



The Teaching Physician

for those who teach students and residents in family medicine

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Information Technology and Teaching in the Office

Teaching Learners to Access Genetic Resources for Patient Care

By Thomas Agresta, MD, University of Connecticut

The complex task of providing our patients with up-to-date clinical care and simultaneously balancing the needs of our learners is perhaps most evident in the rapidly changing interface between primary care and genetics. As clinicians and educators, we are often awkwardly aware that we lack the knowledge and training necessary to accurately define for our patients their individual risk for a disease. We are even less equipped to discuss the available and appropriate testing and treatment options with their associated benefits and risks. Yet these tasks are increasingly what we are being asked to do, and this is only going to accel-

erate as genetic information becomes part of the routine data gathered during patient care.

I will present some strategies and resources on how to deal with an increasingly common situation in a primary care office—the patient who enters our office essentially for genetic counseling. I recently had a 24-week pregnant woman ask a challenging question to a medical student during a routine prenatal visit. “What is the chance that my child will have Fragile X syndrome? And should I get tested?” It seems her sister had a 4-year-old son recently identified as having autism, and he was being tested for the condi-

tion. The student and I pondered this for a moment and decided we would try to answer her but recognized we would require some time to find accurate information. It was clear that there were many questions that actually needed exploring embedded within that simple query. I encouraged the student to review some resources and report back to me the next day.

I directed him first to a resource that I have found valuable for other questions similar to this one. GeneTests.org is a Web site that has a compilation of genetic resources organized within one site. I rapidly showed him the site and encouraged him to explore all of the sections by creating the following tasks: (1) Find out the inheritance patterns of Fragile X, (2) Discuss the clinical findings associated with this illness, (3) Determine its relationship to autism, (4) Find out if we wished to get our patient tested, what test could be done, and where it might occur

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Teaching Points—A 2-minute Mini-lecture A Medical Mistake

By Robert Ellis, MD; Bruce Gebhardt, MD; and Nancy Elder, MD, MSPH, University of Cincinnati

Editor's Note: The process of the 2-minute Mini-lecture is to get a commitment, probe for supporting evidence, reinforce what was right, correct any mistakes, and teach general rules. In this scenario, Dr Ellis (Dr E) and a third-year medical student (MS3) discover a medical mistake.

MS3: Dr E, I just saw a patient, Mr B, and I think something is wrong with his medicine.

Dr E: Okay, tell me about Mr B.

MS3: He is a 28-year-old man from the western part of Africa who has been living in the United States for about

2 years. He is currently being treated for latent tuberculosis with INH (Isoniazid). He's been on INH 300 mg per day for 2 months. It says in the chart that he has had the BCG (bacille Calmette-Guérin) vaccine in the past and recently had a PPD with 15 mm of induration. His chest X ray was negative. But, I'm confused, because I thought that if someone got a BCG in the past, they would always have a positive PPD [purified protein derivative]. And you aren't supposed to get a PPD if you've had the vaccination?

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Teaching Learners to Access Genetic Resources

locally, and (5) lastly, find patient information that would be useful to our specific patient. I also discussed the fact that he should be able to do this in less than 20 minutes. While initially this seemed like a daunting task, the student returned the next day happy to report that he had all the requested information and had gathered it in about 15 minutes. He then gladly took me through the information in less than half that time on the Web.

This student learned a great deal more that day than just about Fragile X syndrome. His excitement about being able to rapidly assimilate information was somewhat contagious to the other students and residents as well. Why did this work so well? First of all, I had not sent the student on a fishing expedition. I was familiar with the Web site and aware that the tasks I had asked of him could be managed fluently from within this organized site. Second, I had asked him to look up the very questions he (and some of them I) lacked answers to. The fact that he was also asked to demonstrate

this back to me the following day also reinforced his learning by empowering him to teach me as well as the residents who were glancing over our shoulders. I listened in on the phone conversation as he explained to our patient that she did not need testing at this time, as only 2%–4% of autism patients have Fragile X but could consider it if the test on her nephew came back positive. This type of experience can be powerful to learners. They not only gain knowledge and a new skill but also are validated as important members of the health care team, while simultaneously saving a preceptor time.

