WEBVTT

NOTE duration: ”01:03:00.821”

NOTE Confidence: 0.7615967

00:01:51.909 --> 00:01:52.729 Yeah. Probably.

NOTE Confidence: 0.8436415

00:01:54.390 --> 00:01:55.510 If you're doing the introduction,

NOTE Confidence: 0.8436415

00:01:55.510 --> 00:01:56.650 yeah, it is nice.

NOTE Confidence: 0.7604283

00:01:58.070 --> 00:01:59.590 What else? It's like the

NOTE Confidence: 0.7604283

00:01:59.590 --> 00:02:00.410 upcoming So

NOTE Confidence: 0.9366011

00:02:00.790 --> 00:02:01.910 that's like the CME code

NOTE Confidence: 0.9366011

00:02:01.910 --> 00:02:02.950 to get credit for being

NOTE Confidence: 0.9366011

00:02:02.950 --> 00:02:03.450 here.

NOTE Confidence: 0.91878664

00:02:04.915 --> 00:02:05.955 And then they'll go over

NOTE Confidence: 0.91878664

00:02:05.955 --> 00:02:07.335 it. I think it's just,

NOTE Confidence: 0.44799805

00:02:08.115 --> 00:02:09.014 it is still.

NOTE Confidence: 0.6868563

00:02:12.514 --> 00:02:13.955 Yeah. Mostly, like, you know,

NOTE Confidence: 0.6868563

00:02:13.955 --> 00:02:15.155 don't cross my anything here

NOTE Confidence: 0.6868563

00:02:15.155 --> 00:02:15.655 here.

NOTE Confidence: 0.9376628

00:02:16.595 --> 00:02:17.475 Some of this is AI

NOTE Confidence: 0.9376628

00:02:17.475 --> 00:02:17.975 generated.

NOTE Confidence: 0.465743

00:02:20.050 --> 00:02:21.010 Sorry. Is that still our

NOTE Confidence: 0.465743

00:02:21.330 --> 00:02:22.130 I've been done. I just

NOTE Confidence: 0.465743

00:02:22.130 --> 00:02:23.590 practice the on-site to work.

NOTE Confidence: 0.36523438

00:02:25.330 --> 00:02:25.830 Just,

NOTE Confidence: 0.7377668

00:02:45.990 --> 00:02:47.270 Yeah. Yeah. It does. You

NOTE Confidence: 0.7377668

00:02:47.270 --> 00:02:49.350 know, it generates a Pretty

NOTE Confidence: 0.7377668

00:02:49.669 --> 00:02:50.730 You know, to be

NOTE Confidence: 0.55980086

00:02:51.350 --> 00:02:52.670 honest. But now, pretty good

NOTE Confidence: 0.55980086

00:02:52.670 --> 00:02:53.690 to see the strollers.

NOTE Confidence: 0.58325195

00:02:54.750 --> 00:02:55.250 It's

NOTE Confidence: 0.72944194

00:02:56.310 --> 00:02:57.669 in the top half. Right?

NOTE Confidence: 0.72944194

00:02:57.669 --> 00:02:58.790 I'm not saying that it's

NOTE Confidence: 0.72944194

00:02:58.790 --> 00:03:01.050 a publishable model, but, like,

NOTE Confidence: 0.72944194

00:03:01.270 --> 00:03:01.965 it's it's

NOTE Confidence: 0.71398926

00:04:10.775 --> 00:04:12.155 Yeah. I'm a hundred percent.

NOTE Confidence: 0.8833008

00:04:14.010 --> 00:04:14.510 Yeah.

NOTE Confidence: 0.96655273

00:04:16.410 --> 00:04:18.250 Hello, everyone. I think we

NOTE Confidence: 0.96655273

00:04:18.250 --> 00:04:19.070 can get started.

NOTE Confidence: 0.96425784

00:04:21.930 --> 00:04:23.950 Welcome to Cardiovascular Grand Rounds.

NOTE Confidence: 0.9928153

00:04:26.855 --> 00:04:27.895 Take a moment for people

NOTE Confidence: 0.9928153

00:04:27.895 --> 00:04:28.475 to settle.

NOTE Confidence: 0.8811035

00:04:29.975 --> 00:04:30.475 So,

NOTE Confidence: 0.93840474

00:04:31.175 --> 00:04:31.975 you know, we can get

NOTE Confidence: 0.93840474

00:04:31.975 --> 00:04:32.855 started. I think that this

NOTE Confidence: 0.93840474

00:04:32.855 --> 00:04:33.895 is the CME code up

NOTE Confidence: 0.93840474

00:04:33.895 --> 00:04:34.955 on, screen.

NOTE Confidence: 0.9983724

00:04:35.654 --> 00:04:36.555 These are the

NOTE Confidence: 0.95260185

00:04:37.015 --> 00:04:38.395 the talks that are upcoming

NOTE Confidence: 0.95260185

00:04:38.535 --> 00:04:39.095 in our,

NOTE Confidence: 0.939209

00:04:39.940 --> 00:04:41.940 CVR grand round series. A

NOTE Confidence: 0.939209

00:04:41.940 --> 00:04:43.620 lot of, really exciting speakers,

NOTE Confidence: 0.939209

00:04:43.620 --> 00:04:44.920 both internal and external.

NOTE Confidence: 0.9277344

00:04:46.100 --> 00:04:46.920 This is the

NOTE Confidence: 0.9614746

00:04:47.300 --> 00:04:48.660 disclosure slide, and these are

NOTE Confidence: 0.9614746

00:04:48.660 --> 00:04:50.760 specific disclosures for doctor Nalamoto.

NOTE Confidence: 0.94192326

00:04:51.220 --> 00:04:52.275 And with that, I it's

NOTE Confidence: 0.94192326

00:04:52.435 --> 00:04:54.435 my distinct honor to invite

NOTE Confidence: 0.94192326

00:04:54.514 --> 00:04:55.634 to, you know, have welcomed

NOTE Confidence: 0.94192326

00:04:55.634 --> 00:04:56.455 doctor Nalamoto

NOTE Confidence: 0.90937734

00:04:56.755 --> 00:04:57.555 who took a trip from

NOTE Confidence: 0.90937734

00:04:57.555 --> 00:04:59.395 Michigan to see us since

NOTE Confidence: 0.90937734

00:04:59.395 --> 00:05:00.835 yesterday. And he's a Steve

NOTE Confidence: 0.90937734

00:05:00.835 --> 00:05:02.695 O'Julius research professor of cardiovascular

NOTE Confidence: 0.90937734

00:05:02.914 --> 00:05:03.414 medicine,

NOTE Confidence: 0.9788547

00:05:03.794 --> 00:05:04.914 and a professor of internal

NOTE Confidence: 0.9788547

00:05:04.914 --> 00:05:06.514 medicine at Michigan. He's an

NOTE Confidence: 0.9788547

00:05:06.514 --> 00:05:07.574 interventional cardiologist,

NOTE Confidence: 0.9510498

00:05:07.920 --> 00:05:09.600 a world renowned outcomes and

NOTE Confidence: 0.9510498

00:05:09.600 --> 00:05:10.740 health services researcher.

