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TRANSCRIPT - GR 09 29 23 “Surgical Approaches to the Treatment of Morbid Obesity” and “Hit Me with Your Best Shot: Advances in Medical Therapy for Obesity” Peter Hallowell, MD and Jennifer Kirby, from the University of Virginia

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Good afternoon, everyone. Welcome to medicine grand rounds. Today we have a very exciting lecture from 2 of our experts in obesity medicine. First I'll introduce Dr. Jen Kirby. Dr. Kirby attended Uva for her Md. And Phd. In cell biology. This was followed by Residency and a chief residency at Uva.

- Unsurprisingly. She stuck around at Uva further for a fellowship in endocrinology, and then remained on faculty. She's a teacher to medical students in the classroom as well as residents and fellows on the wards.
- During this time she won numerous awards, including accolades for best bedside manner, clinical excellence, excellence in mentorship and excellence in education.
- Her scholarly work is focused on clinical outcomes in patients who have undergone bariatric surgery. Next, we have Dr. Peter Hallowell. Dr. Hallowell received his Md. From Howard University. This was followed by general surgery internship in Residency at Case Western University.
- Dr. Hallowell has had a very exciting career spanning from 3 years as a flight physician to his current roles, which include director of geriatric surgery, director of robotic general surgery and director of the minimally invasive Surgery Fellowship.
- He's won numerous awards for his education and clinical excellence, and joins Doctor Kirby as a prolific researcher in studying outcomes related to bariatric surgery. So please join me in extending a warm welcome to Doctors Kirby and Hallowell.
- Excellent! I'm excited to be here Dr. Hallowell, and I've been tag teaming this, I think, for probably the better part of a decade. I think at this point, yeah, so I'm under the gun because I get to go first, and I need to make sure that he has enough time to get through his slides. So I'm we're gonna we're gonna do a whirlwind tour. This is a an extraordinarily exciting time, I think.
- for those of us who've been in Obc medicine. But I think what I'm going to tell you is that it's it's going to be a fraught path ahead. And so we'll talk about that.
- So we're gonna focus the first part of the talk on kind of where we are, and terms of pharmacotherapy and what it looks like coming in the future, which looks really promising, and it's coming fast and furious. And then we're gonna talk about just the practicality of this, which is, there are a ton of barriers that patients face.
- And I'm going to talk a little bit about what that looks like, maybe for you guys in your own clinical practice, and how we can potentially advocate going forward.
- What I will not talk about, and these are all incredibly important topics that deserve their own time and space. And I'm happy, or to help find people to come talk about them or talk about them myself. But there's a lot of contentious debate that goes on around the definition of obesity, and particularly the use of Bmi, which is, you know, basically a really crappy measure.

- it's kind of a necessary evil. But there's a big push to move away from Bmi, and how we Det, how we define this. And that's I think you're gonna see this over your career that we're gonna be doing this a little bit differently.
- In in this discussion about obesity as a disease in 2,013 the American Medical Association, and in conjunction with lots of other societies.
- said, Yes, this is a disease that needs to be treated. I don't think there's much debate about that really in medical world. I think there's still a lot of debate out in the the public sphere. I think there's a lot of trying to figure out is how we it's that definition piece. But then, what is the best course of action? We know that like, for instance, I have patients that
- weigh 250 pounds, and are an amazing healthy shape. They may have been 350 pounds, so the example I use is a colleague friend of mine, who had lost 100 pounds was we'd exercise together. He could
- box, jump, and Burpee the hell out of me like he just had me but if he walked into a physician's office he still fell into a category of at least Class one, and maybe class 2 obesity.
- So how we define that really matters. It's not the number. I have patients who are 200 pounds who are absolutely unhealthy. So the health piece of this and how we define it is gonna be really important. The importance and importance and influence of lifestyle. Hugely important. The problem is is a lot of what we've been told and taught, certainly through my training. And what we definitely put out there in the public sphere
- is that? Oh, if you eat healthy and you exercise a lot, you can lose weight. And the truth is, it's actually probably not as true as we think it is. We have less control over the scale. And that's a really hard concept for patients, because we've been all told through our lifetime that you should be able to do this. Bob Smith went out and started running and dropped 100 pounds, and he runs a marathon every weekend, and that's the standard for which we hold patients.
- And then the last, which is, I think, a really exceedingly important component of this, which is the eating disorders or disordered eating. It's rampant. I see it a lot in my clinic. I screen for it. It's a very important topic. I think. Up until more recently there has been a gap between the eating disorder world and the Obc medicine world. And we need to kind of come together, because I think there's a huge overlap, and we're doing a disservice to patients by not addressing that.
- So I will not address those.
- Okay, so this is the history of the medicines up until 2,021. So we've actually been doing this for a really long time. And it's been happening long before I was in practice. So our first approved medicine was Ventrmine back in 1,959, it's been available for a really long time. Approved short term 12 weeks.
- because the data said that if you put people on Fentramine and you look at one year most people have regained their weight. There are subsets of patients who can keep weight off long term. But they basically they. FDA said.
- 12 weeks. And then you come off. And then what we know is, patients can lose weight.
- and then they come off of medicine, and they regain, and we'll talk a little bit about that. And then we had fluoramine and Dexton fluorimine. So the fen fen which a lot of you guys are too young to remember and we had subutramine that was taken off the market.
- Dexman fluoromine was the one that caused problems that was taken off the market. The fentramine stayed on the market or listat which is probably the only one that doesn't act centrally. It. It rejects it. It'll it read your gut doesn't allow uptake of lipids. Basically, it's a fat

blocker. All it does is make you not eat fat, because if you eat fat you'll have serious GI consequences. It's not a big fan favorite for patients.