In general, when dealing with complex clinical questions related to genetics, despite the fact that our learners are much closer to the acquisition of this knowledge, they rarely possess this in a clinically relevant manner. In addition, unless we are answering only one question, it is unlikely we can give an accurate answer to a patient without spending at least a few moments reviewing the information. We therefore can help by (1) framing the actual clinical questions, (2) identifying potential resources, and (3) asking the learner to discuss and or demonstrate it back to us in an appropriate time frame. After this experience, I

have had several similar ones that have reinforced this strategy as successful in this setting.

Selected Resources:

- GeneTests: Medical Genetics Information Resource. Copyright, University of Washington, Seattle. 1993–2006. Online database for health professionals that has educational materials, connections to local genetics professionals, and laboratories as well as a genetics-specific glossary. This is an excellent starting point for primary care physicians as well as students. www.genetests.org.
- Genetics in primary care. Genes-R-US—A series of teaching cases for primary care physicians and educators. Learners can be asked to read specific cases and discuss with you. http://genes-r-us.uthscsa.edu/resources/genetics/primary_care.htm.
- Patient-specific resources.
 - Genetic Home Reference—a government-sponsored patient educational resource that is focused on genetics and related diseases. <http://ghr.nlm.nih.gov/>
 - Medline Plus—Patient education resource sponsored by Medline, has a full range of information that is not limited by topic and includes some excellent animations and videos. www.medlineplus.gov.

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A Medical Mistake

Dr E: We used to think that was true and that a PPD was contraindicated for persons who have received the BCG vaccine. However, now the CDC [Centers for Disease Control and Prevention] states that the BCG is not a contraindication to tuberculosis (TB) testing, and we should use the same criteria for what is a positive PPD as a person who has never received the BCG.¹ Do you remember what size induration is considered positive?

MS3: I think it's ≥ 15 mm for most folks. But it's less for someone who is immunocompromised.

Dr E: Good. So if the person is immunocompromised, the cutoff is ≥ 5 mm, while those at high risk have a cutoff of ≥ 10 mm. This man is otherwise healthy but is at higher risk since he is from a country in western Africa and has been in the US for < 5 years. It sounds like treating him for latent TB falls within the CDC guidelines. Do you know why he was given the BCG vaccine?

MS3: To prevent tuberculosis.

Dr E: Yes, but more specifically—what type of tuberculosis?

MS3: I remember something about the BCG helping with miliary TB?

Dr E: Excellent. It is given in countries with a high prevalence of TB to prevent childhood tuberculous meningitis and miliary disease. We rarely give it in the United States because of the low risk of those infections here. You said earlier that you thought there was something wrong with Mr B's medicine; did we talk about that yet? Was it the BCG that you were worried about?

MS3: No, it's something else. Last week he got a refill of his medicine, and the next day he started to feel off balance. This balance problem has been getting worse over the last week and now he is tired, very weak, and even is bumping into things while walking. He also complains of nausea and mild abdominal pain.

Dr E: Hmm. Anything else changed leading up to this?

MS3: No. He's not taking any other medicines, including over-the-counter

meds and supplements, he denies alcohol and drug use, and he has not had any fevers or head trauma. He does say that the number of pills that he takes each day increased from one to three.

Dr E: What? Let me see the chart. Oh, no. Someone wrote 300 mg instead of 100 mg three times a day on the refill message, and I approved the refill. The dose is 300 mg per day, not 900. I should have caught that. I am surprised that the pharmacy didn't catch that either. I feel terrible about this. What do we need to worry about with INH toxicity?

MS3: I am not sure.

Dr E: Do you remember how it is metabolized?

MS3: Well, I remember some problem with it if you have liver disease, so the liver metabolizes it?

Dr E: Good. We should stop the INH for now and let's go look up information on INH toxicity. I remember INH side effects with the mnemonic: "Injures Nerves and Hepatocytes." But we should look it up and maybe even call the poison control center for advice.

MS3: What do we say to Mr B?

Dr E: What would you like to say?