NOTE Confidence: 0.96953124

00:05:11.200 --> 00:05:12.400 And then he has been,

NOTE Confidence: 0.96953124

00:05:12.640 --> 00:05:14.320 you know, instrumental in moving

NOTE Confidence: 0.96953124

00:05:14.320 --> 00:05:15.860 the field forward and scholarship

NOTE Confidence: 0.9943034

00:05:16.320 --> 00:05:17.300 through both mentorship

NOTE Confidence: 0.9437561

00:05:17.760 --> 00:05:18.980 as well as editorialship.

NOTE Confidence: 0.92294747

00:05:19.440 --> 00:05:21.375 The he was the the

NOTE Confidence: 0.92294747

00:05:21.375 --> 00:05:23.134 outgoing chief editor in chief

NOTE Confidence: 0.92294747

00:05:23.134 --> 00:05:25.134 of circulation cardiovascular outcomes and

NOTE Confidence: 0.92294747

00:05:25.134 --> 00:05:26.495 research and, you know, has

NOTE Confidence: 0.92294747

00:05:26.495 --> 00:05:27.935 really defined what this field

NOTE Confidence: 0.92294747

00:05:27.935 --> 00:05:28.835 has been, especially,

NOTE Confidence: 0.9921875

00:05:30.014 --> 00:05:30.735 in a in a time

NOTE Confidence: 0.9921875

00:05:30.735 --> 00:05:32.514 when data sciences have undergone

NOTE Confidence: 0.9921875

00:05:32.654 --> 00:05:34.095 a massive revolution with the

NOTE Confidence: 0.9921875

00:05:34.095 --> 00:05:35.235 emergence of AI.

NOTE Confidence: 0.8884929

00:05:35.680 --> 00:05:37.279 He's, the program director of

NOTE Confidence: 0.8884929

00:05:37.279 --> 00:05:39.060 My CHAMP and AI and,

NOTE Confidence: 0.89501953

00:05:39.760 --> 00:05:40.880 pragmatic research,

NOTE Confidence: 0.96575445

00:05:41.360 --> 00:05:43.220 research group over at Michigan.

NOTE Confidence: 0.96575445

00:05:43.520 --> 00:05:44.480 And and, you know, he's

NOTE Confidence: 0.96575445

00:05:44.560 --> 00:05:46.000 he has numerous NIH hundred

NOTE Confidence: 0.96575445

00:05:46.000 --> 00:05:48.080 grants on quality improvement across

NOTE Confidence: 0.96575445

00:05:48.080 --> 00:05:50.660 domains, interventional cardiology and resuscitation

NOTE Confidence: 0.96575445

00:05:50.880 --> 00:05:52.214 science, you know, that that

NOTE Confidence: 0.96575445

00:05:52.214 --> 00:05:53.654 he has, you know, spoken

NOTE Confidence: 0.96575445

00:05:53.654 --> 00:05:54.855 at many venues. And today,

NOTE Confidence: 0.96575445

00:05:54.855 --> 00:05:56.135 we have the honor of

NOTE Confidence: 0.96575445

00:05:56.135 --> 00:05:57.895 him, you know, summarizing many

NOTE Confidence: 0.96575445

00:05:57.895 --> 00:05:59.415 of the key learnings that

NOTE Confidence: 0.96575445

00:05:59.415 --> 00:06:01.015 he has seen across his

NOTE Confidence: 0.96575445

00:06:01.015 --> 00:06:02.315 research and his,

NOTE Confidence: 0.966421

00:06:02.775 --> 00:06:04.615 his academic journey in, and

NOTE Confidence: 0.966421

00:06:04.615 --> 00:06:06.150 and I I encourage folks

NOTE Confidence: 0.966421

00:06:06.150 --> 00:06:07.110 to ask questions at the

NOTE Confidence: 0.966421

00:06:07.110 --> 00:06:08.630 end. There's no better mentor,

NOTE Confidence: 0.966421

00:06:08.630 --> 00:06:10.150 no kinder human being out

NOTE Confidence: 0.966421

00:06:10.150 --> 00:06:11.750 there than Brahmajee, who is

NOTE Confidence: 0.966421

00:06:11.750 --> 00:06:13.190 a generous friend and collaborator

NOTE Confidence: 0.966421

00:06:13.190 --> 00:06:14.230 and has always been one

NOTE Confidence: 0.966421

00:06:14.230 --> 00:06:15.589 of the people, you know,

NOTE Confidence: 0.966421

00:06:15.589 --> 00:06:16.710 if what would Brahmajee do

NOTE Confidence: 0.966421

00:06:16.710 --> 00:06:18.150 is what people ask often,

NOTE Confidence: 0.966421

00:06:18.150 --> 00:06:19.029 and that's the thing you're

NOTE Confidence: 0.966421

00:06:19.029 --> 00:06:20.070 supposed to do in science.

NOTE Confidence: 0.966421

00:06:20.070 --> 00:06:21.050 Hey. Welcome, Brahmajee.

NOTE Confidence: 0.9993114

00:06:30.595 --> 00:06:31.955 Thank you so much, Rohan.

NOTE Confidence: 0.9993114

00:06:31.955 --> 00:06:33.475 It's, it's really an honor

NOTE Confidence: 0.9993114

00:06:33.475 --> 00:06:34.295 to be here.

NOTE Confidence: 0.9972331

00:06:34.915 --> 00:06:36.355 You know, my my first

NOTE Confidence: 0.9972331

00:06:36.355 --> 00:06:36.855 mentor

NOTE Confidence: 0.96610516

00:06:37.210 --> 00:06:38.990 actually was was Harlan Krumholtz.

NOTE Confidence: 0.96610516

00:06:39.129 --> 00:06:39.449 And,

NOTE Confidence: 0.99679744

00:06:40.490 --> 00:06:41.610 I I say that because

NOTE Confidence: 0.99679744

00:06:41.610 --> 00:06:43.050 I've been, lucky enough to

NOTE Confidence: 0.99679744

00:06:43.050 --> 00:06:44.490 be visiting Yale a couple

NOTE Confidence: 0.99679744

00:06:44.490 --> 00:06:45.529 of times over the years.

