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Interview of Dr. Peter Neumann
Director of the Center for the Evaluation of Value and Risk in Health
Tufts University Medical Center
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David Harlow: This is David Harlow at HealthBlawg, and I have with me today Dr. Peter Neumann, who is the Director of the Center for the Evaluation of Value and Risk in Health at Tufts University Medical Center here in Boston. He is also a Professor of Medicine at the Tufts University School of Medicine. Hello, Peter, and thank you for joining us.

Peter Neumann: Thank you, David.

David Harlow: So I would like to ask if you could, just for starters, introduce us a little bit to the work of the Center for the Evaluation of Value and Risk in Health.

Peter Neumann: Sure, well thanks for inviting me; I'm pleased to be here. Our Center focuses on a variety of health economics issues and essentially we are a group of economists and other researchers who are trying to understand how we can better spend our health care dollars, and we do that by measuring the cost-effectiveness of the value of different health care interventions. So we're looking at pharmaceuticals, devices, procedures, public health programs - a variety of different strategies in health and medicine and trying to understand, in a sense, the health gains for the dollars that we spend in different areas, and how we can deliver health care and to improve health most efficiently.

David Harlow: Yes, so you work with private industry as well as with governments, I understand, and I'm wondering whether you see an openness to this sort of approach in the midst of the national debate on health care reform here in the United States; or whether there's a different sort of openness or resistance to the quantification of these matters in the public debate here versus elsewhere in the world or in other circumstances.

Peter Neumann: Right, we do work with diverse groups; so we work on government grants, we work with foundation grants and we do work with private industry as well. So I think everyone recognizes we need to deliver care more efficiently and everyone recognizes that we have a cost problem and that formal analysis likely will help us understand what we are getting from what we are spending. That said there is a lot of sensitivity around using cost-effectiveness analysis openly. People are worried that it will result in rationing of care to people who need care, will result in denying care in ways that are unfair and so forth. So even while we recognize our cost problems, there is great concern that these techniques would be used inappropriately.

I think there's more openness to using these techniques, broadly speaking, outside the US than inside the US. No one even overseas likes to deny care or ration or use cost-effectiveness analysis explicitly, perhaps. But I think there's a greater willingness in many countries - certainly in many western European countries, in Canada, Australia, even countries in Asia – to set limits using cost-effectiveness information to inform health care choices, and that hasn't been the case in the US to a large extent.

David Harlow: Yes, now one of the terms used in some of these analysis, including some of the analysis that you've written and participated in, is the term 'the quality-adjusted life year' which I think raises a lot of red flags for US-based listeners and readers; and I'm wondering whether you can help us understand how that term is used. What does that measure mean and how is it used explicitly or implicitly in the sorts of analysis that you and others are doing in this field?

Peter Neumann: Sure, so the quality-adjusted life year, or QALY, is a health metric, it's a measure of health that combines morbidity and mortality into a single number. We often think about life expectancy as a metric that sort of helps us think about gains in health and we talk about people's life expectancy, we might even talk about life expectancy gains with a new cancer therapy - say a new cancer drug may come along, and on average it increases one's life expectancy for those with cancer say by one year.

All that a quality-adjusted life year is doing is adjusting that year of life gained with some information about the amount of impairment or disability lived in that life year. So you could imagine someone might gain a life year with cancer but they live that life in very poor health, so we would weight that life year by some amount. They would only get, say, a half of a quality-adjusted life year gained. So the quality has been…

David Harlow: Let me interrupt you for a moment; if I can like to interrupt you . . . Well, many patients or families would say well, I am happy to make that sort of assessment on my own, let me be the judge…

Peter Neumann: Sure.

David Harlow: Of whether a year in pain is worth half a year.

Peter Neumann: Sure.

David Harlow: Don't let an economist make this decision for me.

Peter Neumann: Sure, there's a lot of pushback to economists or - even worse - bureaucrats making these decisions that patients would like, and feel they should make on their own. So a QALY is really a population-based metric, in a way, it's an average of sorts, averaging across different people in the population and we do that in all sorts of ways in health care. We average results from clinical trials into a single number, a new drug improves quality of life by so much and a new drug, a new program improves life

expectancy by so much; and those are population-based metrics as well and they're used as guides to clinical care, and maybe to policy.

So a QALY is not doing anything really that different. I think one of the red flags that your question suggests that is a little bit different as well: My being in pain is very different than my neighbor's being in pain. I maybe don't tolerate pain as well, so I have a different number and while that's probably true or at least true that people all have different preferences around health states – again, all the QALY is trying to do is give a guide to roughly amount of life lived and the quality of that life lived.

And so the other thing I suppose I would add is, a physician treating a patient can look at a QALY and make his or her own informed decision along with the patient about whether it's applicable for them in their particular circumstance.

