a lot of effort
- In the past, research grants were also very generous and there was a lot of extra money in those grants so even research doctors had time to teach
- It was great!!

Teaching Medicine in the US

- But then things changed!
- The government was spending too much money on health care
- So:
- Medicare changed and they set limits on what they would pay for and how much they would pay
- And then they developed DRGs (diagnosis related groups) for hospitals
- This decreased the amount of money to hospitals too!

Teaching Medicine in the US

- Well, why should private insurers pay more than the government?
- So private insurance did the same things about payments for doctors
- This decreased income even more again
- Increase the problem

Teaching Medicine in the US

- This decreased the amount of money paid to doctors and so academic clinical doctors had to see more patients to keep their incomes
- (Doctors in the US can be paid a lot or a little, but they don't like to have their income decrease from what it was)
- There was less time to teach students and residents

Teaching Medicine in the US

- And in research: spending too much money
- So
- The National Institutes of Health decreased the amount of money for grants a lot:
- So fewer grants and much less money per grant

Teaching Medicine in the US

- With fewer grants, researchers had to spend more time writing grants to make them more competitive
- And with less money for grants, researchers had to get grants more often to pay for their work
- So, they had less time for teaching as well

Teaching Medicine in the US

- This has been a big problem for American medical education
- In the past: plenty of money and time
- Now:
- Medical School faculty members became much more specialized
- Researchers do their research and are often excused from teaching clinical medicine
- This has created a research faculty who cannot actually teach clinical medicine any more
- They don’t have the skills to do that

Teaching Medicine in the US

- Clinical faculty spend most of their time seeing patients and do little teaching
- While they have the skills, they are tied to the clinics and hospitals
- They sometimes do not have time to keep up with the latest in clinical research
- And perhaps they don’t have the teaching skills?
- So- Who does the teaching???

Teaching Faculty

- Medical schools began hiring a modest number of faculty to do the teaching
- But there is little money for them (no source for their pay for teaching time) and their salaries are below what can be made in seeing patients and doing private practice
- (We will review where their salary money comes from in a little while)

Teaching Faculty

- They also have a lot of trouble getting academic promotions (and tenure) because they have to divide their time:
- supervising patient care that is directly provided by our residents (which our Medicare and our Medicaid for poor people will pay faculty to do)
- and
- other responsibilities (administration and pt care)

Teaching Faculty

- They don’t have time to get grants and publish papers in prestigious journals
- While they are hired to do teaching, they are rebuked for not doing research!!
- The billing of patients takes considerable amount of time and energy to accomplish but is absolutely necessary to help faculty make smaller salaries!!

Teaching Faculty

- But there are consequences to these compromises!!
- It is hard to recruit for these positions! (Surprise?)
- Accomplished older physicians won't take these jobs very often: they are poorly paid and are not seen as having the "prestige" of academics
- Young faculty directly out of residency are initially willing to take jobs like these because there are fewer hours of work than private practice and can give them time to decide what they want to do after they leave

Teaching Faculty

- But even faculty who try to stay find that they are underpaid and feel underappreciated and frequently leave after 2-5 years so that they can make more money and feel more appreciated for what they do. High turnover of young people!
- (This is a big problem- it is my considered opinion after 33 years of this work, that an internist is not particularly competent (particularly to teach!!) until he or she has been out seeing patients for about 10 years. (despite their native intelligence, hard work, and enthusiasm!!))

Solutions?

- New solutions to these old problems?
- As we discussed in my previous lecture-
- The Dean of the Emory School of Medicine:
- Culture Change for the School !!
- Medical education will be clearly valued and explicitly supported

Solutions?

- 30% pay supplied by Dean's Office- directly for teaching!! This is new!!
- And it is a critical FIRST step in having good teachers who will stay
- Faculty serve as clinical skills & small group teachers
- Long term relationship/advising
- While this is all new (beginning the second year) these faculty members appear to be very happy with their situation

Solutions?