- and then sort of when I started in practice. In 2012, through 2014. There's this huge well, huge in our world. Several medicines that got approved. For the treatment of obesity. And it was really exciting. But these were modest. And you'll see the next slide we'll talk about. It was actually taken off the market subsequently and a few years later.
- But we still have the combination of topiramate and naltrexone. The appropriate combination. And you'll notice that those are actually all drugs that have been available for a while for other indications. And that combination is approved for weight loss. Lorcet was approved in 2014, and subsequently approved down to the age of 12,
- and so fast forward semaglutide hit in June of 2021. And this was really a game changer. And I say that sort of glibly, but it really is, has been the herald of a brand new era in which we're going to have really good effective medications to treat obesity.
- So this was kind of where we were with lorcet, and you can kind of look and see what the overall weight loss is. I call this the Meh
- era of obesity therapy. They did. Okay. It was clinically significant. We lost usually somewhere around that range of 5 to 8%. We certainly had patients who responded, better. I've got lots of patients on topiramate who might get 10-15%, but those are more outlier, medic or outlier responses.
- So lo and behold! Semaglutide which is a receptor agonist, was approved in 2018 for type 2 diabetes. But this was the phase 3. Trial looking at overweight obesity. And you can see that over the course of 68 weeks patients lost about 16%. These are all comers.
- This is really robust weight loss. This is far better.
- So we start to get into the realm where we might start to see implications for things like fatty liver. Certainly blood pressure and diabetes. But this this starts to have a really significant impact on clinical outcomes.
- One of the things that we know is that we need to be thinking about this is chronic care management.
- So we don't put patients on diabetes, medicines, cholesterol, lowering medicines, hypertension medicines. And then when they reach their target, we're like, you're good. You can stop.
- And yet this has really been the mindset for a long time around medications to treat weight. And so this is a really nice trial that was really important, and something that we've kind of known, but was really important to document. And this was the semaglutide step 4 trial where they basically put their patients on some semaglutide titrated up to Max Dose, and then at 20 weeks half came off and have continued, and you see what we would expect, which is patients who came off regained weight and those that continued down that pathway of weight loss.
- So this is lifelong therapy for most of our patients. And I think that's really important to be clear about when we're talking to our patients about what the expectations are. I also talk about this is, there's a lot of pearl clutching out there about like we have to treat patients life long. That's terrible. And yet we don't pearl clutch about diabetes and hypertension and hypercholesterol and all of the other things that we talk about. Lifelong therapy for
- and, in fact, is treating obesity may actually help protect patients from all of those things, and we'll talk a little bit about that.
- So this is
- data that I'm anxiously waiting for. This is the select trial. This is looking at cardiovascular outcomes and patients with overweight and obesity. These are high-risk patients with known cardiovascular disease. It's a large trial was done across multiple continents. But

what you can see here is that this is a predominantly older male white population. This is not who often comes into my clinic. Unfortunately, they need to come to but this is really important as we look at this data, and I will. Honest, this hasn't been published yet. So what we know this is the High Line data that we know 20% base reduction awesome. I wanna see the details most of these patients are in the Prediabetes range 66% and I actually think that's really important. As a diabetologist. I think we're gonna get to a space where we're gonna be treating pre-diabetes. Right? It's not pre-diabetes. This diabetes is just diabetes earlier. It's the same path of physiology carries cardiovascular risk. So this really doesn't surprise me. This was kind of the expectation. But I wanna see the nitty gritty on this. It also probably is not gonna apply to many of our patients.

- And I think that has implications, for when we talk about things like the the path to getting access to care many of you may have seen. This was talked about in the popular press again. This is all coming fast and furious. I have to update these slides almost like every few months now, which is awesome.
- But it's it's keeps me on my toes. So this is really this is a heart failure, semaglatide and heart failure. This was really about quality of life outcomes. It was almost all due to weight loss.
- So patients had improved symptoms, physical reduced physical limitations, improved exercise function. All related to weight loss. Right? So there were no sort of hard outcomes, hospitalizations and stuff. But this is still really important, you guys know, because y'all treat heart failure patients. This is a big deal. so this is a, I think, something where this is a metabolic drug. It's a heart failure drug. It's a cardiovascular drug. And that's a good thing.
- So what's on the horizon? Well, there's a lot of these gut hormone drugs that are coming. Most of you guys have heard about terzet. This is a co-agonist. So it's targeting Gip and glp, it is already approved for type 2 diabetes as of last year. It is fast tracked, and is likely to get approval sometime this fall. I'm kind of expecting in the next month or 2. It's going to get approved for overweight and obesity.
- There's non peptide gop receptor, Agnes. So any of you that most of. You know that there's an oral semaglotide, but it's a little tricky to treat patients with it, because they gotta take it alone with a little tiny bit of water and know their medications because it's a peptide. So these non peptide oral gop ones are a nice option. There's a lot of patients that don't want to do injections, although they don't want to do injections when it's insulin. But if you're talking about medications to help them lose weight, they often are okay with that.
- But I think this opens up another opportunity.
- There was data coming out of the American Diabetes Association meeting both for diabetes and obesity with these triple agonists. So lots of data that came out of Ada meeting. These are Gopg IP Glucagon. Probably the one redatru tried is the furthest along, and we'll look a little bit about that. And then there's this interesting cagrillan tide, which is a stable and stabilized amaln. Analog. So Amelen is Co. Secreted with insulin out of the pancreas and actually there is already approval for this medication. It's like one of the only adjunctive therapies in patients with type one diabetes that has FDA indication, and it does show some weight loss. But it's short. Acting has to be injected and has to be taken 3 times a day with meals.
- Lots of Gi stuff. So this stabilized analog is interesting to me for a lot of reasons. So this is the terseppet data. Many of you guys have seen this. This was published last year. There's been data with triseptide looking at weight loss, and patients with type, 2 diabetes. One of the things I always tell patients and I teach is that any weight, loss, intervention often results in less weight loss for patients with diabetes than patients without.