MS3: Me? I'd like to ignore it and just lower his dose. But maybe it would be better to tell him about the mistake.

Dr E: Yes, I think so. I will admit that I made a mistake. Apologize to him. I will explain to him how it happened. I will tell him what work-up and treatment needs to be done now.

I think it's important, too, to let him know what I will do to keep a mistake like this from happening in the future. These are actions recommended by patient safety experts who study medical errors. And this kind of full disclosure is also what patients report they want when a medical error has occurred.

You have seen the stacks of charts I get each day: phone messages, consults, X rays, lab reports, and pharmacy refill requests. The longer you are in practice, the bigger the stacks get. In some ways I'm surprised more errors don't occur. One study found that 11% of adverse drug events were preventable.

MS3: 11%! So, what am I supposed to do?

Dr E: It's a good question. The other scary percentage is that errors and preventable adverse events occur in 24% of all patient visits. We're lucky that most of these errors are minor and lead to little or no patient harm.

Maybe in the future, the electronic health record will help to decrease many of these errors. In the hospital here, you have to be careful how you write orders. We're not allowed to write shorthand expressions such as "qd" or "qod" for "every day" or "every other day," because these abbreviations can be misread. You have to be careful not to write "mg" or "mcg" because they look too similar, and milligrams are different from micrograms. The electronic health record can help print out prescriptions correctly—so that you can easily read the medication information, and all instructions are written in plain English.

I think the hard part for me is coming up against the fact that I can easily do harm to patients. And we all have to work together to design safer systems. Don Berwick wrote about "forcing function" or avoiding errors by making it impossible to make errors. They had signs on the single room lavatories that said "occupied" or "vacant," but people wouldn't use the signs. So it led to a lot of errors, embarrassment, and confusion. And the example he gave of forcing function was the airplane lavatory door—you have to close and lock the door for the light to come on. And when you lock the door, the sign on the door automatically says "occupied."²

I'm not sure how to design this refill system to be free from errors, but we do need to try.

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Clinical Guidelines That Can Improve Your Care

Uncomplicated Urinary Tract Infection: Treating Them Over the Phone, Keeping Them Out of the Mini-clinics

By Caryl Heaton, DO; UMDNJ-New Jersey Medical School

What can be more uncomplicated than an uncomplicated urinary tract infection (UTI)? For those of you who know this cold, and I am sure there are many, I apologize for this edition of the "Guideline" series. However, I suspect that we are not all on exactly the same page. The family medicine literature recounts differences in treatment in the early 1990s,¹ and my own experience talking to students suggests that there is still a great deal of variation in the diagnosis and management of one of our most common complaints. It's also significant to note that UTI is one of the common conditions treated in so-called "minute clinics." So, it's significant that two well-configured guidelines give us permission to treat most patients over the phone. Take that, minute clinics!

The Institute for Clinical Systems Improvement (ICSI) Health Care Guideline for "Uncomplicated Urinary Tract Infection in Women"² and the

University of Michigan "Urinary Tract Infection"³ guideline both are short, sweet, and evidence based. The bottom line, as they would say, is this: the diagnosis can be based on the patient's history of symptoms. The symptoms that suggest uncomplicated urinary tract infection are dysuria and frequency and absence of vaginitis (translated to mean no vaginal discharge or irritation). The ICSI guideline suggests including urgency as a primary symptom and proposes that any or all of the three cardinal symptoms (dysuria, urgency, or frequency) initiate the UTI protocol. The first-line treatment from both guidelines is Trimethoprim-Sulfamethoxazole (TMP/SMX) D.S. twice daily for 3 days. A short course has been shown to be as effective as a 10-day course, with fewer side effects. If yeast infections are a common problem following antibiotics, trimethoprim alone is suggested (see Table 1). It is important to ask and

rule out complicating factors that would suggest a need for longer therapy, most notably fever over 101°, four or more urinary tract infections within the last 12 months, or failure of the TMP/SMX treatment for UTI within the last 4 weeks. Table 2 contains the entire list of complicating factors and can be used as checklist for triage.