NOTE Confidence: 0.99679744

00:06:45.529 --> 00:06:46.970 This weekend has been particularly

NOTE Confidence: 0.99679744

00:06:46.970 --> 00:06:47.770 special for me. I have

NOTE Confidence: 0.99679744

00:06:47.770 --> 00:06:48.909 a niece who's graduating

NOTE Confidence: 0.95894367

00:06:49.385 --> 00:06:50.985 on Monday, and, you know,

NOTE Confidence: 0.95894367

00:06:50.985 --> 00:06:52.904 what a wonderful institution. What

NOTE Confidence: 0.95894367

00:06:52.904 --> 00:06:53.485 a wonderful

NOTE Confidence: 0.97891515

00:06:53.865 --> 00:06:55.625 place. And and Rohan was

NOTE Confidence: 0.97891515

00:06:55.625 --> 00:06:56.585 kind enough to bring some

NOTE Confidence: 0.97891515

00:06:56.585 --> 00:06:57.705 sun for me yesterday, so

NOTE Confidence: 0.97891515

00:06:57.705 --> 00:06:58.745 that was wonderful to walk

NOTE Confidence: 0.97891515

00:06:58.745 --> 00:06:59.485 around campus.

NOTE Confidence: 0.99902344

00:07:04.050 --> 00:07:05.110 These are my disclosures.

NOTE Confidence: 0.96128625

00:07:08.449 --> 00:07:10.130 I'm gonna start today, with

NOTE Confidence: 0.96128625

00:07:10.130 --> 00:07:10.870 a story.

NOTE Confidence: 0.97642297

00:07:12.370 --> 00:07:13.590 And this is a story

NOTE Confidence: 0.97642297

00:07:13.729 --> 00:07:14.790 about a,

NOTE Confidence: 0.9987793

00:07:15.410 --> 00:07:16.870 psychologist and a researcher

NOTE Confidence: 0.9274089

00:07:17.250 --> 00:07:18.870 named Brian Nosek. And

NOTE Confidence: 0.87841797

00:07:19.445 --> 00:07:20.405 it was a really,

NOTE Confidence: 0.98183596

00:07:21.045 --> 00:07:22.725 you know, fascinating story for

NOTE Confidence: 0.98183596

00:07:22.725 --> 00:07:24.725 me. So Brian Nosek is,

NOTE Confidence: 0.98183596

00:07:24.965 --> 00:07:26.325 as I mentioned, a psychologist

NOTE Confidence: 0.98183596

00:07:26.325 --> 00:07:27.525 at the University of Virginia,

NOTE Confidence: 0.98183596

00:07:27.525 --> 00:07:28.825 and he was really interested

NOTE Confidence: 0.97549874

00:07:29.445 --> 00:07:31.065 at a certain point about

NOTE Confidence: 0.97549874

00:07:31.125 --> 00:07:33.350 the question about whether or

NOTE Confidence: 0.97549874

00:07:33.570 --> 00:07:34.710 not light skinned players

NOTE Confidence: 0.9564571

00:07:35.410 --> 00:07:37.169 get less red cards than

NOTE Confidence: 0.9564571

00:07:37.169 --> 00:07:39.169 dark skinned players. Very interesting,

NOTE Confidence: 0.9564571

00:07:39.169 --> 00:07:40.530 kinda quirky question, and there's

NOTE Confidence: 0.9564571

00:07:40.530 --> 00:07:41.570 a point to this. So

NOTE Confidence: 0.9564571

00:07:41.570 --> 00:07:42.370 so bear with me for

NOTE Confidence: 0.9564571

00:07:42.370 --> 00:07:43.030 a moment.

NOTE Confidence: 0.9930547

00:07:43.810 --> 00:07:45.225 So he's you know, he

NOTE Confidence: 0.9930547

00:07:45.225 --> 00:07:46.505 he he was thinking about

NOTE Confidence: 0.9930547

00:07:46.505 --> 00:07:47.625 this question. And and for

NOTE Confidence: 0.9930547

00:07:47.625 --> 00:07:48.505 those of you who aren't

NOTE Confidence: 0.9930547

00:07:48.505 --> 00:07:49.865 as familiar with football or

NOTE Confidence: 0.9930547

00:07:49.865 --> 00:07:51.145 soccer, you know, there's a

NOTE Confidence: 0.9930547

00:07:51.145 --> 00:07:52.264 couple of things about this

NOTE Confidence: 0.9930547

00:07:52.264 --> 00:07:54.125 that are really intriguing. Right?

NOTE Confidence: 0.9930547

00:07:54.185 --> 00:07:55.305 So one of the things

NOTE Confidence: 0.9930547

00:07:55.305 --> 00:07:56.505 about this is that red

NOTE Confidence: 0.9930547

00:07:56.505 --> 00:07:57.385 cards are given for a

NOTE Confidence: 0.9930547

00:07:57.385 --> 00:07:58.665 couple of different reasons. Usually,

NOTE Confidence: 0.9930547

00:07:58.665 --> 00:07:59.885 it's a major infraction.

NOTE Confidence: 0.99923503

00:08:00.550 --> 00:08:01.510 But the second part is

NOTE Confidence: 0.99923503

00:08:01.510 --> 00:08:02.810 that there's a certain subjectivity,

NOTE Confidence: 0.98646873

00:08:03.510 --> 00:08:04.790 that's associated with it. It's

NOTE Confidence: 0.98646873

00:08:04.790 --> 00:08:05.990 not just what happened, but

NOTE Confidence: 0.98646873

00:08:05.990 --> 00:08:07.190 the intent of the infraction.

NOTE Confidence: 0.98646873

00:08:07.190 --> 00:08:08.310 And so there's some judgment

NOTE Confidence: 0.98646873

00:08:08.310 --> 00:08:09.050 around this.

NOTE Confidence: 0.97230315

00:08:09.430 --> 00:08:10.950 And so what Nozick did

NOTE Confidence: 0.97230315

00:08:10.950 --> 00:08:12.230 as a psychologist and a

NOTE Confidence: 0.97230315

00:08:12.230 --> 00:08:13.665 researcher is is what most

NOTE Confidence: 0.97230315

00:08:13.665 --> 00:08:14.705 of us would do. Right?

NOTE Confidence: 0.97230315

00:08:14.705 --> 00:08:15.745 He thought, I'm gonna go

NOTE Confidence: 0.97230315

00:08:15.745 --> 00:08:16.465 out and I'm gonna get

NOTE Confidence: 0.97230315

00:08:16.465 --> 00:08:17.665 some data, and I'm gonna

NOTE Confidence: 0.97230315

00:08:17.665 --> 00:08:19.025 call this the NoSick project.

NOTE Confidence: 0.97230315

00:08:19.025 --> 00:08:20.725 Right? And just to summarize

NOTE Confidence: 0.97230315

00:08:21.025 --> 00:08:23.025 what he was able to

NOTE Confidence: 0.97230315

00:08:23.025 --> 00:08:24.465 collect over a pretty short

NOTE Confidence: 0.97230315

00:08:24.465 --> 00:08:25.505 period of time was he

NOTE Confidence: 0.97230315

00:08:25.505 --> 00:08:27.420 got data on two thousand

NOTE Confidence: 0.97230315

00:08:27.420 --> 00:08:28.940 players and about three thousand

NOTE Confidence: 0.97230315

00:08:28.940 --> 00:08:29.440 referees

NOTE Confidence: 0.99912107

00:08:29.740 --> 00:08:31.840 from multiple countries in Europe.