- So bariatric surgery medications, lifestyle. It's harder to get the same amount of weight loss. So this is impressive. 22. That's really impressive weight loss. Right? So we're starting to approach Dr. Hallowell's level of intervention. I've been telling him for more than a decade that we're coming for him.
- We're not gonna replace him. We we got plenty of business for both of us. So but I think that this starts to get at a lot of help for patients who may not need surgery with this type of treatment.
- This is the oral GOP. One agonist again. This is just a short trial, but you can see, does pretty impressive still going down at 36 weeks, and almost at 15.
- This is the red, a true tide. So this was also kind of picked up in the popular press. These are the triple agonist. So Gopg and Glucagon and you can see down to 24, and still going down at 48 weeks hasn't natured yet.
- Interesting piece is when you break this out by sex, male versus female gender. Excuse me, women lose more weight 28, and actually think that that's a helpful thing, and I'll tell you why, in a little bit. So this is combination of that Amylan analog that I told you about with semaglotide again. This was an early dose finding trial early 20 weeks, but already passed about 16 or so. So again, I think that there's lots of different options that are coming.
- There is an oral semaglitide. So we know that the 14 milligrams, semaglatides already approved for type 2 diabetes they're in, I believe, phase 3 clinical trials for the 50 milligram dose for weights.
- We've got a couple of other Gop. Glucon Dual, Agnes. They're coming to to Tai Mez. I can't even pronounce these things. They're crazy. Maz, due tide, I believe, is in phase 3 trials. So these are ones that it should be coming. You might be hearing about in 6 to 12 months there are other non gop or gut hormone related drugs that are being investigated. I think this really becomes critically important, and in part because how many of you guys, I mean, you guys have used gop ones, right? How many of you guys have patients who can't tolerate them like every hand should go up? Yeah, exactly. This is not gonna be the end. All be all for patients. So we need more tools, all those things that I just showed you awesome, really great. But there's a lot of patients who who won't be able to tolerate them.
- The better ones are showing that most patients are gonna respond. So the response rate is actually really impressive in the clinical trial. 100 lost at least 5 with the registry tide.
- That's pretty remarkable. When you looked at larglatide. I think it was like what was it? Now? I can't even remember that data was so long ago. But it's it's you definitely have non responders. And we see non responders with semaglotide as well.
- But there's gonna be other targets. And I think these are really critically important. As our as our tools because patients are gonna need them. And we're gonna start thinking about this. I hope a little bit differently, right? So when you're treating somebody with high blood pressure. What are you doing?
- You're starting them on their ace inhibitor, or maybe Hctz. And then, before you're maxing out, you're often adding a second agent, because you know that if you hit a separate pathway you're likely to get better control.
- This is how we need to be thinking about the complex physiology that governs weight is that we're going to need to be probably tackling multiple pathways.
- Alright. So this is this the part of the talk where, like the first part, was like the Charles Dickens, it was the best of times, and now we're into the it was the worst of times. So these are the barriers that are coming that are here. And probably you guys already know a little bit about this has changed a little bit over time. I've given this talk now for a while, and I've had to update it. This is predominantly the biggest barrier weight bias that exists in

our in our society, the way bias that exists within ourselves. The way bias a patient spraying. How many times I've talked to a patient. And they're like.

- I really wanna do this on my own. How many times have you guys heard that? And I'm I'm like great, awesome. But I think they flog themselves about trying to like eat less exercise more, which is all really amazing healthy stuff, and they should be doing anyway. But they flog themselves with the expectation that they're gonna lose that 100 pounds that Bob Smith did and that may not be a realistic expectation.
- I'll talk about wait buys as it as it as we look at it in terms of approval and cost and coverage. As we talk about this alright. So let's talk about costs. This is a huge barrier. These drugs are expensive, and they're not well covered, and we'll talk a little bit about that.
- The other thing is, there's some inherent weight bias coming out of the pharmaceutical industry. I'm not gonna name any names, but you can guess and I do put brand names up here, because I think it's important to distinguish this because it gets really confusing both for us as physicians and providers, and it gets really confusing for patients, right?
- So we have Luragliide that's approved for type 2 diabetes that's Victosa, and we have Loreaglati that's approved for weight loss at a higher dose. But it's the same drug for weight. And that's Sixenda. We have semaglotide that is approved for type 2 diabetes as ozampic. Most of you guys know that, or ribosis in the oral form, we have semaglotide that's approved for weight as Wagovi same drug almost the exact same dose. And now we're gonna have terzopetide. It's already been approved for type 2 diabetes as maljarro, but it is likely to follow the same path and get a separate indication in a separate name. The other part about this is I want to focus on is the costs.
- I, the sixtender costs. I actually couldn't find a Victosa comparison cost, but I think it's probably about \$900 to a thousand dollars. These are the list prices on the company's websites. So this is not necessarily. Again, this is that black box that we live in in our healthcare system with pharmacy benefits managers who are negotiating best deals and copay cards and all of this stuff that it makes it very opaque. So that when we put a prescription into the computer and patients are like, how much is this gonna cost? And we're like.

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I don't know. Go to the pharmacy and find out. And when you walk away because it's way too expensive, call me, and we'll come up with Plan B.