There are a couple of other disclaimers here. The studies that support telephone diagnosis have been done in patients ages 18–65, so that is the applicable age range. The other important warning is that all patients understand that they must see a physician if the symptoms do not subside after treatment. The University of Michigan Guideline gives a little more flexibility in the treatment, suggesting that any quinolone, amoxicillin, or a first-generation cephalosporin can be alternate treatments to the TMP/SMX. But the ICSI guideline reports increased resistance to amoxicillin and cephalosporins, and "alarming increases in quinolone resistance emerging internationally."

Routine culture of urine for uncomplicated infection is just not supported in the literature. If you feel more comfortable bringing the patient into the office, you can use a dipstick urine to diagnose UTI (use of either nitrites or leukocyte esterase has a sensitiv-

Table 1

Uncomplicated UTI Treatment Protocol

Uncomplicated UTI Treatment Protocol—Institute for Clinical Systems Improvement	Uncomplicated UTI Treatment Protocol—University of Michigan
First Line: <input type="checkbox"/> 3 days—Trimethoprim/Sulfamethoxazole D.S. BID <input type="checkbox"/> 3 days—Trimethoprim 100 mg BID (may have lower side effect profile) If allergic to Sulfa or Trimethoprim: <input type="checkbox"/> 7 days—Nitrofurantoin (macrobid) 100 mg BID <input type="checkbox"/> 3 days—Ciproflaxacin 250 mg BID (there is concern about emerging resistance)	First Line: <input type="checkbox"/> 3 days—Trimethoprim/Sulfamethoxazole Second Line: <input type="checkbox"/> 3 days—Quinolone (contraindicated in pregnancy) <input type="checkbox"/> 7 days—Nitrofurantoin, Amoxicillin, or first-generation cephalosporin

UTI—urinary tract infection
 BID—twice a day

Table 2
Complicating Factors

Complicating Factors—Short-course Therapy With TMP/SMX Is Not Appropriate

Symptoms

- Greater than 7 days duration
- Rigors (shaking chills)
- Flank pain: mid-back, severe, new occurring with onset of these symptoms
- Temperature greater than 101° F

History

- Diabetes
- Pregnancy
- Immunosuppressed (eg, steroids, chemotherapy)
- Renal calculi or renal insufficiency
- Known functional or structural urologic abnormalities
- Urinary tract catheterization (or other urologic procedure or instrumentation) within last 2 weeks
- Discharge from hospital or nursing home within last 2 weeks
- Greater than or equal to four UTIs within last 12 months
- Failure of TMP/SMX treatment for UTI within last 4 weeks
- Resident of extended care facility

Provider evaluation indicated, short-course therapy at physician discretion

- Nausea, vomiting, or abdominal pain
- Age less than 18 years or greater than 65 years
- Antibiotic treatment within last 4 weeks
- Pyelonephritis (acute) within last 3 months

Symptoms of or risk for other GU diseases. Provider visit indicated; short-course therapy at physician discretion; perform pelvic exam

- Recent onset of or change in vaginal discharge, odor, itching, or dyspareunia
- Chlamydia risk factors:
Contact with a partner infected with an STI or new sexual partner within the last 3 months and no barrier contraception

TMP/SMX—Trimethoprim-Sulfamethoxazole
UTI—urinary tract infection
GU—genitourinary
STI—sexually transmitted infection

ity of 75% with a specificity of 82% for a LR+=4.1). However cultures are certainly the standard for repeat or nonresponsive infections. There are no recommendations for treatment of com-

plicated UTI in these guidelines, nor is there any other current guideline for our patients that fail these therapies.

However, these guidelines give us a basis for triage and treatment over the

phone, if that is what both we and our patients desire. The combination of the four history factors has a positive likelihood ratio as high as 24.⁴ It's necessary to document that there are no complicating risk factors, the patient has received education on UTI, and they have agreed to come to the office if symptoms do not go completely away by the end of treatment. There is no requirement for follow-up after these short courses unless there are more than four in any 12-month period. It's as uncomplicated as that.

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Family Physicians Inquiries Network (FPIN) HelpDesk

Do Women With Symptoms of Urinary Tract Infection But Negative Dipstick Findings Benefit From Antibiotic Treatment?

