

THE ECONOMIC CLUB

O F W A S H I N G T O N, D. C.

Kurt D. Newman, M.D., Children's National Health System, Paul B. Rothman, M.D., Johns Hopkins Medicine, and Craig B. Thompson, M.D., Memorial Sloan Kettering Cancer Center, share insights about healthcare in the United States.

**Kurt D. Newman, M.D.
President and CEO
Children's National Health System**

**Paul B. Rothman, M.D.
Dean & CEO
Johns Hopkins Medicine**

**Craig B. Thompson, M.D.
President and CEO
Memorial Sloan Kettering Cancer Center**

Tuesday, April 3, 2018

DAVID M. RUBENSTEIN: So, let me introduce our distinguished panel. To my immediate left, Paul Rothman. Paul is the CEO of Johns Hopkins Medicine. He's also the Dean of the Johns Hopkins Medical School. Native of Queens. He went to undergraduate at MIT, where he was not only a star student but also captain of the crew team. Yes. And then went to Yale Medical School, where he also coached the crew team at Yale. And when he got his crew work behind him, he was committed to medicine. And he subsequently did his work at Columbia University's College of Physicians and Surgeons. And he is a rheumatologist by training. And he was there for many years, and then later was recruited to be the head of internal medicine at the University of Iowa Carver School of Medicine, and subsequently became the dean of that medical school before he became the head of Johns Hopkins Medical School in 2012. And his wife is a doctor as well. And she is a specialist in gastroenterology, right? OK, wow. Very impressive. [Laughter.]

OK. Craig Thompson – and I should disclose, I am on the Johns Hopkins board. And so, I've known Paul for quite a while. And I should disclose I'm also on the Sloan Kettering board. I'm not that good a board member at either of them, but I'm on the board. [Laughter.]

Craig is a native of many different places. Grew up in Boston, Alaska, other places. His father was in the Coast Guard. But he did his undergraduate work at Dartmouth, where he was an Olympic-level kayaker. He competed for the—for the Olympics in the U.S. Olympic kayak in 1972 but did not make it. But medicine, did pretty well as a result of that, not being in kayaking. And he did his undergraduate work at Dartmouth and his medical degree is from the University of Pennsylvania. He subsequently trained at Harvard Medical School and subsequently did work at the University of Washington's Hutchinson Cancer Center, work at the University of Chicago Medical School, worked at the University of Pennsylvania Medical School. And he later became the head of the Abramson Cancer Center there. And then he became the head of Sloan Kettering in 2010. And he holds that position today. He's also somebody who has started three different biotech companies and holds 30 patents in immunotherapy. And his wife is also in the family business. And she is an MD, Ph.D., and a cancer researcher. OK. Very distinguished.

And Kurt Newman. Kurt has the distinction of also being a member of our club. OK. Kurt is – was an athlete as well, but at the college level but as a baseball player in high school. [Laughter.] Which is good. He made a mistake in college. He went to the University of North Carolina. But he atoned for that sin by going to Duke University Medical School. [Laughter, applause.] And from there, he trained at Brigham and – Children's Hospital in Boston. Brigham and – Brigham Hospital in Boston, is that right? And then later Harvard Medical School. And subsequently came in 1984 to Children's Hospital, which next year will celebrate its 150th anniversary. It's hard to believe. [Applause.] At Children's Hospital he's been Surgeon-in-Chief of the Joseph Robert Surgical Center. He's also been involved with the Sheikh Zayed Center there for pediatric innovation. And he has been the CEO of Children's Health System since 2011. And his wife is also in the family business. She is a neonatal nurse practitioner. OK, wow. Very impressive backgrounds.

So, let me ask you the first question. Do all of you – when you go to a cocktail party, do people say to you: I have this hurt here, I got this pain here. [Laughter.] You know, what do

you think? Do you think I need to see a doctor? Or do you think it's cancer? What do you think – do people ask you this all the time? Or you never get this?

PAUL ROTHMAN, M.D.: Oh, occasionally. And it's –

MR. RUBENSTEIN: Mostly by me, I guess. [Laughter.]

DR. ROTHMAN: No, not at all. It's – you know, you want to help people. So, I think it's something you try to do for folks that you meet. But it's difficult when you are acting in a role of being, either their physician for this transient period of time. So, generally I think – I try to tell them to go see your own physician, because I'm not going to diagnose you at a cocktail party. [Laughter.]

MR. RUBENSTEIN: All right. Do you ever get this? Craig, do you ever get this?

CRAIG THOMPSON, M.D.: Yeah. So, I think this is actually a common thing, that any time you're at a cocktail party, particularly in New York or Washington or any of the major cities, you get asked because – somebody pointed this out to me about a month ago – really, health is the new wealth in America. As America has gotten wealthy enough to be able to put a roof over our heads and to be able to feed our families, maintaining health and wellness throughout life is really key. And people look to the physician community. And because all three of us run health care systems, they want to get that wisdom and to get the understanding.

And so, at every level they ask you from the ache, my shoulder hurts what should I take, to actually what should I do for my health. And so, one of the reasons we're really excited to be part of a panel like this is it's a chance to join a bigger cocktail party and get some of that information out. [Laughter.]

MR. RUBENSTEIN: All right. Kurt, do you ever get people asking about their children?

KURT NEWMAN, M.D.: Well, fortunately, if they ask me about themselves I can say, well, you know, I don't take care of adults. [Laughter.] But I actually enjoy getting those calls about children and having the opportunity to find the right doctor or hospital for them.

MR. RUBENSTEIN: All right. And so, you're running big health care systems. Do you think somebody who hasn't run a big health care system could all of a sudden be in charge of a big health care system and do a good job? [Laughter.]

DR. ROTHMAN: Kurt, what do you think? [Laughter.]

DR. NEWMAN: Well, you know, if I look at myself, I mean, I was a chief of surgery and a surgeon at Children's for almost 30 years when I became CEO. It was a big jump to go to being CEO of a hospital from being chief of surgery. You know, if I were somebody's personal doctor I'm not sure – well, better stop there. [Laughter.]

MR. RUBENSTEIN: OK.

DR. THOMPSON: So, I guess at one level any physician today in modern health care is actually a small business owner. They're running a team of people – their nurses, their staff. They're really trying to deliver a full product. They need to understand supply and everything. So, I imagine physicians delude themselves into thinking they could do this kind of stuff, but in fact it's a much more complex task than just going from running a team, taking care of a patient's health care, to actually understanding what it takes to run a whole health system. So, all of us did chairmanships for a number of years and took increasing jobs in our careers. And I think, like any other industry, you need experience at all levels before you can really run a health system in this modern era.