NOTE Confidence: 0.99520594

00:08:32.540 --> 00:08:33.580 He got a bunch of

NOTE Confidence: 0.99520594

00:08:33.580 --> 00:08:34.940 data on each of the

NOTE Confidence: 0.99520594

00:08:34.940 --> 00:08:35.440 players,

NOTE Confidence: 0.99453616

00:08:36.460 --> 00:08:37.760 as well as the referees.

NOTE Confidence: 0.99453616

00:08:37.980 --> 00:08:38.940 And then what was kind

NOTE Confidence: 0.99453616

00:08:38.940 --> 00:08:39.900 of unique was he was

NOTE Confidence: 0.99453616

00:08:39.900 --> 00:08:41.684 able to scrape pictures of

NOTE Confidence: 0.99453616

00:08:41.684 --> 00:08:42.804 many of these players from

NOTE Confidence: 0.99453616

00:08:42.804 --> 00:08:44.005 the web, and he had

NOTE Confidence: 0.99453616

00:08:44.005 --> 00:08:45.204 it coded by two different

NOTE Confidence: 0.99453616

00:08:45.204 --> 00:08:46.565 reviewers so that he could

NOTE Confidence: 0.99453616

00:08:46.565 --> 00:08:47.845 objectively tell who was light

NOTE Confidence: 0.99453616

00:08:47.845 --> 00:08:49.464 skinned or dark skinned. Right?

NOTE Confidence: 0.9976074

00:08:50.084 --> 00:08:51.125 And then with this, he

NOTE Confidence: 0.9976074

00:08:51.125 --> 00:08:52.665 created this, like, really unique

NOTE Confidence: 0.9827599

00:08:53.150 --> 00:08:55.230 analytic data file of about

NOTE Confidence: 0.9827599

00:08:55.230 --> 00:08:56.510 a hundred and fifty thousand

NOTE Confidence: 0.9827599

00:08:56.510 --> 00:08:57.809 player referee dyads.

NOTE Confidence: 0.98063713

00:08:58.270 --> 00:08:59.150 I'm gonna pause for a

NOTE Confidence: 0.98063713

00:08:59.150 --> 00:09:00.750 second because I think the

NOTE Confidence: 0.98063713

00:09:00.750 --> 00:09:02.429 traditional story at this point

NOTE Confidence: 0.98063713

00:09:02.429 --> 00:09:03.550 in this type of research

NOTE Confidence: 0.98063713

00:09:03.550 --> 00:09:05.170 is, you know, he would

NOTE Confidence: 0.98063713

00:09:05.285 --> 00:09:06.425 go into the backroom.

NOTE Confidence: 0.9977112

00:09:07.045 --> 00:09:08.725 Right? He'd find a number

NOTE Confidence: 0.9977112

00:09:08.725 --> 00:09:09.945 of, like, really,

NOTE Confidence: 0.9902344

00:09:10.645 --> 00:09:12.025 you know, talented postdocs,

NOTE Confidence: 0.99869794

00:09:13.045 --> 00:09:14.025 you know, students,

NOTE Confidence: 0.88305664

00:09:14.565 --> 00:09:15.065 researchers,

NOTE Confidence: 0.95626396

00:09:15.684 --> 00:09:16.725 and they would start to

NOTE Confidence: 0.95626396

00:09:16.725 --> 00:09:17.605 come up and run some

NOTE Confidence: 0.95626396

00:09:17.605 --> 00:09:18.645 analysis and come up with

NOTE Confidence: 0.95626396

00:09:18.645 --> 00:09:19.845 an answer. And depending on

NOTE Confidence: 0.95626396

00:09:19.845 --> 00:09:21.045 the answer, we all know

NOTE Confidence: 0.95626396

00:09:21.045 --> 00:09:22.140 what would happen, right? It

NOTE Confidence: 0.95626396

00:09:22.140 --> 00:09:23.420 would be picked up by

NOTE Confidence: 0.95626396

00:09:23.420 --> 00:09:24.380 the New York Times and

NOTE Confidence: 0.95626396

00:09:24.380 --> 00:09:25.740 the Wall Street Journal and

NOTE Confidence: 0.95626396

00:09:25.740 --> 00:09:26.880 would show up everywhere.

NOTE Confidence: 0.94566244

00:09:28.380 --> 00:09:30.059 But here's where the whole

NOTE Confidence: 0.94566244

00:09:30.059 --> 00:09:31.500 project gets very interesting because

NOTE Confidence: 0.94566244

00:09:31.500 --> 00:09:33.520 actually Nosick really wasn't interested

NOTE Confidence: 0.9949428

00:09:34.220 --> 00:09:35.500 in whether light skinned or

NOTE Confidence: 0.9949428

00:09:35.500 --> 00:09:36.240 dark skinned

NOTE Confidence: 0.9564087

00:09:36.645 --> 00:09:38.085 players got red cards more

NOTE Confidence: 0.9564087

00:09:38.085 --> 00:09:39.525 often. Actually what he was

NOTE Confidence: 0.9564087

00:09:39.525 --> 00:09:40.805 interested in is, what do

NOTE Confidence: 0.9564087

00:09:40.805 --> 00:09:42.405 you think about this question

NOTE Confidence: 0.9564087

00:09:42.405 --> 00:09:44.025 and how would you answer,

NOTE Confidence: 0.9564087

00:09:44.245 --> 00:09:46.185 you know, this particular hypothesis?

NOTE Confidence: 0.9674805

00:09:47.125 --> 00:09:48.405 And so what he decided

NOTE Confidence: 0.9674805

00:09:48.405 --> 00:09:49.205 to do was take that

NOTE Confidence: 0.9674805

00:09:49.205 --> 00:09:51.225 data and actually crowdsource it.

NOTE Confidence: 0.9741981

00:09:51.679 --> 00:09:52.959 So he has a huge

NOTE Confidence: 0.9741981

00:09:52.959 --> 00:09:54.559 social network, so he decided

NOTE Confidence: 0.9741981

00:09:54.559 --> 00:09:56.240 to recruit analytic teams from

NOTE Confidence: 0.9741981

00:09:56.240 --> 00:09:57.120 around the world. And he

NOTE Confidence: 0.9741981

00:09:57.120 --> 00:09:58.480 just said, listen. Here's the

NOTE Confidence: 0.9741981

00:09:58.480 --> 00:09:59.940 question you need to answer.

NOTE Confidence: 0.9741981

00:10:00.160 --> 00:10:01.920 Are soccer referees more likely

NOTE Confidence: 0.9741981

00:10:01.920 --> 00:10:03.040 to give red cards to

NOTE Confidence: 0.9741981

00:10:03.040 --> 00:10:04.160 dark skinned players than to

NOTE Confidence: 0.9741981

00:10:04.160 --> 00:10:05.355 light skinned players? That's it.