By David White, MD, University of Missouri-Columbia

Evidence-based Answer

Women with dysuria and urinary frequency, but negative findings for leukocyte esterase and nitrites on dipstick, have more rapid resolution of symptoms when given antibiotics than when given placebo. Nevertheless, most will have urine cultures that are negative by standard criteria. This finding supports the practice of empirical antibiotic use for women with these symptoms (SOR B, based on a randomized controlled trial [RCT]).

The rationale that supports giving antibiotics to women who have dysuria and urinary frequency but a negative urine dipstick is based on the low sensitivity of the dipstick test and the fact that many symptomatic women with "negative" urine cultures are found to have low-level counts of pathogenic bacteria on further analysis. In one practice-based research study, 325 consecutive urine specimens were analyzed by both dipstick and culture. Of these, 103 produced a pure growth of at least 10^5 organisms/mL. Using this cutoff as the gold standard for comparison, the sensitivities of the dipstick leukocyte esterase and nitrite tests were 89% and 57%, respectively.¹ Thus, a substantial number of women with infection

tested negative for one or both of these results. Another study found that 37 of 59 women with urethral syndrome and bacteriuria of less than 10^5 organisms/mL were infected with coliforms, *Staphylococcus saprophyticus*, or *Chlamydia trachomatis*, all with bacterial counts of less than 3.4×10^4 bacteria/mL.² To determine whether women with symptoms but negative dipstick findings would benefit from antibiotic treatment, researchers undertook an RCT.³

Fifty-nine women ages 16 to 50 with symptoms of dysuria and urinary frequency, but negative leukocyte esterase and nitrites on mid-stream urine dipstick, were recruited. They were randomly assigned to receive either a 3-day course of antibiotics (trimethoprim 300 mg/d) or placebo. Women receiving antibiotic treatment had complete resolution of dysuria at the end of treatment much more often than women taking placebo (76% versus 26%; $P=.005$; number needed to treat [NNT]=2). This benefit persisted during the course of the study. At day 7, 90% of those in the antibiotic group and 59% of those in the placebo group had complete resolution of dysuria ($P=.02$; NNT=4). Overall, the mean duration of symptoms was shortened by 2 days for those taking

antibiotics compared to those taking placebo (mean duration 3 versus 5 days, respectively; $P=.002$). All patients had urine cultures performed. Only five of the 59 women were found to have "infection" using 10^5 bacteria/mL as the cutoff. Whether this benefit is due to the eradication of low levels of pathogenic organisms, or due to an effect of trimethoprim producing symptom relief unrelated to its antibiotic properties, remains to be determined.

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SOR—strength of recommendation
LOE—level of evidence

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HelpDesk answers are provided by *Evidence-Based Practice*, a monthly publication of the FPIN Consortium (www.ebponline.net)

POEMs for the Teaching Physician

Rofecoxib, Diclofenac, and Indomethacin Increase Risk of CVD

Clinical Question: Which non-steroidal anti-inflammatory drugs (NSAIDs) increase the risk of cardiovascular disease (CVD)?

Setting: Various (meta-analysis)

Study Design: Systematic review

Funding: Foundation

Synopsis: Recent evidence that rofecoxib (Vioxx) increases the risk of CVD has raised concern about other nonsteroidal anti-inflammatory drugs (NSAIDs). These investigators searched multiple databases, including MEDLINE, EMBASE, the Cochrane Library, abstracts of scientific meetings, and bibliographies of relevant studies for reports on cardiovascular events and NSAID use. Of 7,086 potentially eligible titles, 17 case-control including 86,193 cases and six cohort studies including 75,520 users met study criteria. Most exclusions were a result of reports not providing sufficient information on study outcomes or the drugs of interest. The mean age of study participants was rarely less than 55 years, and in most cases was greater than 60 years. Two individuals independently extracted data and assessed study quality with disagreements resolved by consensus. Individual studies underwent assessment using a standardized instrument. All studies scored well (7–8 points in total from a possible 9). As expected, rofecoxib use significantly increased the risk of CVD, with risk being highest with doses in excess of 25 mg/day. Diclofenac (Voltaren, Cataflam) and indomethacin (Indocin) were also associated with a significantly increased risk of CVD. Data on meloxicam (Mobic) came from three trials, only one of which showed a statistically significant elevated risk. Authors of the article state that these