DR. ROTHMAN: And I think they've said it all. [Laughter.]

MR. RUBENSTEIN: OK. So, what do each of you – what do you regard as the most serious health care problem facing the United States right now. Paul?

DR. ROTHMAN: So, I think it's the expenditures. I think we're just spending, you know, 18 percent of our GDP¹ on health care. And I think it's unaffordable now. And if you look at the Baby Boomers aging, it's just going to get worse. So, I think we really have to deal with the costs involved in health care. And at the same time, ensure that we actually improve the quality of the health care we deliver. So, I actually think the cost of health care is the largest issue we're dealing with.

MR. RUBENSTEIN: When I worked in the White House in late 1970s, the GDP – it was 7 percent. Now it's about 18 percent of GDP is health care?

DR. ROTHMAN: That's correct.

MR. RUBENSTEIN: OK. What do you think is the biggest health care problem?

DR. THOMPSON: So, I'll just expand on what Paul said. I think since many people in the room are focusing on businesses and how do you maintain your business. Health care is the single rising cost because of that right now, to buy wellness, in fact, for your key employees. And so, this getting to 18 percent of GDP, this cost, is a real burden on American business and industry. On the other side of it, though, we're actually one of America's businesses and industries. And we are the leaders of innovation in the biomedical space for the entire world. We pioneer all the new drugs, all the new devices, all the new techniques. And we employ almost 20 percent of Americans in the health care industry written in its largest room.

But it's two industries. It's providing quality care at a reasonable cost across the spectrum at one level of the divide, and it's maintaining America's innovation edge. I have the privilege of representing the oldest cancer center in the country and in the world throughout the world. And all the time I go into different hospitals, different health care systems around the world, and everyone wants to be introduced to me, starting with the OR, of where everyone from

¹ Gross Domestic Product is a monetary measure of the market value of all final goods and services produced in a period of time.

the nurses to the physicians trained in the U.S. to get their experience, where the devices that are going to be used, where the equipment, where the supplies all are based on companies in the U.S. or techniques developed in the U.S. And we're admired for that. And we export that industry throughout the world.

And so, at one spectrum our biggest problem in health care is to maintain America's innovation edge as a leading industry. And at the same time, not drag down the American economy. We can't get above 18 percent of GDP. And yet, we need to deliver wellness to our population.

MR. RUBENSTEIN: OK. What do you think the biggest health care problem is?

DR. NEWMAN: Well, I think cost is obviously a big part of it, but I look at it in the sense that I don't think we're doing enough for children. Obviously, I'm a little biased there. But we're not investing in children the way we ought to be investing, so we're not getting the outcomes that we want. We're not doing the prevention, the access. Mental health's a big issue. So, we have this tremendous, varied constantly, health system. But we're not, in many ways, attacking and taking care of the fundamentals.

MR. RUBENSTEIN: OK. So, today we're almost 10 years after Obamacare² became law. Would you say for hospitals that Obamacare – or, your hospital – has it been a plus or a minus?

DR. ROTHMAN: So, it ends up, because of their – Maryland has a different payment system than every other institution. So, for us, it actually didn't have a huge effect one way or another. If you look around the country I think the Affordable Care Act did increase access by about 20 million people have access to health care they didn't have before. I think that's a great part of Obamacare. So, for me, from that, it had a huge effect. And there are other things we could talk about in terms of some of the downside of Obamacare. But I think if you had to look at what really the major positive effect that Obamacare has had on health care in America, it's access to care for 20 million out of about the 48 million people who didn't have access before it went into effect.

MR. RUBENSTEIN: Craig, what would you say?

DR. THOMPSON: So, I think, in net, what Paul said is right. That expansion of access, so that people felt that they could go to a doctor because they had insurance, is the big positive that we got out of Obamacare. The American Cancer Society – I was just with Gary Reedy³ a couple weeks ago giving back-to-back talks – is able to show that for breast cancer, for lung cancer, and for colon cancer, people can now – there's enough years since the start of Obamacare, do go for screening more effectively when they have insurance. So, it has driven down the death rate in all three of those cancers because people got identified and diagnosed earlier because they went –

² The Patient Protection and Affordable Care Act, often shortened to the Affordable Care Act (ACA) or nicknamed Obamacare, became law in 2010. Together with the Health Care and Education Reconciliation Act of 2010 amendment, it represents the U.S. healthcare system's most significant regulatory overhaul and expansion of coverage since the passage of Medicare and Medicaid in 1965.

³ Gary M. Reedy is the CEO of the American Cancer Society.

because they thought they had insurance, if they did have insurance, they could actually go to their doctor as a right and do that.

But there are many complicated things, as Paul said. It's not all a net positive. And there's still room for improvement in U.S. health care.

DR. NEWMAN: Well, I think for children and families it was a big plus. And it is a big plus when you think about we used to have all the controversies around preexisting conditions. We don't hear that anymore. And that's largely because of the rules that came in with the Affordable Care Act. Kids can stay on their parents' insurance till they're 26. That's huge when you think about the college age, all the things that go on, mental health issues and so forth. And then the lifetime caps – a child with a serious medical illness can run through a million-dollar cap in no time, which was very prevalent before Obamacare. So, in those three ways, it made a big difference for children and families.

MR. RUBENSTEIN: And my experience is that children can be on their parents' health care system after 26 as well. [Laughter.]

DR. NEWMAN: Well.

MR. RUBENSTEIN: So –

DR. NEWMAN: We'll be happy to take care of your kids. [Laughter.]

MR. RUBENSTEIN: Let me ask you today, if somebody shows up at Hopkins and they say: I'm sick. I'm in the emergency room. I need treatment. I don't have any health care insurance, I have nothing. Do you turn them away? Who pays for that?

DR. ROTHMAN: So, I think we take all. If anyone comes to your emergency room, you're going to take care of them. That's one of the great things about American health care, is I don't think – certainly by law at one level – but and generally no hospital turns away anyone who needs care. And I think it's essential, because as health care providers our role is to improve the health of our communities. And I think physicians have that responsibility to a community. And I think people do that, I think, at every hospital.

MR. RUBENSTEIN: How much does that take a year?

DR. ROTHMAN: So, at Hopkins, we estimate – the whole Hopkins system of eight hospitals – or, six hospitals it's about \$100 million a year.

MR. RUBENSTEIN: It costs you \$100 million a year –

DR. ROTHMAN: About – uncompensated care is about \$100 million a year.

MR. RUBENSTEIN: Now, you don't have the same problem, I assume?