- Well, that is great for the 16 faculty who will be highly involved in teaching for the Foundation Phase of the medical school curriculum
- But there is a lot of clinical teaching that goes on beyond that point!
- In particular: what about the Application Phase of our new Emory curriculum (the 12 months of teaching clinical medicine on the wards and in the clinics)?

Teaching Medicine at Emory

- Explanation of how we do teaching of clinical medicine in the United States
- The majority of student and resident education (particularly in internal medicine) is done at Grady Hospital
- On the inpatient service at Grady Hospital (an indigent care hospital where the training residents have a lot of responsibility for the medical care of patients)

The Team

- There is one supervising Faculty attending
- The attending is legally responsible for the care of the patients but he or she often has a lot of other responsibilities as well. [They have outpatient responsibilities, administrative jobs and other teaching to do]
- The direct care of the patients is highly deferred to the training senior resident who runs the team on a daily basis
- The attending, however, must bill these patients so that this income can help to pay the salary of the attending physician!

Attending Responsibilities

- The attending usually makes rounds 6 days per week with the team (some days longer than others)
- The interns (or the students!) present all the cases to the attending
- The most important activity is to see all the new patients and make sure that the plans for diagnosis and treatment are appropriately done
- The attending MUST also see all the patients admitted; they must write notes on all patients every day (so they can be billed!!)

The Team

- The rest of the team is comprised of:
- One second or third year resident who is the director of the team. He or she supervises the care that is given by the rest of the team.
- The “senior” resident is responsible for the day to day care of the patients, directly supervising the interns and the senior medical student.
- He or she rounds daily with the team and makes sure that proper plans are made and carried out.
- They do not write notes on the patients (most of the time)

The Team

- Two first year residents (interns) who have direct responsibility for the care of the patients
- They do the initial workups and write the notes
- They make initial plans for diagnosis and treatment of the patients and get approval from the resident and attending.
- They make sure the plans are carried out and check on all results
- They write daily notes on the patients

Teaching Medicine at Emory

- Usually one last year medical student (4th year) who functions as a intern and takes direct care of the patients
- They work directly with the supervising resident (but the resident must write the notes since a graduate MD must write the legal notes)
- As you can see, even as medical students we give a lot of responsibility to students!!

The Team

- Two third year medical students who do their work directly supervised by one of the first year residents and then by the head resident and attending
- They do their own personal history and physical exam and write a complete workup (should be reviewed by the intern, resident and faculty member)
- They write notes on the patients
- but these notes are not well reviewed and are not legal documents
- The interns must write the legal notes

Paying Teachers at Grady

- These faculty members are not those compensated by the dean's office
- How are they paid?
- Some are paid partially by Grady Hospital for supervising residents in the outpatient clinics and the hospital (the Hospital uses funds that are paid by Medicare [elderly national health insurance] for supervision of residents who take care of old patients)

  ***This is complicated - if you want to know more about this, ask at the end

Paying Teachers at Grady

- How are they paid?

- Most of the rest of their salary must come from income from billing patients for direct service
- This billing is done on the inpatient service for daily work
- Also done in the outpatient clinics where faculty supervise residents

Paying Teachers at Grady

- At Grady Hospital, however, the number of patients who have insurance is rather low; the best is Medicare; some from Medicaid (state health insurance for poor people) and a tiny bit of private insurance
- Most people with insurance don't come to Grady!!
- The service is difficult and complicated and they can get more efficient care at private hospitals
- Many of our patients are working without insurance, working poor and unemployed people

New Innovations??

- Another new adventure in American Medical Care
- The Hospitalist!
- These are physicians (both in academic medicine and in private practice) who provide care for patients who are admitted to the hospital
- In academics, they do a lot of the teaching of students and residents with hospitalized patients
- Grady Hospital and Emory were among the first academic groups in the United States to use hospitalists in the teaching setting

Why Hospitalists?

