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Myths of Preventive Medicine

EFFECTS OF EARLY SCREENING AND DIAGNOSIS OF DISEASE

Preventive medicine and primary care has traditionally focussed on health promotion and disease prevention. Due to advances in technology, a typical well visit may now include a series of tests to detect early disease. How is this shift in preventive medicine affect the patient's care, survival outcomes, and healthcare costs, and how can physicians decide when to screen for cancer and other conditions. You are listening to ReachMD, The Channel for Medical Professionals. Welcome to The Clinician's Roundtable. I am your host, Dr. Jennifer Shu, practicing general pediatrician and author. Our guest is Dr. H. Gilbert Welch, professor of medicine and community and family medicine at Dartmouth Medical School, Co-Director of the VA Outcomes Group in the Department of Veterans Affairs in White River Junction, Vermont, and author of the book "Should I Be Tested for Cancer? Maybe Not and Here's Why".

DR. JENNIFER SHU:

Welcome Dr. Welch.

DR. H. GILBERT WELCH:

Well, thank you so much for having me.

DR. JENNIFER SHU:

It's a pleasure. Now we are talking about screening for early disease and screening and primary care has almost become second nature, is there really a problem with screening?

DR. H. GILBERT WELCH:

Well, it's like everything; it's not quite as simple as it might appear at first blush. I think for years we have exaggerated the benefits of screening and sort of downplayed or totally ignored its harms.

DR. JENNIFER SHU:

Now, why in the culture of medicine do physicians feel compelled to screen?

DR. H. GILBERT WELCH:

Well, I think there are number of reasons, one there is a general enthusiasm with the dictum that early diagnosis is always better than late and of course in many conditions we do like to diagnose early rather than late. We'd rather diagnose the patient early in their course of their pneumonia than when they are short of breath, we would rather repair a laceration, a deep skin laceration soon after it has occurred rather than wait until it gets infected, but this doctrine sometimes gets extended too far and as

we move into conditions that are not bothering the patient currently we risk involving a whole set of people that we otherwise wouldn't and that leads to the problem of over diagnosis and over treatment.

DR. JENNIFER SHU:

Now, let's talk a little bit about over diagnosis, why don't we use prostate cancer as an example, the US Preventive Services Task Force recently recommended testing men over age 75 for prostate cancer, is this because there is a problem of over diagnosis or is there something else going on?

DR. H. GILBERT WELCH:

No, it really is about the concern of over diagnosis I guess, just step back for a second, all the physicians in the audience should recognize that so far as of yet we don't even know whether PSA helps anyone. My belief is that it probably does help a few, but we are still waiting for randomized trials to show whether it has any effect on prostate cancer mortality or not, but as I said before my best guess is it probably helps a few, but it leads many, many others to be diagnosed with prostate cancer who otherwise would never have been and the effect of the population level is just dramatic. Since the introduction of PSA screening, my colleagues and I estimate that there are over a million men that have been diagnosed with prostate cancer who otherwise would not have. Now these men haven't just received the diagnosis, most of them have also been treated, and as the physicians in the audience are aware, treatment has real side effects.

DR. JENNIFER SHU:

What kind of side effects might be seen with over treatment that you mentioned?

DR. H. GILBERT WELCH:

Well, first we should talk about mortality, I mean there is a mortality associated with radical prostatectomy, it's not large, but it's on the order of 2 per thousand so that's still real, but then there is a symptoms side effects associated with the procedure, many men are made impotent, many men have trouble urinating following the procedure either they are incontinent or they have hesitancy and the other major therapy for prostate cancer is radiation ultimately can also affect the nearby rectum and colon leading to radiation proctitis and painful defecation, so these are real treatments they have real downside and real harms, and the problem with prostate cancer screening is we just find so many more men to have prostate cancer then will ever be expected to die from it.

DR. JENNIFER SHU:

Well, let's talk a little bit about the definition of prostate cancer and other diseases, is it may be that the definition of disease is not accurate, you are saying that they could have a disease, but not die from it, so really is prostate cancer a problem?

DR. H. GILBERT WELCH:

Yeah, you are getting to the heart of the issue, what is prostate cancer that matters and I can generalize that to the question what is cancer that matters and I think all physicians sort of need to remember what our patient hear when they hear the word cancer, they hear what's actually in my Stedman's dictionary, which is a tumor the natural course of which is fatal and of course that's what everybody hears and that's the definition I think we all sort of associate with cancer. If you don't do something about it, people invariably die from it, but of course there is another definition and our operational definition is dependent on the pathologist and their definition depends on what individual cells look like and what their architecture is, you know whether there are signs of the invasion of surrounding tissue, now these 2 definitions may lead to very different groups of people being told they have the disease. This really wasn't a problem when we handed pathologist tumors that you could hold in your hand that surgeons had removed you know large masses. The difference between the 2 definitions wasn't particularly relevant, but as we move into looking for really early forms of cancers all of a sudden it does become a real relevant difference between these definitions that clinical definition of cancers, the invariably lethal disease that metastasizes, and the pathologic definition, which is based

on the appearance of individual cells and pathologist himself to their credit have recognized this issue and in fact have sort of studied the reservoir of subclinical cancer in autopsy studies and these are studies where men or women in the case of breast cancer or both in the case of thyroid cancer are studied, had autopsy, people who have died from some other cause to see what the reservoir of undetected cancer is and it's pretty substantial particularly in prostate cancer. Classic autopsy study done in the city of Detroit shows that once man is over age 60 over half have pathologic evidence of prostate cancer somewhat surprising even men in their 20s about 10% had evidence of prostate cancer, so that's a huge reservoir of disease that means that if you look for early forms of disease you can find a whole lot more than ever be relevant to an individual.