- But to Maglatie, if you're getting ozampic, it's the list price is \$935. Max doses, 2 milligrams if you're getting it at for weight loss, the Max doses, 2.4 milligrams, a little bit more, but to the tune of about \$400 more.
- That's weight bias.
- They put a price tag on obesity that's different than type 2 diabetes.
- We'll see what happens with terseepet. But these are not cheap drugs. And they're not well covered. So coverage. So I've listed sort of the major players. Medicare has an antiquated rule called it's a rule that says that they're not going to cover appetite suppressants, and that is impinging on their ability to cover medications, to treat obesity. And that's the way I refer to it. So currently, Medicare does not cover medications to treat

obesity at all. There's something called the Treat and reduce Obesity Act that has bicameral bipartisan support. If you all are interested, feel free to send messages to your local representatives and ask them to get on board Medicaid in Virginia. Interestingly, as of January this year, opted to standardize their PA approval process for medications. So I've been able to get my patients with Medicaid on treatment which is awesome. It also is costing them a ton of money. And so they're also going to start putting in some heavy restrictions. So we anticipate that that may start happening soon next week.

- Our own Uva plan. So for faculty and staff and folks that work in main Uva now covers as of January one. But there's some caveats, you know. There's 3 tiers to our coverage plan. You guys may or may not know that and it really depends on which tier you're in in terms of how much your out. If the outlay is initially using co-pay cards, that kind of stuff, and I can send you more details. If you want our upg colleagues who work for Upg, which is our physician's group, they have their own separate plan, and it's a smaller plan. And like I use this as an example. Large employers are more likely to give you better coverage. Smaller employers are likely not same with bariatric surgery, and I think Dr. Hallow will address that most commercial plans is hit, and miss supply chains are a hot mess.
- I don't fully so right now. There's very limited supplies of the starting doses. They're they're they are pushing their supplies into the higher 1.7 and 2.4 to keep patients who are on the medicine on it. And if you're not gonna be able to start new patients, and I'm telling my colleagues. And I'm advocating is that we probably shouldn't be starting new patients on medicines. That's a terrible thing to say to patients.
- Hi, you have cancer. Yeah, no, you have to wait. And we're having to do that, too.
- But we're likely to hit supply chain issues for the next couple of years is my expectation.
- Who needs it most?
- Not always older white men. And yet that is likely to be an indication that comes and is going to drive some of that approval cost coverage. So I always this was a talk that was given last year 2 years ago. It's all a blur about pharmaco equity. And I think that this is obesity medicines, or a real big part of this. If you look at who's getting it?
- There's a Zip code in New York City of really rich people who are able to purchase Ozampic over the key, not over the counter, but you know, out of pay out of pocket. And it's like enormous so it's driving supply chain issues. And it's also it's an equity issue.
- We need to do better from a public health perspective. I'm gonna finish because I wanna make sure we have time for Dr. Hallowell. But I always advocate that this is just one small piece.
- There's a lot of things that we need to do structurally within our system to help support healthier habits that also prevent obesity, because it is hard to treat
- so we've got real promise in our therapies. They're coming. You all should be comfortable with them. But we need patients to get access, and a lot of that relies on some equity more equitable care. Reduce weight bias in the system.
- And I don't know why my slides dark here, but and we need. But I'm gonna argue is we also need more tools. And then how we learn to combine these? You know. How do I combine therapies with what Dr. Hallowell is doing in the or cause we do? And we're learning that who benefits from these post surgery. Pre surgery.
- Advocate, if you can. If you want become a champion. If anybody's interested in, there's American Board of obesity medicine. It's a pretty easy step to do. I'm an avum, certified Zach Henry, and Gi. Trying to push Michael Ayers in cardiology. I'm and always engaging. I'm like y'all are just obesity medicine folks. You should just go get your certification.
- I want you guys all holding phones pretend like you're all doing this. So the people who need to do this, there's a really important election coming in Virginia. The whole State

legislature is turning over. If you want to check your registration in your state or otherwise you can get that code. It'll take you. It's nonpartisan.

- We're in early voting in person on November seventh, you can still request an absentee ballot. Physicians vote less than the general public.
- So I think we can do better. I always love this quote, because I think this is. And I'm actually gonna make this sign and put it in our clinic. And every time I put this slide I'm like, I gotta make this sign. Yeah. Weight is really just what we're talking about in terms of gravity. It doesn't talk about the worth of the patient. So with that, I'm going to turn it over to Dr. Hollowell may have gone a little too far. So. David that alright is this working? You guys are alright so thank you for the invitation to come and talk. This is this is really great. No disclosures. I'm sure lots of you have seen these slides before showing the prevalence of obesity throughout the United States. And what a depressing change this is, and especially for our area and going down into the Southern Appalachian region. We're just leading the area and obesity disability diabetes. You notice a theme. They're all kind of coming together and it's just getting worse, even though we are crushing it with medicines. We're crushing it with surgery. We are not even trading water. We are continuing to drown in it. And just another way to look at the rise of obesity throughout the United States in a different graph form.
- So this gives you an idea. This slide, what? What we're doing? Surgery wise. And I've got another graph to also show it. So you see, the number of surgeries are going up
- year over year, the the types of surgery here.
- gastric bypass way more popular and that's declining. Sleep, gastrectomy increasing.
- What you're seeing here, revisions going up, and we're all seeing that. And then these other operations are sort of combined, and I'll show you some examples of what those are in the next few slides.
- So again, a better visual representation. When I got into this field.
- there, Google alright, mess it up.
- Okay, so when I got into the field, bypass was the king. And that's that's what everybody was doing. And then Band came along and we had lots of discussions about how band was gonna replace bypass. And this was the best operation and demand and there was a lot of industry push behind this and some data coming out. I don't know if anybody's like really looked into what the interactions with the data and industry were. But early data that
- that show promise. And then what people and I can remember sitting in the audience going, man, my patients don't get that kind of weight loss. And the person presenting saying, You're an idiot, you know. You don't know how to how to manage this. And we're talking to people all around me like, Yeah, no, I'm not seeing that. So what you see is it went off a cliff like the surgeons eventually figured it out, and we're kind of getting blasted, too. But then another operation came along, which is the sleep guest recommend. You can see it's cross, bypass, and it's the most popular operation that we have today.
- And this is an artist representation of sleep gastric. And what you see there is, we're basically taking off the funness of the stomach leaving it. The Antrum. And what I like to tell patients is, I'm turning your stomach into something about the size and shape of a banana.
- So you get a visual representation. And what the stomach looks like?
- And then what's great about a sleep guest much. Okay?
- And that's good. There we go.
- let's see if we can get the video up.
- Awesome. Alright. So this is a recent sleeve gastric to me.