data do not allow definite conclusions about the risk of meloxicam. Celecoxib (Celebrex), naproxen, piroxicam, and ibuprofen exposure did not increase CVD risk. Stay tuned, however, as more studies are forthcoming shortly. In a related study in the same journal (Zhang J, Ding E, Song Y. JAMA 2006;296:1619-32), only rofecoxib was associated with a significant increased risk of renal events and heart arrhythmia. Celecoxib (Celebrex) was significantly associated with a reduced risk of renal dysfunction.

Bottom Line: Rofecoxib (Vioxx), diclofenac (Voltaren, Cataflam), and indomethacin (Indocin) are associated with a significant increased risk of CVD. It is likely that all NSAIDs carry some risk, but the risks may vary between medicines. Current evidence does not point to an increased risk for low dose (over the counter) ibuprofen, and this remains safe to use at recommended doses. (LOE = 2a-)

Source article: McGettigan P, Henry D. Cardiovascular risk and inhibition of cyclooxygenase. A systematic review of the observational studies of selective and nonselective inhibitors of cyclooxygenase 2. JAMA 2006;296:1633-44.

Delayed Prescription for AOM Reduces Unnecessary Antibiotics

Clinical Question: Will asking parents to delay filling a prescription for the treatment of acute otitis media reduce unnecessary antibiotic use?

Setting: Emergency Department

Study Design: Randomized controlled trial (single-blinded)

Funding: Foundation

Allocation: Concealed

Synopsis: Previous studies evaluating the effects of asking parents to delay

filling antibiotic prescriptions for children with acute otitis media (AOM) excluded children with high fever. These investigators enrolled 283 consecutive children, ages 6 months to 12 years, seen in an emergency department who were given a diagnosis of AOM. Exclusion criteria included another bacterial infection, such as pneumonia; “toxic” appearance; immunocompromization; myringotomy tubes or perforated tympanic membrane; or antibiotic use within 7 days. Parents of children with AOM randomly received (concealed allocation assignment) verbal and written instructions “not to fill the antibiotic prescription unless your child either is not better or is worse 48 hours (2 days) after today’s visit” (intervention group) or to “fill the antibiotic prescription and give the antibiotic to your child after today’s visit” (standard group). Amoxicillin was prescribed for most patients. All subjects also received ibuprofen and otic analgesic drops (containing antipyrone and benzocaine) in standard doses. Individuals blinded to treatment group assignment assessed outcomes at 4 to 6 days, 11 to 14 days, and 30 to 40 days after enrollment. In addition, a research assistant called pharmacies 4 days after enrollment to confirm whether prescriptions were filled. Follow-up occurred for more than 94% of participants. Using intention-to-treat analysis, prescriptions were filled significantly less often for children in the wait-and-see group versus the standard group (62% versus 13%). The difference was also significant in the subgroup of children younger than 2 years of age (47% wait and see versus 5% standard). Verification of whether prescriptions were actually filled was assessed for 28% of the study population; the pharmacy confirmed parental report in almost all instances. Otolgia occurred for a slightly greater period (0.4 days) in the wait-and-see group, but the overall rate of otalgia after 4 days was similar in both groups. Unscheduled follow-up visits were similar in both groups. No serious adverse events occurred in either treatment group, but parents in the standard group reported significantly

more diarrhea in their children (23% versus 8%; number needed to treat to harm=7).

Bottom Line: A wait-and-see approach of asking parents of children given a diagnosis of AOM in the emergency department to delay filling a prescription significantly reduces unnecessary antibiotic use. Parents of children in the delayed group reported otalgia slightly, if any, more often than the parents of children in the standard group. All parents received explicit instructions to provide both ibuprofen and otic analgesic drops to their children. Children in the standard treatment group were more likely to have diarrhea. (LOE = 1b)

Source article: Spiro DM, Tay KY, Arnold DH, Dziura JD, Baker MD, Shapiro ED. Wait-and-see prescription for the treatment of acute otitis media: a randomized controlled trial. *JAMA* 2006;296:1235-41.