DR. JENNIFER SHU:

If you have just joined us, you are listening to the Clinician's Roundtable on ReachMD. I am your host, Dr. Jennifer Shu, our guest is Dr. H. Gilbert Welch, professor of medicine and community and family medicine at Dartmouth Medical School. We are discussing the effects of early screening and diagnosis of disease.

Now let's switch gears little bit and talk about cholesterol screening, there is a recent Jupiter study or Justification for the Use of statins in primary Prevention and Intervention Trial Evaluating Rosuvastatin and in this study different screening tests rather than a total cholesterol level were used, they were treating for lower LDL levels and currently indicated and also followed high sensitive C-reactive protein and do you have any thoughts on how these findings might effect primary care practice?

DR. H. GILBERT WELCH:

Well, I think it's a little early to say how these will affect primary care practice. I think couple of things are worth noting, one the criteria for giving people statins has expanded dramatically over the past 10 or 15 years and in large part that's because of very positive research showing that there are benefits to giving patients statin. The Jupiter study is unusual one in that all of a sudden it changes the criteria from one of based on cholesterol to one that's based on C-reactive protein. Quite frankly, I am a little

uncomfortable simply because the lead author on that study also has a strong interest in the tests albeit a financial one in the test and I hope this is something we can pause a little bit and make sure that these findings are replicated elsewhere, but that said I think it is having looked at it, it is a pretty impressive study, but one has to step back and realize that it required 17,000 patients to show this difference, so that tells you that the absolute risk difference is they are quite small and some of you listeners who have actually looked at the study might even note that the in the New England Journal used a interesting device to their credit to sort of highlight that point. They did the event curve for the individual patients running from 0 to 100% and then they had to enlarge those sections, which actually show you the difference if you look on a graph between 0 and 100%. You really cannot see the differences between the 2 group is only when you enlarge them that you can actually begin to see the differences, so the absolute differences here are small and I think this is one of the things that's happening is we are moving too early and earlier and more and more subtle forms of I don't even want to call them disease, they are more subtle abnormalities and asking the question of whether we should treat them. There is a strong economic incentive to do so whether there is a strong incentive on the part of the patient is something only patients can decide when they see exactly how big the benefit is.

DR. JENNIFER SHU:

Now, you touched a little bit about third parties having an economic interest in the early detection than treatment, have you found that your research has attracted any type of backlash since you have been warning about the downsides of too much screening and diagnosis?

DR. H. GILBERT WELCH:

I think backlash is a little too strong a word, I think there are strong interests though in early detection and the most obvious ones are the pharmaceutical companies who are looking for larger markets and the easiest way to get a larger market is to find a larger portion of the population to be ill or abnormal and that's true for things like diabetes care, hypertension, high cholesterol, or osteoporosis. Here the problem is that just if you get into a lower risk population your absolute benefits become much smaller, but it's not just the pharmaceutical companies, medical centers including academic medical centers have some financial interest in recruiting patients and going to the well population offering free

screening is one way to recruit new patients whether it's a right way to do it or not is the different question, but I think we all need to acknowledge that there are powerful economic forces that are promoting early detection.

DR. JENNIFER SHU:

Now in one of the essays that you wrote for the New York Times you mentioned that over the last couple of years in the most recent presidential campaigns the candidates have spent a lot of time talking about how their plans would emphasize and cover preventive medicine that including health promotion, but also may be annual checkups and screening, so with the new administration do you see any opportunities to do a better job with screening than is currently being done right now?

DR. H. GILBERT WELCH:

Well, let me just first step back and make sure everybody in the audience is clear in the distinction between health promotion activities and early detection activities because they both get lumped under this idea of prevention. I have absolutely no problem with health promotion activities. These are the ones I would like to think of as what my grandmother would have told me you know do not smoke, exercise, get plenty of sleep, eat well. Those are very important things and to their credit both senator McCain and now President elect Obama articulate the importance of those health promotion activities; however, they both also advocated the early detection activities and I think that's much more of a double-edged sword and one that requires a little bit more nuanced view. Many people see early detection as the kind of cure all, something that will simultaneously reduce healthcare cost and improve population health. The first point that it will reduce cost, I think is laughable quite frankly because these early detection strategies all has identified so many additional patients they almost always or we should expect them to actually cost more money that's the reason pharmaceutical companies and medical centers have been doing them, so I don't think we can hope that these kind of early detection efforts will actually reduce healthcare cost that said we may still want to do them if they really have substantial benefits and that's the place I am really interested in this to what extent do they have the benefit and are we adequately measuring their downside and I think with the example of prostate cancer screening you have got a situation where I think obviously from what we know now the downsides are greater

than the upsides.

DR. JENNIFER SHU:

I would like to thank our guest, Dr. H. Gilbert Welch. We have been discussing the effects of early screening and diagnosis of disease.

I am Dr. Jennifer Shu. You have been listening to The Clinician's Roundtable on ReachMD, The Channel for Medical Professionals. Be sure to visit our website, reachmd.com, featuring on-demand pod casts of our entire library and thank you for listening.