NOTE Confidence: 0.9741981

00:10:05.755 --> 00:10:06.954 Answer that question in whatever

NOTE Confidence: 0.9741981

00:10:06.954 --> 00:10:07.755 way you want and I'm

NOTE Confidence: 0.9741981

00:10:07.755 --> 00:10:08.894 gonna give you the data.

NOTE Confidence: 0.9358485

00:10:09.355 --> 00:10:10.795 And what's fascinating was seventy

NOTE Confidence: 0.9358485

00:10:10.795 --> 00:10:13.035 seven teams expressed serious interest,

NOTE Confidence: 0.9358485

00:10:13.035 --> 00:10:14.475 right, thirty three ended up

NOTE Confidence: 0.9358485

00:10:14.475 --> 00:10:15.454 submitting proposals,

NOTE Confidence: 0.97753906

00:10:16.475 --> 00:10:17.995 and then twenty nine actually

NOTE Confidence: 0.97753906

00:10:17.995 --> 00:10:19.355 went through and they included

NOTE Confidence: 0.97753906

00:10:19.355 --> 00:10:21.059 about sixty one analysts and

NOTE Confidence: 0.97753906

00:10:21.300 --> 00:10:22.520 generated final reports.

NOTE Confidence: 0.88720703

00:10:23.540 --> 00:10:24.040 Alright.

NOTE Confidence: 0.9968074

00:10:25.059 --> 00:10:26.340 The key thing is that

NOTE Confidence: 0.9968074

00:10:26.340 --> 00:10:27.620 the teams made all their

NOTE Confidence: 0.9968074

00:10:27.620 --> 00:10:29.160 analytic choices independently

NOTE Confidence: 0.96972656

00:10:29.779 --> 00:10:31.160 of each other, but

NOTE Confidence: 0.978403

00:10:31.700 --> 00:10:32.980 they were able to view

NOTE Confidence: 0.978403

00:10:32.980 --> 00:10:34.580 others' plans before they actually

NOTE Confidence: 0.978403

00:10:34.580 --> 00:10:35.559 carried them out.

NOTE Confidence: 0.9707893

00:10:36.255 --> 00:10:37.295 And then this paper was

NOTE Confidence: 0.9707893

00:10:37.295 --> 00:10:38.415 published in two thousand and

NOTE Confidence: 0.9707893

00:10:38.415 --> 00:10:39.695 seventeen as a result of

NOTE Confidence: 0.9707893

00:10:39.695 --> 00:10:40.434 this study.

NOTE Confidence: 0.95043945

00:10:41.055 --> 00:10:42.095 You know, the title is

NOTE Confidence: 0.95043945

00:10:42.095 --> 00:10:43.635 many analysts, one dataset.

NOTE Confidence: 0.9961792

00:10:44.175 --> 00:10:45.135 And I'm gonna walk you

NOTE Confidence: 0.9961792

00:10:45.135 --> 00:10:46.495 through the key finding here.

NOTE Confidence: 0.9961792

00:10:46.495 --> 00:10:47.455 Right? So this is the

NOTE Confidence: 0.9961792

00:10:47.455 --> 00:10:49.235 summary finding from this study.

NOTE Confidence: 1

00:10:49.740 --> 00:10:51.200 And what it shows is

NOTE Confidence: 0.9945679

00:10:51.580 --> 00:10:53.420 these twenty nine results from

NOTE Confidence: 0.9945679

00:10:53.420 --> 00:10:54.400 these different teams.

NOTE Confidence: 0.982666

00:10:54.860 --> 00:10:55.820 And what you can see

NOTE Confidence: 0.982666

00:10:55.820 --> 00:10:57.260 here is there's this line

NOTE Confidence: 0.982666

00:10:57.260 --> 00:10:58.000 of unity.

NOTE Confidence: 0.9916992

00:10:59.179 --> 00:11:00.960 You know, things above

NOTE Confidence: 0.9992676

00:11:01.824 --> 00:11:02.644 things above,

NOTE Confidence: 0.9753418

00:11:03.345 --> 00:11:04.865 you know, the line are,

NOTE Confidence: 0.9753418

00:11:05.105 --> 00:11:06.644 lead to a higher likelihood

NOTE Confidence: 0.9753418

00:11:06.704 --> 00:11:07.985 of a dark skinned player

NOTE Confidence: 0.9753418

00:11:07.985 --> 00:11:09.745 getting a red card. Those

NOTE Confidence: 0.9753418

00:11:09.745 --> 00:11:11.605 below are a lower likelihood.

NOTE Confidence: 0.9753418

00:11:11.904 --> 00:11:12.704 And you can see that

NOTE Confidence: 0.9753418

00:11:12.704 --> 00:11:14.625 the results vary. Their confidence

NOTE Confidence: 0.9753418

00:11:14.625 --> 00:11:15.845 intervals vary.

NOTE Confidence: 0.9710015

00:11:16.785 --> 00:11:19.080 And and in general, the

NOTE Confidence: 0.9710015

00:11:19.080 --> 00:11:20.360 summary was that the effect

NOTE Confidence: 0.9710015

00:11:20.360 --> 00:11:22.280 sizes range from about point

NOTE Confidence: 0.9710015

00:11:22.280 --> 00:11:23.260 eight nine. So

NOTE Confidence: 0.9881243

00:11:23.640 --> 00:11:25.260 dark skinned players were slightly

NOTE Confidence: 0.9881243

00:11:25.320 --> 00:11:26.600 less likely to get a

NOTE Confidence: 0.9881243

00:11:26.600 --> 00:11:28.300 red card to, like,

NOTE Confidence: 0.9919678

00:11:28.679 --> 00:11:30.760 almost a threefold higher risk

NOTE Confidence: 0.9919678

00:11:30.760 --> 00:11:32.140 of getting a red card.

NOTE Confidence: 0.97307944

00:11:33.255 --> 00:11:34.695 Twenty of these were found

NOTE Confidence: 0.97307944

00:11:34.695 --> 00:11:36.214 to be significant based on

NOTE Confidence: 0.97307944

00:11:36.214 --> 00:11:38.315 kind of traditional hypothesis testing.

NOTE Confidence: 0.9622731

00:11:39.654 --> 00:11:40.855 And then, you know, not

NOTE Confidence: 0.9622731

00:11:40.855 --> 00:11:42.855 surprisingly, the variation was explained

NOTE Confidence: 0.9622731

00:11:42.855 --> 00:11:44.615 by the analyst choices in

NOTE Confidence: 0.9622731

00:11:44.615 --> 00:11:45.755 statistical modeling.

NOTE Confidence: 0.9855957

00:11:46.890 --> 00:11:47.390 Alright.