DR. THOMPSON: Not as great a problem. But, again, we provide – as Paul said – we provide support for anyone who comes to our care mission. Up to five times the poverty limit, we'll forgive any debt or copays or any of those issues. But the biggest point where that makes a difference is in our pediatric population for oncology. We take care of the largest number of kids with cancer in the country. About 750 to 800 new kids with a diagnosis of cancer in the New York area we take care of. That's devastating for their families for all the reasons Kurt said. Cancer doesn't respect any socioeconomic barrier. And so, we provide that care with complete support for it.

MR. RUBENSTEIN: And that comes to how much a year? How much a year?

DR. THOMPSON: I would say we're – for the kids alone, probably \$20 million or \$30 million.

MR. RUBENSTEIN: And you have a lot of people coming, I assume, who don't have insurance, or not?

DR. NEWMAN: Well, that's true. And even the ones that have insurance, it's frequently Medicaid. So, over the half the children we take care – and this represents what's happening in children just in general – are on Medicaid, 55 percent. And we actually are trying to provide access where these kids live, not just wait till they have to come to the hospital. So, we want to be in Ward 7 and 8⁴. We want to be in Prince George's County⁵, where a lot of these kids don't have coverage.

MR. RUBENSTEIN: All right. And what happens when people – it seems to me, it used to be you'd go in the hospital, you'd stay there for a couple days, maybe a week or whatever. Now they try to rush you out, it seems. I don't know if anybody's noticed this. But do you try to get people out quickly? Because at what point do you actually lose money if they stay four, five, six days? Like, is childbirth going to be an outpatient thing soon, or? [Laughter.]

DR. ROTHMAN: So, I think the push – there is definitely a push to get people out of the hospital. The driver is actually not economic. The driver is actually because we think people if they can, will do better at home than they do in the hospital, if it's safe and they're on the road to recovery. So, I think the real driver for decreasing the length to stay in the hospital is actually not economic right now. It is really because we can do more and more.

And I think it's funny, I asked all my surgical chairs – I took them to dinner. I said, what percentage of surgeries you do will be in an outpatient setting in 10 years? It basically is 80 percent. So, 80 percent of surgeries done in our hospital will be as an outpatient within a decade – hip replacements, joint replacements. So, there's a large amount of care that we think, because of technologic advances, we're now able to do in a different setting. You know, hospitals, if you're really sick, if you have a complicated illness, hospitals are where you have to be. But if you don't – if you don't have comorbid diseases that increase your risk, if you do well, if it's a

⁴ Wards 7 and 8 in Washington, DC, are located east of the Anacostia River and have some of the highest concentrations of poverty in the city.

⁵ Prince George's County is in Maryland and borders the eastern portion of Washington, DC.

simple procedure, you're going to do better the less time you're in the hospital. So, I think they're just trying to get people out of the hospital.

MR. RUBENSTEIN: How many beds do you have at Johns Hopkins?

DR. ROTHMAN: So, our whole health system has 2,800 beds. Hopkins Hospital, the main ship, has 1,100. We have – you know, so we have about 2,800 beds. We admit probably 160,000 people a year, between all those. But the biggest thing – so 160,000 in patients. We take care of 2.8 million visits as outpatients. So, compare that, even today over tenfold more care is provided in an outpatient setting.

MR. RUBENSTEIN: But you don't look at it – like, a hotel, they try to fill up the rooms every night. [Laughter.] And a hospital, you've got 1,100 beds you got to fill up every night, no? Or you don't look at it that way?

DR. ROTHMAN: So, we could get everyone out faster than we can, we still could fill Hopkins Hospital. I mean, we are just bursting at the seams. We run 85 to 90 percent capacity, which is the most we want to run. And then even at times we're 100 percent capacity. And that's probably true of most of our hospitals. We're running as fast as we can.

MR. RUBENSTEIN: OK. So how many –

DR. THOMPSON: So, to give the comparative numbers, we're a smaller organization. We have a 514-bed hospital. We run, as Paul said, at about 92 percent census. To us, cancer care has moved into much more effective therapies that you see about all the time in the news, with the new precision medicines and the new immuno-oncology devices. But it is more protracted. The treatment time to get cancer under control takes longer. We're seeing cancer move from an inpatient disease to an outpatient disease. We made the decision five years ago to build an outpatient surgery center for complex cancer care. We do prostatectomies, we do complex breast cancer procedures. We do the full spectrum of cancer care, now in a 15 OR⁶ facility five blocks from our main hospital that you cannot stay more than 23 hours at.

When we proposed to pioneer this out we thought maybe in a decade we'd be able to convince 7,000 people – that was our business plan – to be able to pay for this facility. We did 7,000 in the first year. And what we've learned about that is that patients recover more effectively in their own home. They have lower infections, and the cost is driven down, and they have better satisfactions. And if you do the education right, you can actually gain access to the complex care we have at the hospital, but not have to burden down the hospital with the care mission of taking care of people day in and day out.

MR. RUBENSTEIN: Now, now many beds do you have?

DR. NEWMAN: We have 313 beds. And obviously that sounds small compared to these –

MR. RUBENSTEIN: Are they filled every night?

⁶ Operating room.

DR. NEWMAN: I'm sorry?

MR. RUBENSTEIN: Are they filled every night, or do you try to fill them every night?

DR. NEWMAN: Yeah, it's overwhelming. We have a little bit different model, though, because we – kids and families frequently need to be in the hospital more than say being able to be an adult and be at home. And so, we are – we're full. We're thinking about expansion. We have a big plan around an expansion with our research and innovation center out at Walter Reed that will free up some more beds to have at the hospital.

MR. RUBENSTEIN: What's the definition of a child for the purposes of – how old can you be and not be admitted there? If you're 21, you're not eligible?

DR. NEWMAN: Is this your kids again?

MR. RUBENSTEIN: No, no. [Laughter.] They're over 21. But what age does – you say, well, you're not a child anymore?

DR. NEWMAN: Well, I think generally it's in the 18, 19, 20 range. But we've had so much success with certain diseases that used to – that children didn't survive with. If you think about it, cystic fibrosis or congenital heart disease, certain cancers. And those kids and families get used to being taken care of at a children's hospital. They love the environment, the doctors, nurses, the art, the music, clowns, et cetera. So, they keep coming back. And it's not uncommon to see sometimes a 40-, 50-, 60-year-old, for that specific condition.

MR. RUBENSTEIN: Really? Wow. OK, so you have a medical school. Obviously, it's one of the best known medical schools in the world. You accept roughly 3 percent.