Antibiotics for Conjunctivitis Decreases Symptom Duration

Clinical Question: In adults or children with acute infective conjunctivitis, are antibiotics effective in decreasing the length and severity of symptoms?

Setting: Outpatient (primary care)

Study Design: Randomized controlled trial (nonblinded)

Funding: Government

Allocation: Concealed

Synopsis: The investigators enrolled 307 adults and children seen in 30 general practices in England who presented with uncomplicated acute infective conjunctivitis. The patients were randomly assigned, using concealed allocation, to receive immediate antibiotic treatment with chloramphenicol eye drops, delayed antibiotic treatment, or no treatment. The delayed antibiotic treatment was a prescription for chloramphenicol that could be picked up if symptoms were not better after 3 days, which occurred 53% of the time. The main outcomes of this study were the duration of moderately bad symptoms, average severity score for the 3 days following diagnosis, and belief in the effectiveness of antibiotics. The duration of moderate symptoms was shorter for both the immediate antibiotic group and the delayed antibiotic group: 3.3 days and 3.9 days, respectively, versus 4.8 days. The average severity of symptoms on days 1 to 3 did not differ among the groups. Approximately half the patients were cultured for the presence of bacteria, and significant bacterial growth was found in 50%. However, the duration and severity of symptoms was not different in patients with bacterial infection and those without. Nine percent of patients returned within 2 weeks; significantly fewer patients in the delayed antibiotic group returned within 2 weeks. Patients receiving immediate antibiotic treatment were more likely than patients not receiving treatment to believe antibiotics were effective (number needed to treat = 5). This belief could have led these patients

to underestimate their symptoms, which might have been responsible for the shorter duration. A better way to control for this belief would be to use placebo eye drops instead of no eye drops.

Bottom Line: Treatment with an antibiotic, either immediately or after 3 days without symptom improvement, shortened the duration of acute conjunctivitis but did not decrease the severity of symptoms. Delaying the antibiotic reduced the need for antibiotics by almost 50% with similar symptom control and no more repeat visits than immediate antibiotic use. These results were the same for conjunctivitis with and without an identified bacterial cause. (LOE = 1b)

Source article: Everitt HA, Little PS, Smith PW. A randomised controlled trial of management strategies for acute conjunctivitis in general practice. *BMJ* 2006;333:321-6.

LOE—level of evidence. This is on a scale from 1a (best) to 5 (worst). 1b for an article about treatment is a well-designed randomized controlled trial with a narrow confidence interval.

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Teaching Essential Elements of Routine Encounters: The "A"s and "Ex"s of Achieving Patient-Physician Satisfaction

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As physicians, we strive for the perfect mix of interpersonal skills and technical competence to create winning, mutually satisfying encounters. If we can discern our patient's concerns and agendas, and use our knowledge and communication expertise to address these concerns, satisfaction will be consistently achieved.¹⁻⁴

Although the "bread and butter" of a physician's schedule are patients who have relatively simple problems with predictable agendas and questions, students and residents, even those with excellent interpersonal skills, often find routine visits to be unsatisfying. This may be due to the fact that less-experienced clinicians tend to have more difficulty determining the patient's agenda, while experienced physicians have learned what patients really want and to anticipate these needs. Anticipating the patient's agenda is a key interpersonal skills competency that teachers should strive to help their learners demonstrate.⁵ The following model serves as a useful teaching tool to help learners analyze routine visits during precepting:

Encounter Satisfaction =
Acknowledgment + Anticipation
+ Experience + Expectation +
Explanation. ES = 2A + 3Ex.