But I think as your question rightly highlights, it is with some controversy. And people feel often that QALYs are not capturing what they care about, that's another criticism of the QALY: that people may care deeply about aspects that are not captured by quality-adjusted life years gained. For example, we might want to give priority to certain populations, whether or not it's the QALY-maximizing thing to do, we might want to give priority to vulnerable populations or children or people with rare diseases or people with cancer and people with - and on and on. Whether or not the QALY-maximizing strategy would lead us there and I think that's a very real concern and again all the QALY is doing is giving a benchmark or a common metric to help us understand the gains for the spends.

David Harlow: Yes. So it's a metric. And what you are saying is that a policymaker could add other adjusting factors when translating a result that's in terms of QALYs into a policy decision.

Peter Neumann: Exactly. And the economist would say: well, resources are limited, whether we like that or not, we can't do everything we want for everyone who is in need of care and we do make decisions and those decisions have implications. The QALY is simply a guide to helping us make those decisions more fairly and consistently and perhaps rationally.

David Harlow: You've written or spoken in the past about the notion of American exceptionalism and that's a notion that a lot of folks have been speaking about in connection with the health care reform debate in recent months. My question to you is whether there is anything we can learn from the ways in which other countries in the world have resolved or attempted to resolve these issues of allocation of scarce resources in health care? What can we learn from the way this has been addressed elsewhere in the world? Is there a particular country or two that you think has addressed this particularly well?

Peter Neumann: Right, so there is this theme of American exceptionalism that is much broader than just in health care, but the basic idea, oversimplified somewhat, is that

because of our unique history and culture, our strong inclinations towards personal economic freedom and the institutions we've set up that make it difficult to enact major change, and the culture's sort of broad mistrust of government and big corporations that makes it very hard for us to enact policies, universal health care, it's very hard for us to use cost-effectiveness analysis, and so forth.

So other countries also have their own unique history and systems and culture, and have addressed this in ways that I think offers some lessons to us. They've created institutions in places - the UK is a good example, Canada is another - where they have policy experts, often including stakeholders, citizens' councils, physician groups and others, patient advocates perhaps, who are collectively trying to make these difficult decisions and using economic evaluation, cost-effectiveness analysis, to help make those decisions; and in many cases not covering new technologies that are very expensive but have small marginal gains. So the UK maybe most famously has an institute called the National Institute of Health and Clinical Excellence that sifts through the data, looks at the economics of new treatments and then decides whether or not to cover. And in some cases at least decides not to pay for new very expensive technologies that offer marginal benefits.

David Harlow: Do you think that there would be a change in approach or a change in decisionmaking about what should be covered, what should not be covered, if there were a change in the basic approach to reimbursement for health care services in this country? Would a change in those incentives drive a change in behavior of providers?

Peter Neumann: Well I'm a strong believer that it would. I think part of the issue that we've been talking about is the information itself and to what extent do we use that information in decisions. Another issue we haven't to this point talked about is the incentives in the system, and I think the information would have a much bigger impact in an environment with different incentives. So if providers were under bundling arrangements where you have a global payment that follows a patient with a particular disease for example, particular diagnosis, I think the incentives change in ways that makes this information more relevant and more powerful. And there are other ways to change incentives to also make this information more relevant - it could be salaried physicians, it could be changing incentives to do more and getting paid more, it could be incentives that are different for patients where they face more cost sharing.

Now changing incentives in all those ways has some potential downsides too, of course, but I think in an environment where we really have a cost crisis, I think we are going to see changes in incentives and behavior will change accordingly. And I think this information that we've been talking about, cost-effectiveness analysis, may have a more important role in ways it doesn't have today.

David Harlow: Speaking of incentives, on everybody's mind these days are the incentives for the propagation of electronic health records systems in this country. I'm wondering whether you see an opportunity there for gathering of more data in an

effective way through the deployment of electronic health records systems that would help inform some of the decisions that we are talking about.

Peter Neumann: Yeah, absolutely. I think giving people incentives is being widely discussed and maybe we are seeing some policies now to use electronic medical records should have an impact that in turn will generate lots of data with clinical detail we don't have now; and that kind of information can feed into analyses that can help us better understand the impact of different treatment strategies - both safety and efficacy and cost-effectiveness.

So I think there is perhaps a data issue, data problem, infrastructure problem that exists today where I think we are not capturing the kind of information that would be possible if encounters led to more systematic data capture. So I think that would be an important part of moving forward.

David Harlow: Okay. Now one of the projects that I understand you've been working on - that your Center has been working on for a while - is a registry of cost-effectiveness studies, Cost-Effectiveness Analysis Registry and I wonder if you could speak a little about that, explain what that is, how you use it in your work.

Peter Neumann: Sure, it's the Tufts Medical Center Cost-Effectiveness Analysis Registry which we refer to as the CEA registry. And it's essentially a database of published cost-effectiveness analyses, and these are studies that have appeared in the peer-reviewed Medline literature that my group, there is a formal protocol for the collection of data from each of these published studies.