- Internists felt quite divided
- They were trying to see hospitalized patients early in the morning and then went to see their outpatients.
- Then, they would return to the hospital to see what happened
- Very hard to do both
- So hospitalists are supposed to be in the hospital and available all day
- The other internists would care only for outpatients

Hospitalists

- Many of these hospitalists are paid (partially) by the hospital because it is believed (and somewhat proved) that patients get out of the hospital faster with their availability
- No good data on whether the care is better!! (or worse??)
- There is concern in some quarters (like me) who are worried about continuity problems
- This is often a money loser on a budget however
- They are also paid partially (as with the other attendings) by billing patients for services

The Daily Schedule - the 1st Day

- Grady Hospital works on an every fourth day rounding schedule
- “Long call” - residents arrive about 7am; they start admitting patients at about 10am (or when the short call teams are full)
- They can admit up to 10 patients per team
  (4/intern-student team; 2/ senior student)
- Or they stop at 7pm and MUST leave by 10pm
- All work for their patients must be done before they leave or work needs to be done by one intern who stays overnight (he or she must leave by 1pm the next day)

The Daily Schedule - the 2nd Day

- The “post call” day. The team arrives about 7am and does “work rounds” on all the team’s patients and makes sure that treatments are working, new workups are underway and some teaching is done by the resident (we hope!!)
- The old patients are discussed rapidly with the attending and the new patients are presented and are seen by the team; the attending does teaching at the same time
- This is usually done in the morning and then the team finishes up its work on the new and old patients and then goes home
- This may vary from noon up until about 6pm (except for the overnight intern)

The Daily Schedule - the 3rd Day

- The “short call” day. The team arrives at 7am. There are patients waiting for them (we will discuss this later?!?!)
- The team picks up 5 “new” patients (2/intern- student team; one for the senior student).
- The team “works up” these “new” patients during the am
- There are a variety of ways the attending sees these patients but I see them in the afternoon after my team has seen and examined the patients.
- The patients are presented to the attending who makes sure all is ok
- The attending goes over the old patients to be sure all is ok with them as well
- The team usually leaves between 6 and 9pm

The Daily Schedule- an aside

- Where do those short call patients come from?
- If you notice, there are no team doctors on call between 7pm and 7am
- We have a “night float” system. A group of residents (both senior and interns) who admit the patients who come in at night.
- There is one group of three residents on every night to admit these patients and do “cross-cover”
- There are frequently a lot of admissions after 7pm
- About 40% of our admissions come in then

The Daily Schedule- an aside

- The night float doctors each work up a number of patients in a short period of time
- They do the initial workups (quickly and often not well since they usually have too many patients to see in too short a time and will not follow these patients after that night)
- These patients are then given over to the short call team at 7am.
- PROBLEMS WITH “HANDOFFS”!!

The Daily Schedule - The 4th Day

- The “off” day. The team comes in a little later. There are no admissions on that day. The “team” takes care of the old patients and makes sure all is being done.
- The attending goes over the patients and has more time to teach
- BUT------

The 80 Hour Work Week

- There are problems lurking!!
- Every resident (and student) must have one day off per week!
- And they can't work more than 80 hours per week
- Residents all have a weekly half day outpatient clinic that they must attend
- So- there are many many times when the team is not together and therefore teaching is difficult.

The 80 Hour Work Week

- It is common for the resident to give both interns the day off so that he/she and I are the only doctors around
- They must do all the work for the entire team!! It is very stressful and very difficult
- They are not very receptive to teaching

- Or the resident is off and I have to be the resident for the interns
- I am not available at all times and they are reluctant to call me; they feel stressed and not very receptive to teaching

How to Teach

- So, how to teach medicine under these conditions?
- It must be done fast, but it must be done well
- There is some literature about how to do it
- And Emory/Grady has some tips

- Emory University School of Medicine and the Department of Medicine are very supportive of residents and students having a lot of direct patient contact and autonomy in taking care of patients

Teaching Medicine

- “Medicine is learned by the bedside and not in the classroom. Let not your conceptions of the manifestations of disease come from words heard in the lecture room or read from the book. See and then reason and compare and control.