DR. ROTHMAN: That's probably about right. So, we have 6,300 applicants for 120 slots.

MR. RUBENSTEIN: So, half female, half male now?

DR. ROTHMAN: Half female half – this year the class was a little more female than male. What's amazing, the average GPA – average – is 3.91.

MR. RUBENSTEIN: What are these people doing during college? Do they do nothing else? [Laughter.]

DR. ROTHMAN: You know, here's the interesting thing. If you look at – we could fill our class threefold over with people with those GPAs. So, in fact, if you just do really well in school that's not sufficient. We really look for people who are – I mean, institutions like ours – all three of us, I think – our institutions have a unique ability to change the world and to make an impact. So, what we're looking for are people not just who do well in school, but have demonstrated they can make an impact, or want to make an impact on society and on the world. So, we're looking for people who are beyond just having high GPAs and MCAT scores. We want someone who

has done something that demonstrates to us that they're going to utilize the resource of being at Johns Hopkins.

MR. RUBENSTEIN: What percentage who get in, these very well – smart people, that they don't graduate? They all graduate?

DR. ROTHMAN: They all graduate, yeah. I mean, very – less than 1 percent. It's actually interesting we just saw Hopkins – not to brag – but Hopkins – [laughter] – School of Medicine has the highest of any med school. Thirty-seven percent of our graduates are on faculty at another medical school. So, it's – we're trying to train the leaders, the people going out there to change the world.

MR. RUBENSTEIN: But we have so few medical schools. It's so hard to get into them. Why don't the medical schools expand? So why don't you have a bigger medical school? Your class is about 105 people, or something?

DR. ROTHMAN: Hundred and twenty. So, it ends up – the limiting factor – so, med schools have increased in size by about 30 percent over the last six or seven years. The limiting factor now is not the medical school class, but the residency slots. So, remember, after you train in medical school you have to do a residency in whatever specialty that you want to do. And those slots have been capped by the federal government. They're paid for by Medicare and Medicaid. They have not increased. And so, if we're producing more students, but there aren't places for them to train, we're doing a disservice to the students, because they won't have a place to train. And generally, they've been squeezing out foreign medical students who took a lot of those slots. But we're at the point where every year increasingly American medical students cannot get into residency programs because the caps have been –

MR. RUBENSTEIN: And what type of debt does an average medical student have at the time he or she graduates?

DR. ROTHMAN: So nationally, the debt is about \$190,000 for – and that's nationally. At a place like Hopkins, because we have a lot of philanthropy, our average debt is about \$110,000. So quite a bit lower. But nationally, yeah, \$190,000 of debt.

MR. RUBENSTEIN: So, if you want to that debt back quickest, you go into plastic surgery? [Laughter.]

DR. ROTHMAN: So, our – ask it differently, so the question is does that large debt influence the specialization of students? [Laughter.]

MR. RUBENSTEIN: It does? It does, OK.

DR. ROTHMAN: So, in fact, that's – it's interesting. They do surveys of the graduating students and ask that exact question. And the number is lower than I anticipate is the reality. So, if you ask them, very few – less than 20 percent of the students – say their specialty decision was

influenced by their debt. But in reality, I don't think that's – I think a lot of them are influenced by the debt.

MR. RUBENSTEIN: Sometimes you get people with perfect MCAT⁷ scores and 4.0s, but can they tie their shoelaces? Do you ever actually meet these people before you admit them? [Laughter.]

DR. ROTHMAN: So, it's actually interesting, so medical school now – certainly at Hopkins and most med schools, has what's called a holistic approach. As I said, I can fill my class with perfect MCATs and GPAs. That's not the point. We're looking for people who actually can interact with people. We do testing while they're in our interview process to make sure they can interact well with people. We look for more than just high MCATs. And tying shoes is a big part, but not only – [laughter] – not the only part. Because there's Velcro. There's a lot of ways you can get around not tying the shoes. [Laughter.]

MR. RUBENSTEIN: Other things? Right, I got it.

DR. ROTHMAN: So, we're looking for people who – actually, we're looking for people who have empathy, who want to go out there and serve mankind. And so, the interview process is called this holistic interview process, where we really try to dissect out –

MR. RUBENSTEIN: To be serious about it, in – when I was growing up, doctors, relative to lawyers or businessmen – made a very high income in a relative scale. It's gone down in recent years. So, it's not hard to attract people, but they obviously are attracted because they want to serve people. It's not because their income is going to be that great, relatively speaking, is that right?

DR. ROTHMAN: I think that's – and, you know, I think the people who worry about the Gen X or Gen Z, whatever we're going to call – they're now Millennials – and worry about their work ethic and all that – come see – come to my first-year medical school class and interview those folks. They are the most amazing, dedicated people you will ever meet. They are really here for every reason you would want someone to go into medicine, to serve mankind. The money's not why – I mean, as you said, salaries are relatively flat. It's not – it's not the driving force.

MR. RUBENSTEIN: Supposed you have a big donor at the Johns Hopkins Medical School, and he calls up and says: My child is really good, but he didn't do that well in the MCATs and he was busy on something in college, grades aren't that good, but he really wants to be a good brain surgeon. [Laughter.] In medical school admissions, that makes no difference, right?

DR. ROTHMAN: So, what I've learned – because I've been a dean for 10 years – the firewall between me and admissions is getting larger and taller. So that I have no role in admissions at all. I can't participate.

MR. RUBENSTEIN: OK. Is the incidence of cancer in the United States increasing?

⁷ The Medical College Admission Test is standardized test for prospective medical students in the United States, Australia, Canada, and Caribbean Islands.

DR. THOMPSON: So, unfortunately, David, it is increasing. But it's increasing for an important reason to recognize. A hundred years ago the cancer incidence was significantly lower than it is now, but we lived 20 years less long. So, what the major driver, the increase of incidents is our ability to live longer, healthier lives. Unfortunately, cancer is a disease of aging. And the incidents of cancer doubles with every decade of life. So now as Americans are living into their 80s with great success, we're seeing a higher incidence of cancer on that basis.

Our ability to prevent cancer is also getting better. So, the actual ability to deal with complicated cancer, the improvement in survival is 1 percent a year. It has been that 1 percent approximately every year since 1990. So, mortality from cancer has gone down almost 30 percent in the last 25 years.

MR. RUBENSTEIN: Now, if you get cancer in stage I, and let's suppose it's breast cancer, it's 99 percent, now, recovery rate? Is that something like?