We collect something like 35 or so variables on each cost-effectiveness analysis. We have two readers independently reading each study and then coming and meeting in consensus; their consensus meeting to enter data into a database. We enter data on the cost-effectiveness ratios that are produced by these studies as well as a lot of detail on how the studies were conducted. So with an online searchable database, and I would invite all of your listeners and readers to go on the site if they are interested it's www.cearegistry.org and you can plug in a word or phrase or an author's name and so forth or type of intervention.

So for example if you were interested in what is cost-effective in the area of multiple sclerosis you can look and plug that term into the database and you'll find published studies on the cost-effectiveness of interventions for MS and similarly for any other disease that you'd like.

I should emphasize all of these studies are in the form of cost per QALY studies so that is the currency or benchmark that we use. The great strength of that is that the results are comparable so you can compare a cost per QALY in a study on depression, to a study on cancer to a study on I don't know some kind of new diagnostic technique to detect I don't know, I'm making it up, heart disease.

So there's lots more I can say about this database but we've always viewed it as a public resource and we plan to expand upon it in the future, and the goal of this exercise is really to try to understand society's best opportunities for improving health efficiently. So we'll keep it going in the future and again I invite everyone in and we'd love feedback if anyone has any.

David Harlow: Terrific. What I'd like to ask a little bit more about there is - you've mentioned a moment ago about the notion of using QALYs as a standardized measure so you could look at issues across different diseases or treatments and I'm wondering, what would you be looking at exactly if you're comparing effectiveness between a cardiac issue and a neuromuscular issue? What would be the outcome of that comparison?

Peter Neumann: Right, so the idea is we have limited resources to spend on health and we need some common measure that would allow us to say, "well, the money we have to improve health is better spent over here in a certain area, than it would be spent in a different area" so the way we standardize everything is through these cost per QALY ratios.

So for example if you have some kind of surgery for cardiac care a study might - someone might do a study and say the net cost per QALY gained for that type of surgery is say $10,000 per QALY and the neuromuscular condition let's say an expensive new drug and the cost per QALY ratio in the study someone has reported is $200,000 per QALY. So the idea is if you're trying to improve health it's much more efficient to spend that money on the cardiac care than it is on the neuromuscular drug in that case.

And while it's difficult to make direct comparisons across very diverse treatments this gives us a way of measuring value for different uses of resources to improve health. And what some countries are doing is saying we are not going to pay for the very expensive strategies, the $200,000 example, and we will pay for the less expensive more efficient better value strategies, the $10,000 for example.

David Harlow: If you had a crystal ball how would you predict this sort of information playing out into coverage decisions and policy decisions in this country?

Peter Neumann: Well, I think there will continue to be a lot of concern and sensitivity around doing cost-effectiveness analyses openly. I think it's still fraught with a lot of political problems and mistrust and so forth. However, I think that we will slowly but steadily begin to use more of this information and we are beginning to see it - even in Medicare we are beginning to see it on the prevention side. So how frequently you screen for cancer is really an issue of the clinical and the cost-effectiveness information.

So you know at the extreme we could screen for cancer very frequently - every month - or we could screen much less frequently - every ten years - and what the right level of frequency is determined by the clinical outcomes of screening, it's determined by false positive rates and by maybe some safety issue that would result from false positives. But it's also a cost issue and I think we will have cost-effectiveness information informing

decisions like that; not only frequency of screening but we will have it likely for which subgroups get which types of prevention. Perhaps immunization schedules in the future will be informed by this and maybe even in certain cases, and I think this will come, treatment guidelines; failing cheaper therapies first before you get to the expensive one.

That's a decision that can be informed by cost-effectiveness analysis. Even if you take the more expensive ones first and it gives you a little bit more clinical benefit, guidelines increasingly will dictate that patients try the cheaper drugs first or the cheaper treatments first and then get to the more expensive ones only if they can't tolerate or they fail the others. And again I think cost-effectiveness analysis in the public sector and the private sector will inform those kinds of decisions.

David Harlow: Yes, well it certainly seems to make a lot of sense. The question is always how it is communicated. We've seen some stellar communications failures in the context of the mammography guidelines in recent months and changes in the way that's been explained following a public relations disaster…

Peter Neumann: You're right.

David Harlow: And it remains to be seen how those will actually be implemented by payors.

Peter Neumann: Yeah I think you're absolutely right and the mammography episode shows how challenging this is going to be - but even there, there are limited resources, there are complex cost-risk-benefit trade-offs and we will see how it plays out. But I would argue even there, cost-effectiveness analysis could help us think through those issues, but it certainly will not be easy.

David Harlow: Yes, well, thank you very much. I have been speaking with Dr. Peter Neumann, Director of the Centre of Evaluation of Value and Risk in Health, Tufts Medical Centre. This is David Harlow on HealthBlawg, and thank you for listening.