NOTE Confidence: 0.99902344

00:11:47.850 --> 00:11:48.350 So

NOTE Confidence: 0.98835754

00:11:49.210 --> 00:11:50.010 I think I want you

NOTE Confidence: 0.98835754

00:11:50.010 --> 00:11:50.809 to just sit with this

NOTE Confidence: 0.98835754

00:11:50.809 --> 00:11:52.090 for a moment and think

NOTE Confidence: 0.98835754

00:11:52.090 --> 00:11:53.370 about this because I think

NOTE Confidence: 0.98835754

00:11:53.370 --> 00:11:55.610 what's kind of, you know,

NOTE Confidence: 0.98835754

00:11:55.610 --> 00:11:57.530 disturbing a bit is the

NOTE Confidence: 0.98835754

00:11:57.530 --> 00:11:58.270 wide variability

NOTE Confidence: 0.99975586

00:11:59.165 --> 00:12:00.384 in in what people

NOTE Confidence: 0.9893229

00:12:00.925 --> 00:12:02.365 could see or expect from

NOTE Confidence: 0.9893229

00:12:02.365 --> 00:12:03.564 these. Because the the truth

NOTE Confidence: 0.9893229

00:12:03.564 --> 00:12:05.024 of the matter is that

NOTE Confidence: 0.9323098

00:12:05.404 --> 00:12:07.324 Noesick could have run any

NOTE Confidence: 0.9323098

00:12:07.324 --> 00:12:08.464 one of those experiments.

NOTE Confidence: 0.97302246

00:12:08.845 --> 00:12:09.964 We would have never known

NOTE Confidence: 0.97302246

00:12:09.964 --> 00:12:11.004 which one he had run

NOTE Confidence: 0.97302246

00:12:11.004 --> 00:12:12.444 or chosen, and then he

NOTE Confidence: 0.97302246

00:12:12.444 --> 00:12:13.725 could have written a story

NOTE Confidence: 0.97302246

00:12:13.725 --> 00:12:14.545 behind those.

NOTE Confidence: 1

00:12:15.370 --> 00:12:15.870 So

NOTE Confidence: 0.9918378

00:12:16.250 --> 00:12:17.130 when you look at, like,

NOTE Confidence: 0.9918378

00:12:17.130 --> 00:12:18.329 how people responded to this,

NOTE Confidence: 0.9918378

00:12:18.329 --> 00:12:19.050 I'm gonna give you a

NOTE Confidence: 0.9918378

00:12:19.050 --> 00:12:20.010 few voices that I think

NOTE Confidence: 0.9918378

00:12:20.010 --> 00:12:21.130 are very important to think

NOTE Confidence: 0.9918378

00:12:21.130 --> 00:12:22.889 through. So one is, you

NOTE Confidence: 0.9918378

00:12:22.889 --> 00:12:24.010 know, a name that's gonna

NOTE Confidence: 0.9918378

00:12:24.010 --> 00:12:24.670 be obviously

NOTE Confidence: 0.98392284

00:12:25.130 --> 00:12:26.410 very familiar to many of

NOTE Confidence: 0.98392284

00:12:26.410 --> 00:12:27.870 you here, Nicholas Christakis,

NOTE Confidence: 0.9975098

00:12:28.250 --> 00:12:30.204 who's probably the most famous,

NOTE Confidence: 0.93930286

00:12:30.505 --> 00:12:32.345 you know, physician sociologist in

NOTE Confidence: 0.93930286

00:12:32.345 --> 00:12:34.445 the world today. So Christakis

NOTE Confidence: 0.93930286

00:12:34.665 --> 00:12:35.804 said very disturbing.

NOTE Confidence: 0.96399456

00:12:36.184 --> 00:12:38.024 Twenty nine analytic teams tackle

NOTE Confidence: 0.96399456

00:12:38.024 --> 00:12:39.144 whether a player skin tone

NOTE Confidence: 0.96399456

00:12:39.144 --> 00:12:40.605 affects red cards in soccer

NOTE Confidence: 0.96399456

00:12:40.745 --> 00:12:42.584 and find, you know, variation

NOTE Confidence: 0.96399456

00:12:42.584 --> 00:12:43.324 in the results.

NOTE Confidence: 0.9707845

00:12:44.130 --> 00:12:45.010 And and this is a

NOTE Confidence: 0.9707845

00:12:45.010 --> 00:12:46.370 key point, even by experts

NOTE Confidence: 0.9707845

00:12:46.370 --> 00:12:48.050 with honest intentions. Right? None

NOTE Confidence: 0.9707845

00:12:48.050 --> 00:12:48.870 of these teams

NOTE Confidence: 0.99519855

00:12:49.490 --> 00:12:51.170 that were analyzing this data

NOTE Confidence: 0.99519855

00:12:51.170 --> 00:12:52.210 had a huge stake in

NOTE Confidence: 0.99519855

00:12:52.210 --> 00:12:52.950 this question.

NOTE Confidence: 0.9700928

00:12:54.290 --> 00:12:55.890 John Mandrola, who's a very

NOTE Confidence: 0.9700928

00:12:55.890 --> 00:12:57.670 famous, like, physician blogger,

NOTE Confidence: 0.977417

00:12:58.785 --> 00:12:59.365 you know,

NOTE Confidence: 0.88947755

00:12:59.745 --> 00:13:00.945 wrote rare is a study

NOTE Confidence: 0.88947755

00:13:00.945 --> 00:13:02.645 that forever changes your view.

NOTE Confidence: 0.9542803

00:13:03.184 --> 00:13:04.225 And then I I I

NOTE Confidence: 0.9542803

00:13:04.225 --> 00:13:05.505 certainly don't have to introduce

NOTE Confidence: 0.9542803

00:13:05.505 --> 00:13:06.625 this guy to you. Harlan

NOTE Confidence: 0.9542803

00:13:06.625 --> 00:13:07.985 Krumholtz wrote, this is one

NOTE Confidence: 0.9542803

00:13:07.985 --> 00:13:09.585 of the most important studies

NOTE Confidence: 0.9542803

00:13:09.585 --> 00:13:10.804 published this century.