DR. THOMPSON: So, certain of the common cancers caught early, the survival rate is well over 95 percent. The problem is getting it diagnosed early enough. So, skin cancers, there's been more and more awareness. We're getting to those kinds of numbers. For colon cancer, when people are screened appropriately, we're getting to those kinds of numbers. Women are doing a great job at breast exams, doing their mammography. We're starting to get to that kind of number.

But it reaches a plateau at all the cancers because even in – if I could just talk about breast cancer – breast cancer, we're learning, isn't one disease. For the most common form of breast cancer then, yes, caught early at stage I the survival is in the 95 percent-plus. But there are rare forms of breast cancer we're just learning about where, unfortunately, we don't have effective therapies. And for those women, we need to develop new and innovative approaches. That's true of prostate cancer. Many men will get prostate cancer and it will not cause diseases in their lifespan. And for a long time, we thought smoking was the only issue in lung cancer. It's not any longer. But we have every effective therapies now. But people still, for lung cancer, wait too long when they have symptoms to go to their doctor.

MR. RUBENSTEIN: I see. And the cancers which have the lowest survival rates, are that glioblastoma and pancreatic cancer?

DR. THOMPSON: Yeah. So, there are a number of cancers. Of the 200 well-recognized different types of cancers that we now diagnose by pathology, the two that are relatively common, that have almost no effective therapies, are pancreatic cancer, because it's in the back of our abdomen. And patients don't present till the symptoms are – their symptoms come after the tumor has widely disseminated in most instances, because it's an area you don't have a lot of innervation. It's an area that you don't feel a lot, either directly or the physician can't find it. And glioblastoma, brain cancer, it's actually on an incidence right now. And oddly, it tracks with socioeconomic status in a positive way. So, the better your socioeconomic status, the more likely to – you are to get brain cancer today. The adult forms of brain cancer, as opposed to the childhood forms, we still have no effective therapies for.

MR. RUBENSTEIN: What would be the theory behind – why would that be? First thing I was wondering.

DR. THOMPSON: No one has any real idea. The epidemiologists have identified this, it correlates with lots of things. That's why you heard 10 years ago that it might have to do with cellphone use. Remember, it was a good tracker in the '90s and early 2000s. If you had a cellphone, you were of more socioeconomic status. That's not the cause the epidemiology's done. It's an association. And we don't really understand why there's been an increase in brain cancer, and particularly this particularly fatal form of cancer. So, we need more research in that particular cancer area.

MR. RUBENSTEIN: And today, using your cellphone is not going to cause brain cancer?

DR. THOMPSON: There is really no – anything reliable to suggest, other than the association that brain cancer is of an increased rise with people of higher socioeconomic status. The idea that your cellphone is the cause is just not possible. We would have seen that go away, because everyone in America has a cellphone.

MR. RUBENSTEIN: So, if you were of a higher socioeconomic class and you gave away your money, would you chance go down of getting this? [Laughter, applause.]

DR. THOMPSON: Correlations, David, are not the same thing as causation. [Laughter.]

MR. RUBENSTEIN: I see. OK. All right. So, what is the most common thing that somebody comes at Children's Hospital with, the emergency room. What's the most common complaint?

DR. NEWMAN: Probably the biggest thing that kids come in with are different types of injuries, whether it's concussions, fractures, and situations like that. But those aren't the most serious, but those are the most common.

MR. RUBENSTEIN: OK. And let me ask you this, how much of your time do you have to spend fundraising? Because even with government reimbursement and people paying and so forth, I assume you still need more money. So, you spend what percent of your time actually looking for donors?

DR. ROTHMAN: I don't think of it that way. I think of it – I advocate for Johns Hopkins medicine all the time. And it can be with donors. It can be in Congress. It can be in Annapolis.⁸ It can be with regulators. So, I advocate for it all the time. So, I'm always advocating for Hopkins Medicine, whether it's with potential donors or with people who are going to – you know, remember, half of – most of us – I think all of us – most of our money is from the federal government. I mean, at Hopkins Medicine we have \$8 billion. Over \$4 billion is from the federal government, either through Medicare, Medicaid, or research. So, for us, the relationships with people on the Hill are really important.

⁸ Annapolis is the capital of Maryland.

MR. RUBENSTEIN: I see. So grateful patients are often thought to be people that might give money. And I heard a story once, maybe it's apocryphal, that somebody was very happy at Hopkins, and gave some money, and said: In my will, I will give a lot more money. Now, if that person came in for an operation – [laughter] – you're sure the doctors would do the best job, right?

DR. ROTHMAN: Well, I will say – I'll just say one of the major donors for Johns Hopkins, who is a very – a donor we know very well, who lives in New York – he said: Rothman, you only get money while I'm alive. [Laughter.] So, one – that was actually a – [laughter] – I think a really good approach to philanthropy from his perspective. [Laughter.]

MR. RUBENSTEIN: Yeah. He got rid of his living will and everything. OK. You have a lot of money you have to raise, I assume?

DR. THOMPSON: Right. So, we're a mission-based organization. We've been a cancer-dedicated hospital since 1884. And so, we're all about the mission that ties us to the Millennials in important ways, because they're more and more a generation that wants to see a purpose in the things they're doing. So, if I'm honest, about 10 percent of my time is true fundraising. But I'm always out there talking about the importance of our mission and what it means to people, the hope it gives to patients and their families. We benefit from that in a number of ways. I'll let – I'll give you just two.

We just completed – I talked to several people here whose family members were part of our efforts for Cycle for Survival. It's a spin event in spin studios and cycle events where teams come together to raise money for rare cancers, the kind of cancers that don't normally get light shed on it. This year, in the month of February in our partner Equinox, we were in 16 different cities. We had 250,000 people donate money to us for the cause of rare cancers. We raised \$39 million. That gets the awareness that you can do something for rare cancers and raises that extra research we need.

But beyond that, because of what Memorial has meant for the understanding of cancer, we're privileged to have 10.5 million living donors. We haven't taken care of anywhere near that number of people. But they believe in the mission of what we're doing to decrease human suffering from a disease no one deserves to have.

MR. RUBENSTEIN: And President Nixon said he was going to have a war on cancer. This was in his first term.

DR. THOMPSON: Right.

MR. RUBENSTEIN: Will cancer be eliminated in our lifetime?

DR. THOMPSON: So, there is sort of three different ways to think about what causes cancer. Cancer, in the end, has its root in the fact that we regenerate our body all the time. We make all our blood cells over every 100 days. We make all our skin over every two weeks. We make all our hair over about every 100 days as well. And the process of when you break your arm and

you regenerate it means that cells have to proliferate to repair that tissue. And every time a cell divides, it has a chance of making a mistake and copying the information that makes you up, that you inherited from mom and dad in your DNA. And cancer arises out of those errors.