- What called robo sleeve using the robot. You see our ceiling device going along the greater curvature of the stomach. This for surgeon is a really straightforward
- easy, easier operation to do, taking down the attachments up by the top of the spleen there, I'm trying to get the whole thing rolled out and flattened out
- that. We passed down Bougie which is 40 French. So roughly about 12 in diameter, and then we take our stapler and just come up right along the edge of the boujie. There, and there's I would say, minor there are technical pearls to this that we're doing along the way. We're trying to keep that sample line nice and straight. We're trying to not get too close to the answer, because we know that that causes problems. And you just kinda pop on along here. And this is our remaining device. And then we're gonna that device, but remaining organ, and then sticking, sticking the remnant into a back to get it out of the belly.
- and that's it up. The operation time, for this is usually an hour or less and again, for an experienced surgeon, really quite straightforward and relatively simple to do.
- Alright. So that's what's made it the most popular bariatric operation today it's easy for surgeons to do. The Gi tract is still in continuity, but I'll show you the differences in a couple of other operations. The weight loss turned out to be about 10 less than a gastric bypass, and the comorbidity resolutions and prospective randomized trials
- showed. There's a slight trend to being better with a bypass, but not statistic, statistically significant and that really drove excitement to get this operation going and patients are asking for this. And so it's it's really driven up. And even in our own institution we're at 60 70 sleeve and the rest bypass in other operations.
- This is my favorite historic gastric bypass slide made by one of my research cohorts when I started in surgery over 20 years ago, and I try to get this into every slide that they can. But it gives a real nice description of what we're doing with the gastric bypass. So we're making a little egg sized pouch. We're taking distal small Val sewing to it. So that's the red area that part doesn't see digestive enzymes for the most part but will absorb simple sugars quite readily, and can lead to problems such as dumping syndrome and perhaps playing a role in reactive hypoglycemia the green part is all the digestive enzymes that aren't seen food. And then the brown part is the common channel.
- or where everything is mixing and that common channel can be a variable length. The vast majority of bariatric surgeons and general surgeons do not measure total bowel length. When we're doing a gastric bypass, we're measuring proximal bowel length, doing a billion of pancreatic limbs somewhere between 50 and 100 cm, and then a ruin somewhere between 75 and 150 cm. And honestly, we don't know what's on the common channel, and that could have a big, big factor depending upon how much small bowel you have.
- Right. The next operation is a loop gastric bypass. So you're just making one mastermosis. The differences with this operation. The billiardic lim is a bit longer at 200 cm. It's one connection with the gastric pouch. The gastric pouch tends to be a little bit longer. The idea with the longer pouches to prevent bile reflux esophagitis but you do get bio reflux gastritis plus minus, depending upon how much you're making acid and neutralizing that
- The concern with this operation is long term. Are you gonna get bio gastric, acid-related cancer? At that. An asthmos. And then this was a huge political fight in the bariatric, surgical world where loud mouse in the room, said Gastric, Bypass, the ruined Y is better than this operation. And it really shattered it down. But in the last 5 years there's been decent data out of Europe that is, been using this operation. And surgeons around the United States are starting to take it on there are a handful of people floating around Virginia that have this construct, that are gonna show up in your practices. There was a group in North Carolina that was doing a lot of these operations and kind of the way people move around the United States in this area. They show up.

I've seen probably about a half dozen people who've come in having at this. Next one Bpd with duty will switch. This is a very rare operation done in the area. There is a few surgeons doing this, and a few people in Virginia. Basically, you do the sleeve gastrectomy. Then you go a little bit beyond the pylorus and divide the duodenum. You take the distal small valve you measure back from the ilio sequel valve and try to take about The early operation was 150 to 200 cm. And then you would plug in the billiu pancreatic limb 50 to 100 cm from the other sequel valve. So you really, you create a shortcut up like situation. What we found is that really short? That 50 cm familiar signal valve back. Tends to have a lot of complications. So folks have steadily moved that, and astinosis back up generally has been reserved for folks with really severe obesity. Talking Bmi ranges 50, sixties, seventies, eighties. It is starting to get more of a look in the surgical community in the last few years, as you can see that we are seeing more and more people of that Vfi size. And we're not really making an impact the big, more recent modification of that is to do this in a loop to make the common channel 300 cm. The comparative data with this is the weight. Loss is fairly similar to the the to an asthmatic Ds, just a little bit less, because you have more resorptive area, and the vitamin and mineral deficiencies are less with this longer limb. And so that's been sort of a neat trade off.