NOTE Confidence: 0.99283856

00:13:11.819 --> 00:13:12.779 So I think at the

NOTE Confidence: 0.99283856

00:13:12.779 --> 00:13:14.459 core, you know, what what

NOTE Confidence: 0.99283856

00:13:14.459 --> 00:13:15.500 these, like,

NOTE Confidence: 0.98072577

00:13:16.059 --> 00:13:17.899 observers were noting was that

NOTE Confidence: 0.98072577

00:13:17.899 --> 00:13:19.019 when we think of science,

NOTE Confidence: 0.98072577

00:13:19.019 --> 00:13:20.220 we think of science having

NOTE Confidence: 0.98072577

00:13:20.220 --> 00:13:22.079 variability in many aspects,

NOTE Confidence: 0.9936175

00:13:22.459 --> 00:13:24.319 you know, concerns about replication

NOTE Confidence: 0.9936175

00:13:24.380 --> 00:13:25.040 and reproducibility,

NOTE Confidence: 0.98083496

00:13:25.684 --> 00:13:26.565 but not when it comes

NOTE Confidence: 0.98083496

00:13:26.565 --> 00:13:28.165 to this fundamental aspect of

NOTE Confidence: 0.98083496

00:13:28.165 --> 00:13:29.285 analyzing data. We think that

NOTE Confidence: 0.98083496

00:13:29.285 --> 00:13:30.725 data itself is true and

NOTE Confidence: 0.98083496

00:13:30.725 --> 00:13:31.865 that we are revealing

NOTE Confidence: 0.9968262

00:13:32.404 --> 00:13:33.225 some underlying,

NOTE Confidence: 0.99943036

00:13:33.605 --> 00:13:35.445 you know, fundamental facts about

NOTE Confidence: 0.99943036

00:13:35.445 --> 00:13:35.945 nature.

NOTE Confidence: 0.97156215

00:13:36.404 --> 00:13:37.605 So one of the things

NOTE Confidence: 0.97156215

00:13:37.605 --> 00:13:38.404 that I wanted to talk

NOTE Confidence: 0.97156215

00:13:38.404 --> 00:13:39.524 about today is this question

NOTE Confidence: 0.97156215

00:13:39.524 --> 00:13:41.259 of is science broken and

NOTE Confidence: 0.97156215

00:13:41.259 --> 00:13:42.720 then the problem of replication

NOTE Confidence: 0.97156215

00:13:42.779 --> 00:13:43.440 in research.

NOTE Confidence: 0.93821025

00:13:43.899 --> 00:13:44.779 I want to talk about

NOTE Confidence: 0.93821025

00:13:44.779 --> 00:13:46.220 why it occurs in recent

NOTE Confidence: 0.93821025

00:13:46.220 --> 00:13:46.720 drivers.

NOTE Confidence: 0.9617091

00:13:47.179 --> 00:13:48.139 And then finally, I want

NOTE Confidence: 0.9617091

00:13:48.139 --> 00:13:50.059 to describe potential lessons and

NOTE Confidence: 0.9617091

00:13:50.059 --> 00:13:51.660 solutions. And I'm gonna do

NOTE Confidence: 0.9617091

00:13:51.660 --> 00:13:52.540 this in a couple of

NOTE Confidence: 0.9617091

00:13:52.540 --> 00:13:54.139 different ways, but as my

NOTE Confidence: 0.9617091

00:13:54.139 --> 00:13:56.005 title alluded to, I I

NOTE Confidence: 0.9617091

00:13:56.005 --> 00:13:56.804 think a lot of this

NOTE Confidence: 0.9617091

00:13:56.804 --> 00:13:58.324 has evolved over my, you

NOTE Confidence: 0.9617091

00:13:58.324 --> 00:13:59.605 know, time in in the

NOTE Confidence: 0.9617091

00:13:59.605 --> 00:14:01.204 last ten years. And, you

NOTE Confidence: 0.9617091

00:14:01.204 --> 00:14:02.885 know, we were talking Eric

NOTE Confidence: 0.9617091

00:14:02.885 --> 00:14:04.005 and I were talking earlier

NOTE Confidence: 0.9617091

00:14:04.005 --> 00:14:05.285 today about how, you know,

NOTE Confidence: 0.9617091

00:14:05.285 --> 00:14:06.324 we all wear lots of

NOTE Confidence: 0.9617091

00:14:06.324 --> 00:14:08.084 hats. Right? Like, many of

NOTE Confidence: 0.9617091

00:14:08.084 --> 00:14:09.365 us here, you know, work

NOTE Confidence: 0.9617091

00:14:09.365 --> 00:14:09.865 clinically,

NOTE Confidence: 0.99354386

00:14:10.230 --> 00:14:11.510 we work as researchers, and

NOTE Confidence: 0.99354386

00:14:11.510 --> 00:14:12.570 we work as editors.

NOTE Confidence: 0.99492985

00:14:12.949 --> 00:14:14.070 And one of the fundamental

NOTE Confidence: 0.99492985

00:14:14.070 --> 00:14:15.610 things that's been really transformative

NOTE Confidence: 0.99492985

00:14:15.829 --> 00:14:17.429 for me, you know, over

NOTE Confidence: 0.99492985

00:14:17.429 --> 00:14:18.949 the last ten years is

NOTE Confidence: 0.99492985

00:14:18.949 --> 00:14:20.470 this understanding of how you

NOTE Confidence: 0.99492985

00:14:20.470 --> 00:14:22.070 think about things from an

NOTE Confidence: 0.99492985

00:14:22.070 --> 00:14:23.670 editor's perspective. And and the

NOTE Confidence: 0.99492985

00:14:23.670 --> 00:14:24.709 way that I've been framing

NOTE Confidence: 0.99492985

00:14:24.709 --> 00:14:25.850 it lately is

NOTE Confidence: 0.9911374

00:14:26.415 --> 00:14:27.535 when I'm a clinician, I

NOTE Confidence: 0.9911374

00:14:27.535 --> 00:14:28.915 often think about the numerator.

NOTE Confidence: 0.9911374

00:14:29.214 --> 00:14:30.654 Right? The patient that's in

NOTE Confidence: 0.9911374

00:14:30.654 --> 00:14:32.015 front of me, there is

NOTE Confidence: 0.9911374

00:14:32.015 --> 00:14:33.455 no outlier when you're a

NOTE Confidence: 0.9911374

00:14:33.455 --> 00:14:35.214 clinician. Right? Everybody has their

NOTE Confidence: 0.9911374

00:14:35.214 --> 00:14:36.894 own unique story. They come

NOTE Confidence: 0.9911374

00:14:36.894 --> 00:14:38.115 to you with their own

NOTE Confidence: 0.9911374

00:14:38.334 --> 00:14:39.475 unique needs.

NOTE Confidence: 0.98639977

00:14:40.290 --> 00:14:41.410 But when you're an editor,

NOTE Confidence: 0.98639977

00:14:41.410 --> 00:14:42.449 you're on the far end.

NOTE Confidence: 0.98639977

00:14:42.449 --> 00:14:43.329 Right? You think a lot

NOTE Confidence: 0.98639977

00:14:43.329 --> 00:14:45.009 about the denominator. Right? You

NOTE Confidence: 0.98639977

00:14:45.009 --> 00:14:46.769 think about how generalizable is

NOTE Confidence: 0.98639977

00:14:46.769 --> 00:14:48.149 this? What does this mean

NOTE Confidence: 0.98639977

00:14:48.370 --> 00:14:50.310 beyond, you know, this particular

NOTE Confidence: 0.98639977

00:14:50.529 --> 00:14:52.130 example? And how important and

NOTE Confidence: 0.98639977

00:14:52.130 --> 00:14:53.329 impactful is it to the

NOTE Confidence: 0.98639977

00:14:53.329 --> 00:14:53.829 field?