So, there's a natural rate of mutation that occurs just in repair for us as organisms. And unfortunately, that natural rate probably does set that there'll be some incidence of cancer in all of our tissues as we grow older forever, no matter what we do. But we know 85 percent of cancer today is really preventable. It's because of things we have done to ourselves – environmental toxins like tobacco, exposure to the sun. Today the biggest preventable identifiable risk of cancer is obesity. We don't really know why, but it's passed tobacco as a leading cause of preventable cancer. And that is something we can affect. That's something we can make a difference with in public health measures and others.

And then finally, there is some genetic predisposition that about 5 percent of cancer comes from people that unfortunately inherited a gene that is involved in our regeneration process that isn't working properly. That's the BRCA1 and BRCA2 you hear in breast cancer. That's some of what's called the mismatch repair genes that Paul's faculty identified and pioneered.

MR. RUBENSTEIN: Now, when people have cancer treatment – I guess it's chemo or – chemo, let's say, they lose their hair very often. Why do they lose their hair?

DR. THOMPSON: Our hair on our head is growing every day of our lives. One percent of it always falls of –

MR. RUBENSTEIN: Well, speak for yourself. [Laughter.]

DR. THOMPSON: Even for those guys that may be hair-challenged, you actually have hair follicles. And that hair is growing every day. And unfortunately, when you get chemotherapy, part of the side effects of chemotherapy is to tell every hair follicle to stop that hair's growth and start over again. And so, what really happens is 100 percent of your hair falls out in about a week period. And then it all starts to grow back. And that's – if you've had a friend go through that, that's what happens. It is a complication that is constantly reminding a patient of what they're going through. And that's why, at root, it's so upsetting to everyone.

MR. RUBENSTEIN: How much time do you have to spend fundraising? And why do you call it the Children's National Health System? Why is it a system?

DR. NEWMAN: Well, that was – when I became CEO, I was a little frustrated by – people knew about our hospital, but they didn't know about all the other things we were doing, whether it was in the community with our clinics, our mental health, our mobile health, whether it was our research that we're doing and, you know, like these great hospitals – all of our research. So, I wanted to find a way to signal that we were bigger than a hospital. And so, we came up with this idea of the Children's National Health System. And to be honest with you, I'm not sure it's perfect and we're taking another look at it, because for 150 years people – there's that identity that we were the hospital for the children of this region. And it's a health system, those words just don't resonate the way Children's National or Children's – so we're looking at that.

On the question of philanthropy, it's a big part of my job. I have to really be out there in telling our story. And there's many people in this room, and whether it's themselves or their companies, whether they were grateful parents or not, have supported us because they believe in our mission of taking care of all children, no matter who they are, and also being at the top of our game, being one of the top 10 children's hospitals in the country. And, you know, when you're taking care of so many kids, it – we have some real problems here in Washington, D.C. with some of the health disparities, infant mortality, asthma. These are not where they need to be. And so, our hospital takes on that mission. And it's a big – it's a big lift. We're trying to do it as best we can. We couldn't do it without philanthropy. So, there's a direct correlation with all the great things we can do. And, you know, I've got to just say your honored guest here, Jack Evans,⁹ has been a tireless supporter for what we're trying to do in this city.

MR. RUBENSTEIN: Now, you're a surgeon by background, right? Why do surgeons want to do things at 7:00 in the morning when they might be groggy? [Laughter.] Why not in the afternoon when they might be more awake? Why do they do that so early?

DR. NEWMAN: Well, what you don't know, David, is that they've probably been up for a couple hours already making rounds. And they're really at the top of their game –

MR. RUBENSTEIN: So, they're at the top at 7:00 a.m.? OK.

DR. NEWMAN: They're up early. And you want to have the patients when they're on top of their game too, so it's –

MR. RUBENSTEIN: OK. I got it. So, should I take an aspirin every day? [Laughter.]

DR. ROTHMAN: So, the – so the big question is, should everyone take aspirin.

MR. RUBENSTEIN: OK, everybody.

DR. ROTHMAN: And so – [laughter] – if there was no – if there were no side effects, that might be hurtful, I would say yes. But in fact, there are potential side effects of taking aspirin, including GI¹⁰ bleeding. So, I think what most people believe is for the right person they should take it. The right person is someone who has a high risk for getting heart disease. And that risk is – can be measured by several ways. One of which, if anyone wants to know this they can go online to look at some of these heart risk calculators. And you can do it online. It has to do with do you smoke, do you drink, your weight, your blood pressure, your parents. You put that all in a calculator and they can give you the risk of having heart disease within 10 years.

If your risk is 10 percent or greater of having heart disease within 10 years, you should take an aspirin. Now, sometimes those tests – that's obviously not a very sophisticated way to measure your heart risk. So, there are tests that you can do. So, there's something called a coronary artery calcium scale that costs between \$75 and \$100. You can get it at your hospital or your

⁹ Jack Evans (D) is a member of the Washington, D.C., City Council, representing Ward 2 since 1991.

¹⁰ Gastrointestinal

physician. That has a much better predictive value than that online scorecard. Again, if your risk is greater than 10 percent of having heart disease I would tell you, you should be –

MR. RUBENSTEIN: Do you take an aspirin?

DR. ROTHMAN: I do take an aspirin.

MR. RUBENSTEIN: OK. So – [laughter] – statin? Do you think people should take a statin? And I realize you're on the board of Merck¹¹ but leaving that aside. [Laughter.]

DR. ROTHMAN: We're both on the board of Merck, so we – please.

DR. THOMPSON: So, I would say statins, it's, again, in the cardiovascular space, something that certainly – that clinical trials that have been done to date have suggested that there is no lower limit to cholesterol. You decrease – if you don't have side effects from the drugs, you don't get the myopathy, the muscle aches and pains, that in fact the lower your cholesterol the better off you'll be. Is it a complete panacea? No. We were all hoping it would also lower the incidence of Alzheimer's and other neurodegenerative diseases. It doesn't seem to have an impact about that. So, I don't know that everyone should take a statin. I think that we should, again, go to your individual risk profile. It's about cholesterol in this case because that's what statins affect.

And I'll just put in a plug for something much cheaper, and that's aspirin again. There's now fairly compelling evidence that if you can safely take aspirin without the side effects, like GI bleeding, its ability to decrease inflammation throughout our intestinal tract, from our esophagus to our stomach to our intestines, it does dramatically lower risk.

MR. RUBENSTEIN: Do you take them?