  But see first……”

Sir William Osler

Teaching Medicine

- “You remember the answer of the immortal (John)Hunter (1728-1793) when asked what books the student should read in anatomy- he opened the door of the dissecting room and pointed to the tables.”

Sir William Osler

Teaching Methods

- The Critical Parts of Teaching Well

  #1) Identify the learner's needs

  don't teach what they know

  teach what they don't know

  So: how do you identify those areas:

  Ask questions of the learners!

  (you will be surprised regularly about what they don't know and sometimes by what they do know)

Teaching Methods

- The Critical Parts of Teaching Well

  #2) Teach rapidly during patient care

  Get thoughts of the learner

  Make them think!!

  Positive feedback on good work

  Correct errors (and they make them!!)

Teaching Methods

- The Critical Parts of Teaching Well

  #2) Teach rapidly during patient care

  Teach a general principle that applies to the case

  examples: in a case about coronary disease

  ask about the difference between

  the pathophysiology of stable angina

  versus unstable angina

  (chronic fixed obstruction vs thrombotic transient obstruction)

Teaching Methods

- The Critical Parts of Teaching Well
  - #3) Stimulate student/resident learning
    - Ask more questions: but don't necessarily answer them (you may not even know the answers!!)
    - Have the learner bring the answers back to the group and teach everyone
    - Have the learner bring scientific papers to the group and present them with some critical analysis of the results and how it applies to the present case

Lifelong Learning

- “The hardest conviction to get into the mind of a beginner is that the education upon which he is engaged is not a college course, not a medical course, but a life course, for which the work of a few years under teachers is but a preparation….”

Sir William Osler

What to Teach?

- While there are huge numbers of things (facts) to teach students and residents; here are the more important things I think are more critically important!!
- #1) How to present a patient. For all of our careers we have to communicate patient information to others
- And a reason just as important: organizing the information about a patient makes the learner think about what the important information is, and how to make it understandable.
- I tell learners that if they can present well, they probably know more than if they can't!!! (and it is true)

What to Teach?

- The organization of a presentation should be to direct the thinking of the receiver to the correct diagnosis
- Thus all pertinent positive information needs to be included
- Just as importantly, all the negative information should be included
- There should be no extraneous “junk”

What to Teach?

- There is an order to presentations
- Patient profile: a description of the patient as a human being (we always need to be reminded!)
- Chief complaint: in the patients own words! About one sentence with a duration of symptoms
- Problem list is helpful: it directs our attention to the important information
- It is nice if it is in physiologic order
- No useless problems (appendectomy 40 years ago in a patient with lung disease)

What to Teach?

- There is an order to presentations
- History
- Physical Examination
- Laboratory tests
- Assessment: details later
- Plan: helpful in this order and by each problem
    - Diagnostic plan
    - Therapeutic plan
    - Patient education plan

What to Teach?

- #2) How to take a good history of present illness
- As they say in the computer industry

  "Garbage in, garbage out"
- If you don't have the proper history, you will either miss the diagnosis or come upon it by accident (which happens a lot).
- History (to residents and students) is a necessary evil- they do not understand the importance
- History allows you to have the right differential diagnosis and get the proper diagnostic tests

What to Teach?

- #2) How to take a good history of present illness
- Watch them do it and do it yourself in front of them
- It is amazing to see them miss important parts of history taking
- Example: Chest pain
- Location
- Timing
- Severity
- Associated symptoms
- Exacerbating
- Relieving
- Radiation

What to Teach?

- #3) How to do a good physical exam
- As they say in the computer industry

  "Garbage in, garbage out"
- If you don't get the physical exam correct, you will either miss the diagnosis or come upon it by accident (which happens a lot)
- They think they know how to do an exam
- THEY DON'T
- And if you don't have the correct exam, you can't do the right workup (as in history)

What to Teach?