- The nice thing about this operation is, it? Is serving as a revision of rescue for folks who've had a sleeve, and I've gotten regain of weight, or have not lost the amount of weight that they were looking for in the first time, or even a stated staged operation, or just a thought. That would be stage. So if you do, somebody with a Bmi 70 or 80. We do a sleep guest. Rect on them. Maybe we get them down to a Bmi 50. Now we have a little bit safer environment in which to work future stuff. So in my world. one to 2% of patients who would be eligible for bariatric surgery actually get it.
- So 98% of folks either themselves through their doctors whatever are telling me. No. not even coming to see me like hardly anybody gets in to see me tells me. No, but we're not reaching folks with the surgical therapies that we have. So our thoughts are. You know. What can we do to increase this? And there are some things out there. So the big thing was with this, our devices intergastric balloons. Bruce and I got trained on this. I think we bought 10 of them. I don't think we put any in and I'll go to reasons why. But this is a big sailing balloon that we drop in your stomach. And it rolls around in your stomach and kind of makes you feel a little bit more full. It blocks some things up along the way. And the idea is to make you feel full and get you to lose weight, and it does. It does work modestly. Well, for a few weeks in the people that have gotten this put in they need to. They need to be removed.
- And that's been a little bit of a problem. There are some people that put these in and the patients disappear and they'll get them removed. You can lose upwards of 30 pounds. You can see some improvements and comorbidities when that happens they're not covered by insurance. So the typical cost of a balloon procedure the balloon itself costs the hospital \$3,000. So it's about a 9 to \$10,000 out of pocket for the patient.
- This is real, this one in my mind is relatively criminal. This is a peg tube. That's put into your stomach and then converted to a flat almost button type device on stomach. And then folks hook up a catheter and a bag to it. And it's basically medical assisted bulimia. So patients eat, and then they purge their stomach.
- I have not seen anybody in this area. We won't put these in. I did review a program in Delaware, and I was amazed. A nurse had requested this device, and they put it in but didn't get any follow up with that and it's also called the aspire device. So I was also taking

it back. Because, you know, that's our values here. So definitely, I'm not getting this device the it removes up to about 30% of the ingested food. But you know this is enough on that one and the endoscopic sleeve. Bruce and I have been trading on this. Bruce has done a few Alex 5 boy and gi, is doing this. This really does, I think, have some promise. Basically you get with an endoscope into the stomach and from inside the stomach you placate this stomach. It ends up, shortening the stomach. It makes the channel narrower, similar to a surgical sleeve. And the results are in small series are pretty good overall. It'll be interesting to see how this fans out, but it is repeatable.

- And there are reports of folks being able to do do surgery after folks have had mandatory sleep. But there are some caveats like there's little metal anchors. That are on these features. We, our stapler's don't do well with metal anchors, so we really wanna make sure those get out. Otherwise, we're gonna have a problem.
- The it's indicated for for patients that the same is sort of obesity. We'll talk about some of the indications in a minute. And when we go back here, the nih criteria. So this this was a conference of folks that came together to talk about obesity in 1991. So way, early in this march of obesity, when when the population was certainly less obese and we didn't have as many of the operations available, and what was agreed upon was Bmi. 40 would be kind of a cut off that you could be a surgery candidate. You needed nothing else. And then a Bmi at 35. But you needed a serious co morbidity such as diabetes, hypertension. They were spelled out a little bit I had to be good surgical risk had to understand the risks and benefits. The 2 operations that were available at that time were in open gastric bypass, and an open vertical band of gastroplasty, which is an operation we do not even do anymore.
- Yet these are the criteria that people are being judged by or approved by when they come in to see me. Up until probably another month a couple of months ago. So the bariatric society has gotten together and come out with guidelines. And you guys are all familiar with guidelines in your area work. To to try to change what this nih criteria has done, and to use evidence base behind it. So we've dropped the body mass index requirement from 40 down to 35 and then also said to consider it for people with a Bmi 30 who have diabetes or other serious comorbid diseases to consider it for adolescents to consider it for folks who are above the age of 65. And that's been an issue with Medicare. As Jen talked about medications for that population.
- So we're hoping that these guidelines are going to begin to be adopted. There are a few insurance carriers that have recognized this, but not as many as as what we would like. So hopefully Tom will tell, and maybe won't be 27 years for it to get adjusted. So one of the big pushbacks for surgery is, of course, we're killing people.
- You take people with surgery, and and they're dying. And this was actually a really a crisis situation for the bariatric community in the early 2 thousands and there were some high profile deaths, and there were some folks in practice who probably shouldn't have been doing bariatric surgery and shouldn't have been doing bariatric surgery in locations that they were doing. So this graph. Just this gives you an overall idea of what the mortality rate looks like with common operations that are performed around the country. And you see obesity. Surgeries way up there at the top at 6, 7 years.
- And another way to maybe not. Look at that. Okay. But the some of the areas of research. I just wanted to. bring you guys in on this is from our group. And when you look at our surgical cohort, we're reducing cardiac events. So Jen mentioned the reduction of base in the study with some aglit, I think same phenomenon. I think we're hitting sort of the same physiology in different ways. And it's gonna be interesting to see how these begin to come together, and showing work from our group. But there are other groups around the country

that are doing the same sort of thing. So Kevin Lynch. We looked at each with our propensity match cohorts, and again we decrease that.