DR. THOMPSON: And I do take it. [Laughter.]

MR. RUBENSTEIN: All right. Now, should everybody get – should people get an annual physical? Or some people say that annual physicals are a waste of money. Do you recommend that people get an annual physical or not?

DR. NEWMAN: I definitely recommend that, and particularly with children, because you want to catch things early and make sure that the children – if there is an issue, and it can be something simple or something as complicated as a mental health issue – I think doctors are – and nurse practitioners are in – being able to see people over time is important.

MR. RUBENSTEIN: Right. Now, mammograms – there are a discussion that mammograms shouldn't be done as frequently as they had previously been thought. Do you think mammograms should be done how frequently?

¹¹ Merck & Company, Inc. is an American pharmaceutical company and one of the largest pharmaceutical companies in the world.

DR. THOMPSON: I think the – we are still seeing different recommendations for different age groups and different risk profiles. So, on average, I think you really have to go to your physician – a woman has to go to her physician to do this. Regular mammography is certainly beneficial. But the frequency is really matched, as Paul said, to your risk profile. So, you really need to go and have a – what your family history is, what your own personal history is, what age you are – all factor that.

MR. RUBENSTEIN: What about prostate? Prostate – how frequently should you get a prostate –

DR. THOMPSON: Prostate's become a very complicated problem because most prostate cancer in men is not going to lead to significant morbidity or shorten their lives. Most men will live without it impairing their lifespan. And so – but there is still a percentage that progress. And the problem is we can identify those occult prostate cancers that a pathologist has to call prostate cancer. What we can't discriminate is that one you live with for the rest of your life. Most men have diagnosable prostate cancer when they die of other causes in their 80s. But they never knew it and they don't need to be treated for it, and they are unlikely to actually ever have any disease.

So, the tests right now are all focused on what discriminates someone where the prostate cancer advances. And that's this – the programs are being offered at all major medical centers called “watchful waiting,” where people are using algorithms on multiple blood tests to try and making that decision. But right now, there isn't one universally accepted one that we can do. It's an area of intense research.

MR. RUBENSTEIN: Now, when prostate cancer – which I am fortunate not to have had – I know there's a very famous researcher at Hopkins. And someone once asked me if I would recommend him for a Presidential Medal of Freedom. And I wrote out a letter. And my assistant came in and said: Do you really think that enabling men to maintain their ability to make love after a prostate surgery is something that deserves a Presidential Medal of Freedom? [Laughter.] And you know, the person said – my assistant – and I can see why Jim Baker¹² might get a Presidential Medal of Freedom. I can see why Colin Powell¹³ would. But somebody whose main thing was that, maybe that's the most important thing. And I said, you're right. It's not a Presidential Medal of Freedom thing. It's a Nobel Peace Prize kind of thing. [Laughter.]

Right now, the opioid crisis. How serious is the opioid crisis? Do you see it at Hopkins all the time?

DR. ROTHMAN: So, I think the opioid crisis is actually one of the great tragedies in America because – you know, and the tragedy goes back to the fact that opioid deaths from overdoses and

¹² James Addison Baker III served as White House Chief of Staff and U.S. Secretary of the Treasury under President Ronald Reagan, and as U.S. Secretary of State and White House Chief of Staff under President George H. W. Bush.

¹³ Colin Luther Powell is a retired four-star general in the United States Army. He served as National Security Advisor (1987–1989), as Commander of the U.S. Army Forces Command (1989) and as Chairman of the Joint Chiefs of Staff (1989–1993), holding the latter position during the Persian Gulf War. He was the 65th U.S. Secretary of State, serving under U.S. President George W. Bush from 2001 to 2005.

the opioid epidemic, it's interesting, occurred – has been present in this country for a while. And it isn't until it started to hit suburban America and middle-class America at the level it is now that it's risen to the heights it has in terms of public view.

MR. RUBENSTEIN: Doctors overprescribing?

DR. ROTHMAN: Well, you know, there's a huge complexity to why it has. Clearly, you know, I hate to say it, so, you know, one of the issue is physician prescribing enough opioids. But that was driven by this idea that pain is the fifth vital sign, and the fact that if you don't care for someone's pain you might get binged by some regulators who are measuring patient satisfaction and pain scores. And so, there was a drive of it through regulatory bodies to try to decrease everyone's pain level. And that led to this idea that pain is a vital sign, and led to people saying, well, if that's what I'm being measured as, let's make sure there's – I can get rid of everyone's pain. And led to, I think, a lot of the overprescribing. But that's only one reason.

You know, there's very complex causes, I think. And I don't think any of us could tell you why there's an opioid epidemic. You know, it ends up that heroin prices went way down and the heroin purity that's coming from countries made higher. So, that's also another factor.

MR. RUBENSTEIN: I see. Now, you mentioned obesity earlier. For the first time in a long time, white males – and maybe others – their life expectancy in our country is going down, in part because of obesity. Is obesity because we're exercising less, the food is not as good? What's the reason? The food is more fattening, I mean, and more sugar in the food. Why is obesity such a big problem now?

DR. THOMPSON: It's really equally complex problem why we lead the world in being obese. America likes to be first in everything. This is not a good one. You look at the simple things from the size of an average meal that we eat. And people have seen what a McDonald's hamburger looked like when they opened it in the late '50s and early '60s to now. We have increased our meal size. In the end, it's more calories in than out. There's a lot of very important research being done.

One sort of interesting, and good for a lunch meal and what we just did, the average American eats a meal – lunch or dinner – in nine minutes, OK? And you don't have to believe me. Go around to whatever your favorite lunch or dinner shop is. That's what we eat. We've learned a lot about the physiology of eating, and how it is that our body knows that we've got nutrition and now to move on in life. The hormones that signal between your stomach and determine whether when you ate something – if it was a diet soft drink it doesn't have any caloric intake. You're not going to tell the brain you've had caloric intake. But if you've eaten a roll, you're going to get a caloric intake and you're going to do that.

The synthesis of that hormone, and there's a series of them, but the synthesis of that hormones takes 20 minutes. So, you can't – the stomach has to have food content in it for 20 minutes before it can make the hormone to signal back up to your brain: We ate, it's good, let's move on and flee danger or hunt, whatever we're going to do. Which is what –

MR. RUBENSTEIN: So, eat slower. Eat slower.