- #3) How to do a good physical exam
- Watch them do it and do it yourself in front of them
- Example: heart exam
- They don't look for neck veins
- They don't feel for an apical impulse
- They don't know what a sternal lift is
- They can't describe a murmur
- (ask them to describe the difference between a regurgitant murmur and an ejection murmur
- They can't hear or don't recognize gallops
- They can't do lung exams; joint exams

What to Teach?

- #4) How to interpret laboratory tests
- As they say in the computer industry

  "Garbage in, garbage out"
- If you don't know how to interpret tests, you will either miss the diagnosis or come upon it by accident (which happens a lot).
- In internal medicine this is particularly important for chest x-rays and electrocardiograms. And more and more to CTs, MRIs and other tests

What to Teach?

- #4) How to interpret laboratory tests
- THERE ARE FALSE POSITIVES AND NEGATIVES!!
- Example: ANA in an elderly patient with knee arthritis
- Almost certainly osteoarthritis
- But if you get an ANA, if it is positive, it is surely a false positive
- DON'T DO IT!!

What to Teach?

- #4) How to interpret laboratory tests
- Bayes Theorem: I have no idea what it says
- But I do know how to use it!

Demonstration on the board:

What to Teach?

- #5) How to do a good differential diagnosis
- In the modern era, learners usually come up with ONE likely (they hope!!) diagnosis and then try to confirm it
- They do not know how to formulate a number of possibilities that need to be considered
- If only one diagnosis is considered, there is no other diagnosis that can be made!!

What to Teach?

- #5) How to do a good differential diagnosis
- Pt with chest pain: rule out Pneumonia
- A patient with cough, tachycardia, SOB, no sputum
- Afebrile, rales at the right base
- Hypoxic, normal white count and differential
- Infiltrate at the right base
- R/O Pneumonia------> treated for pneumonia
- Gets better; all is well- then dies suddenly
- Forgot that Pulmonary Embolus can present exactly this way

What (NOT) to Teach

- #6) How to think about which tests should be done to make the correct diagnosis
- The case of the ANA in an old man
- And perhaps more importantly, how NOT to proceed!!
- I saw a recent case presentation in the American Journal of Medicine on back pain
- The initial x-rays showed sclerosis and erosion in the L3-L4 area- suggesting osteomyelitis
- For me the next test: biopsy to know what it is!!

What (NOT) to Teach

For them:
They did a CT (confirmed the inflammatory nature of the lesion at L3-L4 with boney destruction)
They did a Nuclear Bone Scan- (confirmed discitis but no osteomyelitis)
They did an MRI (confirmed discitis, bulging of disc at L3-L4)
So then they did a biopsy- GOUT

WHAT ON EARTH ARE THEY TEACHING THESE PEOPLE??????

Summary

- Medical schools, which should certainly do research, should remain SCHOOLS OF MEDICINE
- They are SCHOOLS, not only research institutes
- There is a great need for faculty members who can teach students to be superb practicing doctors!
- These teachers need to be hired, paid, promoted rewarded and appreciated

Summary

- Someone has to fund these teachers (there is no money to be made from teaching)
- I don’t have a cosmic answer to who should pay, but it is in the public interest to have the best possible teachers educating the future doctors of a country (unless you personally don’t care how good your doctor is?!?!?)

Summary

- Most people (and therefore doctors) learn best from experience and immersion in the subject
- It is important for students and residents to see as many patients as possible
- It is important for residents and students to have as much responsibility as possible for making diagnostic and treatment decisions (under supervision)

Summary

- Resident and students need to be taught to think
- They need to be taught to do histories, physical exams, how to order tests and do assessments as well as possible in as efficient a way as possible
- This is a difficult task- BUT WE CAN DO IT!!

Teaching Medicine

- “We can only instill principles, put the student in the right path, give him methods, teach him how to study, and early to discern between essential and non-essential.”

Sir William Osler

Teaching Medicine

- “Knowledge is proud that he has learn'd so much; Wisdom is humble that he knows no more.”

William Cowper; poet 1731-1800

QUESTIONS?