- We also looked at mortality. So Ted, your when you look at folks who don't have surgery versus folks that do that were matched for what their weight and comorbits were pre intervention, we have a survival advantage when you have surgery, and I think you're gonna see a survival advantage with the medications.
- So Jeff talked about this, too. Obesity is a disease. So I'll run past that economics. So 42% higher annual health cost 77. Jen touched on this 77% higher prescription. So there's the obesity cost more primary care costs and the Meta total medical cost in the United States 147 to nearly 210 billion a year. You know, if if we can impact obesity, you know, we actually might get net neutral, neutral, even with a medication a thousand dollars a month.
- So that that's kind of fascinating to see so again. Oh, fan it out too. So surgery is safe and effective. We have a survival advantage. And just like the medicines, access is really challenging and part of part of an issue. Why, I think we're not helping as many people as we could.
- Thanks alright.
- So if you have questions, feel free to come up to the mic, and then I can read out from the chat as well, and I'll get us started. So, Dr. Kirby, you alluded to the use of medications for weight loss after surgical procedures. I was curious. If that's sort of an additive weight, benefit or sort of how that looks in terms of the wait trend, and then how the side effect profile may be different in those individuals.
- Yeah, excellent questions. We need more data always. But there's some emerging data that suggests that that actually, patients treated post operatively, even potentially early, post operatively. May have more weight loss. So an additive effect, or I'm not sure we could say additive versus synergistic. I don't think we have updated that so there was some data around, I think, topermen. And there just some emerging data around the Dr. Varney, who's an Obc medicine certified family practice physician who works with Dr. Hallowell and his clinic.
- She and I kind of have a similar philosophy which is particularly for patients who start out with Bmis that are higher, 45, 50, and higher are likely not to get to. And this is an arguable point. Goal. With a surgical intervention. And so, if you are 600 pounds, even if you lose 30 of your body weight, there is still room to go and so we're thinking of these as adjunctive therapies that often probably need to be utilized early. So timing is an issue. I think we? I have patients that go to surgery who have diabetes, who are on Gop ones. And there's this enormous debate right now in the anesthesiology world. I don't know if you've been privy to that, but about stopping gop ones due to risk of gastroparesis and and the risk of aspiration. Events that's stay tuned for that. It's gonna be an interesting debate. But what do we do with those and so typically what I'm asking patients to do is stop, and in part because there are potential risk of post-operative nausea and vomiting that these patients can experience that resolve over time if they've stabilized
- and they're eating their diet. I wanna say a regular diet, cause it's if they're able to tolerate foods at that point. They've made it through their progression. Then I will often restart, especially if they've had those higher Bmis, or if their diabetes hasn't subsequently resolved, or if they are not hitting the trajectory by which we think they should be at. So there's lots of data in the surgery world that initial 3 to 6 month. Trajectory is a really good indicator of this person's response to surgery. So if they don't, they're not sort of they're kind of looking a little anemic. We might add it, but I think there's a lot of ongoing questions about when how I certainly added, I've got a lot of post patients who come back 3, 4, 10 years later. Where we're initiating it at those times. Only cause. Now we've had them,

although now we don't. But yeah, I'll add a little bit to that. We are now looking at it in the surgery clinic. I see it as adjunct therapy. So right around the 6 month, Mark, we're looking where they are on their weight loss curve. Certainly. You do see what's normal after surgery is a steep drop of plateauing. There can be a gentle rise when we didn't have any medications. So when we begin this certainly when we begin to see that rise or the drop isn't what is predicted. We've been partnering with Dr. Varney and Dr. Kirby to add in medication. And we haven't. We're collecting data. But anecdotally, it seems to be working quite well.

- Thanks for that great presentation. Very informative. I learned a lot. I have a question about maintenance. So is there a role after you use a GI. P. One agonist for switching over to a cheaper medication like fentaramine or doing intermittent therapy. I notice there's a great dose response curve for that's the other. That one doubt one. Yes, great question. So question about sort of ha! How do we utilize these drugs? Longer term? And are there? You know, the rationale right now is that we really probably need to be doing longer term therapy. So we're, you know. So I have patients who'll say, it's like, Am I gonna have to be on this medication forever? And I look at them. I'm like, well. maybe not this one. So I think there's opportunities I've actually, with the terzepet have interestingly have had to back down doses with too much weight loss.
- You know, on occasion, and just Doctor Halliwell has to reverse patients who have too much weight loss. So there are those rare cases, my worry. Il so I don't know if there's good data. I think that's these are the things that we need to understand. Are there initiation drugs and then maintenance drugs? Is this something that after 5 years we can stop?
- I don't think we really know, I think for the moment the mar. The rationale here is that this is, they need to be on a medicine durably for that ongoing, and I think as not unlike what we're seeing in surgery is you get often with these initiation, these drugs. You'll get a steep decline. You'll get a plateau and then you start to see. Wait, regain often over time, although I don't think we have as much data with the these newer agents. But this is kind of the physiology that governs weight, which is our bodies don't like to lose weight, and that's the hidden truth we have lots of it's I'm an endocrinologist, and we think in feedback loops.
- We have lots of feedback loops that drive that piece. So it's it's, I think this is wide open for lots of I mean, I think there's lots of data that we need. We are in our infancy in in obesity medicine. And Il look forward to the day when we're gonna be like, oh, you're this into this into this.
- And we're gonna then we're gonna do this. And we're gonna have all of that in our our momentarium. Yeah that was awesome. You're gonna become an Ovc medicine physician. Right? Yeah.
- Can you talk about the risk of sarcopenia when we should think about it in older patients, what we should do about it. How do we screen for it? Should it preclude medicines just to help us out a little bit. I'm actually, I'm gonna let you comment about the over 65 piece in surgery, because I think that's been something that's changed, especially over. Probably the last 5 years, and how you think about it, and then I'll talk about it. Yeah. So
- is a good point. I don't often think about it. When we're doing over 65 for surgery. We're looking at how fit they are, for the most part, and actually.
- The they're getting more of a workup. They're gonna be getting cardiology, pulmonary things that maybe some of my younger patients are gonna do. And we're looking for those folks that are going to be mobile going to be able to tolerate an operation. And so in that

highly selected group, we're not taking all comers. Th, they do pretty well. Usually, we're not thinking about doing sarcoped for them. We're not, you know.