DR. THOMPSON: So, the average French family eats a meal in 38 minutes. And so, everyone talks about, what's the French diet? What's the Mediterranean diet? It really could boil down – it's a sufficient explanation – just the time it takes socially that they eat a meal to actually get to satiety, not to overeat. And this is overeating over a chronic time. So, you gain weight over five years, over 10 years, not what I mean over next month. But we really as a society eat much too fast. We don't understand the rules of good nutrition. We learned a lot about cardiovascular health, but not the rest of health as a paradigm, what it does with diabetes and other things. And so, we're going to see a whole bunch of new paradigms.

We used to think fat was the problem. We now know it's simple carbohydrate calories that make – are much worse for the obesity epidemic. We take way too much simple sugars in our diet. So, you see all the diets around that. And then finally, exercise really does make a difference. Exercise allows our body to cleanse itself in a way that was just discovered. The Nobel Prize was won last year or a year and a half ago now for the discovery of a process called autophagy, where we basically clear out our cells during exercise on a hormonal basis and rejuvenate cells. And we don't know how much that factors in, versus just the – so when you are obese, you don't exercise as much. Is it a compounded problem in that case?

MR. RUBENSTEIN: So, walking past the gym equipment isn't enough? You have to actually use it? [Laughter.]

DR. THOMPSON: You actually have to use the gym equipment. And I do think that if you just think about how our lives have changed in a modern way, you don't – you don't walk the distances that you used to. You don't do physical fitness as a daily basis. You go to a gym. But you aren't doing physical things within your life as much.

MR. RUBENSTEIN: For teenagers that come to your hospital or you're familiar with, is alcohol a bigger problem or drugs?

DR. NEWMAN: I would say alcohol is much bigger problem. But getting back to the opioid thing, one of the really saddest parts of that whole crisis is to see babies that are born addicted. Now we have numbers of these where the mothers have become addicted. And like Dr. Rothman, you know, there's all sorts of reasons for this. But I think the answer may be in research and trying to determine objectively what pain is and how much – how much we need to treat it, and not just provide prescriptions or lots of drugs.

MR. RUBENSTEIN: If you had to do it all over again, would you go into private equity or medicine? [Laughter.] You have to think about it. OK, well.

DR. ROTHMAN: We actually said medicine without a doubt.

MR. RUBENSTEIN: No regrets.

DR. ROTHMAN: It's a real privilege – it's the greatest job that anyone could ever have. So, sorry. [Applause.] I love private equity, though.

MR. RUBENSTEIN: Private equity or investment banking or medicine?

DR. THOMPSON: I am incredibly lucky to have found medicine as a profession. It's a good thing I wasn't a very good athlete, so I had to find something real to do. And I have to tell you, even now in my career, it is just exciting to wake up every morning and have the opportunity to help people at some of the most difficult times. So, it's a great profession. [Applause.]

MR. RUBENSTEIN: OK. What would you do? Investment banking, private equity, hedge funds, or medicine, if you had to do it all over again?

DR. NEWMAN: Well, you know, I love being a surgeon. I love taking care of children and families. You know, being a CEO is a little different. But there are times where maybe being – maybe budget time – being an investment banker might be a good idea. [Laughter.] But I just love what I'm doing and have an impact with kids and families here in Washington, D.C. [Applause.]

MR. RUBENSTEIN: Well, thank you all for the great job you're doing. Thank you. [Applause.]

So, I want to thank you all for a very interesting conversation. I know all of you, and you've done a great job at your institutions. Thank you very much for giving us your time and your thoughts.

DR. ROTHMAN: Thank you for having us.

DR. THOMPSON: Thank you for having us. [Applause.]



Kurt D. Newman, M.D.
President and CEO
Children's National Health System

Located in Washington, D.C., Children's National is ranked one of the nation's best pediatric hospitals by U.S. News & World Report and is a leader in NIH pediatric medical research funding. Dr. Newman has been a surgeon at Children's National for over 30 years and also is professor of surgery and pediatrics at George Washington University School of Medicine & Health Science. He guided the creation of the Sheikh Zayed Institute for Pediatric Surgical Innovation, with the goal of making children's surgery less invasive and pain free. As CEO, he is a champion of innovation in research, operations, and clinical care. He is a strong advocate for expanding mental health access for kids and has led two national forums on this issue. Dr. Newman also plays a critical role in improving pediatric health and well-being nationally through his work on the Boards of the Children's Hospital Association and Safe Kids Worldwide and as the author of numerous scientific publications. His medical memoir, "Healing Children: A Surgeon's Stories from the Frontiers of Pediatric Medicine," debuted as an Amazon bestseller in Pediatrics and earned national attention and critical praise in The New York Times Book Review, The Washington Post and Harvard Business Review. Dr. Newman is a graduate of the University of North Carolina at Chapel Hill, and of Duke Medical School. He completed his surgical residency at Brigham and Women's Hospital and Harvard Medical School before joining Children's National.



Paul B. Rothman, M.D.
Dean & CEO
Johns Hopkins Medicine

Paul B. Rothman, M.D., is the dean/CEO of Johns Hopkins Medicine, overseeing both the Health System and the School of Medicine. He joined Hopkins in July 2012 after having served as dean of the Carver College of Medicine at the University of Iowa. A graduate of the Massachusetts Institute of Technology, Rothman earned his medical degree from Yale University. He then trained at Columbia-Presbyterian Medical Center and completed a postdoctoral fellowship at Columbia University prior to joining its medical school faculty. A rheumatologist and molecular immunologist, Rothman conducted research focused on immune system molecules known as cytokines. His honors include a James S. McDonnell Foundation Career Development Award, a Pfizer Scholars Award, a Pew Scholar Award and the Pharmacia Allergy Research Foundation International Award. Rothman is a member of the National Academy of Medicine, the American Academy of Arts and Sciences, and the American Society for Clinical Investigation. He served as President of the Association of American Physicians and was elected as a Fellow of the American Association for the Advancement of Sciences.



Craig B. Thompson, M.D.
President and CEO
Memorial Sloan Kettering Cancer Center

Craig B. Thompson, M.D., is the President and Chief Executive Officer of Memorial Sloan Kettering Cancer Center (MSK). Dr. Thompson received his BS from Dartmouth and MD from the University of Pennsylvania, followed by clinical training in internal medicine at Harvard Medical School and in medical oncology at the Fred Hutchinson Cancer Research Institute. Dr. Thompson has extensive research experience in cancer, immunology, and translational medicine. His current research focuses on the regulation of cellular metabolism during cell growth/differentiation and on the role that metabolic changes play in the origin and progression of cancer. Dr. Thompson is a member of the Institute of Medicine, the National Academy of Sciences, the American Academy of Arts and Sciences, and the Medical Advisory Board of the Howard Hughes Medical Institute. He is also a Fellow of the AACR Academy.