Acknowledgment

Acknowledgment of a patient's symptoms and a thorough review of the history and context of those symptoms reassures the patient that the doctor listened carefully and appreciated his/her concerns. Multiple studies have shown that effective communication, empathy, and attentiveness to patients'

concerns relates to patient satisfaction.^{3,4,6-8} Patients need to know that the physician or learner understood their problem and how it affects them. To acknowledge and demonstrate their comprehension of a patient's concern, learners can review the history with the patient and add their perception of how the condition affects the patient's life. For example, the learner can say to the patient, "You have told me that these joint pains started 2 weeks ago without any associated injury, and they are now disabling and affecting your daily activities."

Anticipation

Physicians often can anticipate the questions or concerns that patients with a certain symptom are likely to have. A failure to anticipate patient expectations or concerns can create barriers for further communication since patients may perceive a lack of understanding.^{9,10} For example, failing to anticipate that a person with a prolonged viral syndrome may want an antibiotic, or not realizing that a person with a severe headache may fear a brain tumor compromises the encounter. Frequent call backs, complaints, and record transfers follow such failures. Learners must anticipate their patients' needs and address them during the encounter to avoid frustration and dissatisfaction for both the learner and the patient. Teachers can help learners accomplish this by reviewing the chief complaint with them before the patient encounter as well as during the precepting discussion. In reviewing or discussing the patient's chief complaint, teachers can ask learners questions such as, "What do

you think most people with a headache are concerned about?" or "What do you think the person with acute low back pain expects from this visit?" to help them anticipate the patient's real concern.

Experience

Physicians who share their experience with the presenting problem establish credibility and appear knowledgeable to the patient.^{3,11,12} For example, the physician may say, "In a typical day, I see two to three people with . . ." or "In my experience . . ." to reassure the patient that he/she sees a problem frequently and has a track record in this area. Students and residents often struggle with their relative inexperience and may be uncomfortable reassuring the patient in this way without direct training in how to do so. To offset their lack of experience, learners can either share knowledge related to classroom experience by saying "When we learned about this in class, our professor said that . . ." or by referring to recent research articles.

Expectation

Expectation refers to explaining the physician's expectations about the usual course of an illness. Imparting these expectations gives the patient guidelines for what is considered "normal" and symptoms or signs that are "cause for concern." Including this element in the closing forces the physician to be specific and knowledgeable about the true course of certain illnesses. By learning to give an appropriate range of "normal" courses, students and residents can avoid many post-encounter problems.

Explanation

The extent to which the patients understand their problems is positively correlated with patient satisfaction.^{3,13,14} Artful, experienced clinicians customize the explanation to the person's ability to comprehend, based on their intellectual and emotional status. Anatomical models and patient handouts can be helpful. Certain patients may benefit from a slower,

simpler explanation or the opportunity to meet with a patient educator. Teachers must help learners to assess a patient's comprehension of a diagnosis or management plan and take the time to carefully explain items without the use of medical terms, which learners often use without realizing it.

Application of the Model During a Patient Encounter and During the Precepting Process

Frequently, learners will intermingle different parts of the visit, such as diagnosing and offering treatment before listening to the complete history and examining the patient. This intermingling can lead to confusion and miscommunication. To communicate more effectively, it is usually best to separate the data collection (history and physical exam) from many tasks of this model, especially the "Ex"s (experience, expectation, and explanation), which are best performed at the close of the visit when patients are most ready to listen.

Reviewing the "A"s and "Ex"s with learners during the precepting process allows them to distill the critical components of a successful encounter and determine if they have completed each task. Similar to the BATHE¹⁵ mnemonic that gives learners an approach to handling psychosocial issues, this formula helps them address key elements of the physician-patient encounter in a more-medical, yet still patient-centered, way. As learners have more successful, satisfying routine encounters, they will excel at establishing healing relationships. In addition, higher satisfaction

with routine encounters can have a major impact on one's overall contentment and practice.

Summary

Learners may have unsatisfying encounters when people present with frequently encountered problems. In these cases, establishing a healing relationship requires a special skill set, which most physicians learn from experience. Teaching learners the essential components for addressing patients' concerns in a knowledgeable and empathetic manner may circumvent some of the frustration and dissatisfaction that less-seasoned clinicians experience with routine encounters. This model can serve as a valuable teaching tool to help learners evaluate their own performance with routine encounters and to target areas in need of improvement.

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