- talking about that group. But yeah, I mean, we definitely talk about it in the underground world. A lot. What's interesting is there are data that I think is. There's some preservation of lean mass with some of these medicines. And so but it's it's a worry.
- That when you're talking about weight loss, whether it's bariatric surgery or medication, and as our medications get better. And we're talking about 30%, maybe weight loss. You know, their dietitian group is pushing hard even in the 30 year olds cause there's gonna be sarcopenia. And we know this from lots of trials. You're gonna get muscle mass lost. And so they're pushing the protein. That's always 60 grams at least you gotta push the protein part of what I spend a lot of time talking about is, you know, when I was trained having somebody lose weight at age 65 is a little bit of anathema, and we are not there anymore. I think part of that, though, is you gotta make sure they're moving. There's 2 components to this. And what I tell patients, one is a, the physical activity ongoing is what's gonna keep that weight off long term. That's where exercise is really important. The other piece of it is, it's gonna help protect the muscles. As you lose weight. So there's lots of data that like 90 year olds can have can gain muscle mass with exercise movement is medicine. It's critically important. So I do worry about it.
- I think we're gonna be in the space where, when we're talking about things like red, a true tide and stuff like that, we're gonna be thinking about this like the bariatric team. How do we get you your protein? How do we get you move? And how do we keep you active? So I think it's a really important point. I think we need more information. Yeah.
- And Peter, a fantastic talk. Thank you. 2 quick questions. I'm actually well, as an aside, I'm about to. I'm writing something for the Aj about the whole cessation of glp. I was actually just getting emails from Harvard about it while I was looking. But so that's something that I've kind of been learning about. There is a thought. That if patients stop their medicines for whatever reason for certain indications the insurance may not pay for a ramp up. Is that true? And then, secondly just today I got an FDA message about Ozmpo and I don't know if it's a black box, but it's a warning against or it's a cautionary warning for patients who may have llyas and other things that it may, you know, be associated with llyas. So as we're talking about using these medicines for diabetes or weight loss in patients who might already have gastropries from diabetes, or llias, or something from surgery. Do you kind of how do you like that needle? So these are really important questions that I don't think we have enough data. So to give a little context. American society of anesthesia put out a position statement, a guidance statement about holding Gop, one receptor agonist 2 weeks ahead of surgery, and it was a Kerfuffle in the endocrine world absolutely blew up and so part of this is because what has been anecdotal is a aspiration on induction of anesthesia, or if they're getting an Egd so this is, we are hearing these stories. Now, part of this is, we've had Gop one since 2,008, but we've not had as many patients on. So I think these are rare events that we're probably seeing more of. Commonly, I do think that there's a risk. I don't know what we know what that risk looks like, and I don't think we need to be stopping medicines for all patients. So there's some downsides to stopping medicines that are twofold. One is, if you've got a patient who relies on that for their diabetes control, and you stop it, and they're off for a long period of time. Their diabetes goes out of whack. The other part is the ramp up piece. Also, if I've got somebody on we'll go. Sorry. Sam Aglotai. 2.4 for weight. Try not to use brand names.
- and they come off and they have to go back to a lower dose. Those supply chains are not there. And then all of a sudden they're off their medicine, and that's a nightmare. So I would argue, we should have this as a joint anesthesia medicine something cause I think

there's a This is a really important topic. And as Pcps and future Gis and future endocrines, and probably not future surgeons. But these are really important questions. So we really don't have a lot of data on. So here's my guidance. If I have somebody who's really stable, they've got no gi complaints. They're doing great. They've never had any gi complaints. I'm leaving them on their medicine.

- If I've got patients who really struggle still and they're on low dose, or they they're like, yeah, I still get a little nausea, or still, I'm debating whether I'm gonna have them hold a dose an extra dose. So 2 2 weeks beforehand, and then am I putting them on clear liquids for 24 h before they go to surgery. So just food for thought. I don't think we know the right answer. But I think using there can be guidelines out the Wazoo. But that doesn't replace clinical judgment. So it but super important.
- Yeah, I was gonna double down on that. There was. There's no good data, and it's a guidance statement, not a guideline cause. They have no guidance statement. Thank you. Yes, but everyone's treating it like a guideline for the PC keys. And those you guys in the room. There is a nested in an observational comparative study that those patients who got colonosc, who had clears 24 h beforehand, actually had a protective effect against aspiration. And so I think if you have these patients, you need it. Just put them on clearance, for they're not gonna die with clears for 24 h, and I will say is you know, for the rare cases that happen. It can be a devastating event, right? And for anesthesiology colleagues. So there was a lot of sort of like the endocrinologists were like, Oh, my gosh! What are they doing? How can they do this? These are great meds. And we're
- if you're an anesthesiologist and you have an aspiration event that leads to a bad outcome. That's a devastating consequence for you personally as a physician, and we need to be working with our colleagues on that side, our gastroenterology team. So I think these are really important things. And so stay tuned. We're gonna get more data. Hopefully. I know endocrine society is pushing hard to do some collaborative work with Asa, I think, and probably some gi folks I'll stop recognizing. Excuse me. think, that's
- I know I had a couple of mine that were like I don't know if it's because they pulled them into my hey? We need to.
- Well, you probably in the same. Stop it, and if you're a weight loss person who might want to, maybe. But the cost thing is a big deal.