NOTE Confidence: 0.95390826

00:14:54.425 --> 00:14:55.144 And one of the things

NOTE Confidence: 0.95390826

00:14:55.144 --> 00:14:56.264 that I've realized, like, over

NOTE Confidence: 0.95390826

00:14:56.264 --> 00:14:57.384 the years is this my

NOTE Confidence: 0.95390826

00:14:57.384 --> 00:14:59.064 own transformation as I look

NOTE Confidence: 0.95390826

00:14:59.064 --> 00:15:00.444 at science and studies,

NOTE Confidence: 0.9991048

00:15:01.384 --> 00:15:02.605 and that's been a really

NOTE Confidence: 0.9991048

00:15:02.665 --> 00:15:03.165 amazing,

NOTE Confidence: 0.9972331

00:15:03.865 --> 00:15:05.225 you know, opportunity and a

NOTE Confidence: 0.9972331

00:15:05.225 --> 00:15:05.725 privilege.

NOTE Confidence: 0.9546971

00:15:06.105 --> 00:15:07.725 You know, my editor's perspective

NOTE Confidence: 0.9546971

00:15:07.785 --> 00:15:10.300 comes through circulation, cardiovascular quality,

NOTE Confidence: 0.9546971

00:15:10.300 --> 00:15:11.180 and outcomes. This is a

NOTE Confidence: 0.9546971

00:15:11.180 --> 00:15:12.720 journal that was founded by

NOTE Confidence: 0.9546971

00:15:12.860 --> 00:15:13.600 by Harlan.

NOTE Confidence: 0.9704997

00:15:15.339 --> 00:15:16.699 It's now been rebranded as

NOTE Confidence: 0.9704997

00:15:16.699 --> 00:15:18.459 circulation population health and outcomes,

NOTE Confidence: 0.9704997

00:15:18.459 --> 00:15:19.600 but it's part of the

NOTE Confidence: 0.9704997

00:15:19.819 --> 00:15:20.720 family of journals.

NOTE Confidence: 0.9560445

00:15:21.165 --> 00:15:22.865 It deals with mainly observational

NOTE Confidence: 0.9560445

00:15:23.005 --> 00:15:24.524 research but also clinical trials

NOTE Confidence: 0.9560445

00:15:24.524 --> 00:15:26.445 and qualitative studies. And we

NOTE Confidence: 0.9560445

00:15:26.445 --> 00:15:28.045 publish about eighty to a

NOTE Confidence: 0.9560445

00:15:28.045 --> 00:15:30.125 hundred articles a year. We

NOTE Confidence: 0.9560445

00:15:30.125 --> 00:15:31.324 have about a ten percent

NOTE Confidence: 0.9560445

00:15:31.324 --> 00:15:32.685 acceptance rate. And just doing

NOTE Confidence: 0.9560445

00:15:32.685 --> 00:15:34.045 the math over ten years,

NOTE Confidence: 0.9560445

00:15:34.045 --> 00:15:35.560 I've I've realized, like, I

NOTE Confidence: 0.9560445

00:15:35.560 --> 00:15:36.680 have looked at about ten

NOTE Confidence: 0.9560445

00:15:36.680 --> 00:15:38.520 thousand, you know, papers that

NOTE Confidence: 0.9560445

00:15:38.520 --> 00:15:39.900 have come across my desk.

NOTE Confidence: 0.9884186

00:15:40.440 --> 00:15:41.640 Now I'm not gonna lie

NOTE Confidence: 0.9884186

00:15:41.640 --> 00:15:42.440 to you and tell you

NOTE Confidence: 0.9884186

00:15:42.440 --> 00:15:43.320 I've read every one of

NOTE Confidence: 0.9884186

00:15:43.320 --> 00:15:43.820 them,

NOTE Confidence: 0.96754366

00:15:44.440 --> 00:15:45.800 but, like, I certainly have

NOTE Confidence: 0.96754366

00:15:45.800 --> 00:15:47.340 read their titles and abstracts

NOTE Confidence: 0.96754366

00:15:47.400 --> 00:15:48.600 and learned a bit from

NOTE Confidence: 0.96754366

00:15:48.600 --> 00:15:49.340 each one.

NOTE Confidence: 0.9619572

00:15:50.435 --> 00:15:51.714 But the thing about CERC

NOTE Confidence: 0.9619572

00:15:51.714 --> 00:15:53.235 outcomes that's that's fascinating to

NOTE Confidence: 0.9619572

00:15:53.235 --> 00:15:54.595 me is it sits right

NOTE Confidence: 0.9619572

00:15:54.595 --> 00:15:55.875 in the middle tier. Right?

NOTE Confidence: 0.9619572

00:15:55.875 --> 00:15:56.834 We we're not the New

NOTE Confidence: 0.9619572

00:15:56.834 --> 00:15:58.755 England Journal. We're not JAMA.

NOTE Confidence: 0.9619572

00:15:58.755 --> 00:15:59.654 We're not Jack.

NOTE Confidence: 0.976092

00:16:00.834 --> 00:16:02.035 You know, thankfully, we're not

NOTE Confidence: 0.976092

00:16:02.035 --> 00:16:03.235 at the bottom tier either.

NOTE Confidence: 0.976092

00:16:03.235 --> 00:16:04.435 Right? And we get good

NOTE Confidence: 0.976092

00:16:04.435 --> 00:16:05.954 science. And it's a very

NOTE Confidence: 0.976092

00:16:05.954 --> 00:16:07.450 important perspective because in many

NOTE Confidence: 0.976092

00:16:07.450 --> 00:16:08.330 ways, this is where most

NOTE Confidence: 0.976092

00:16:08.330 --> 00:16:09.610 of us spend our career.

NOTE Confidence: 0.976092

00:16:09.610 --> 00:16:10.490 Right? Once in a while,

NOTE Confidence: 0.976092

00:16:10.490 --> 00:16:12.010 we'll we'll kinda reach and

NOTE Confidence: 0.976092

00:16:12.010 --> 00:16:13.130 get one of those, you

NOTE Confidence: 0.976092

00:16:13.130 --> 00:16:14.830 know, high profile articles. But

NOTE Confidence: 0.9886339

00:16:15.210 --> 00:16:16.730 science happens in this middle

NOTE Confidence: 0.9886339

00:16:16.730 --> 00:16:18.110 tier, and it's a fascinating

NOTE Confidence: 0.9886339

00:16:18.170 --> 00:16:18.970 way in which you can

NOTE Confidence: 0.9886339

00:16:18.970 --> 00:16:19.930 look at both the good,

NOTE Confidence: 0.9886339

00:16:19.930 --> 00:16:21.290 the bad, and and sometimes

NOTE Confidence: 0.9886339

00:16:21.290 --> 00:16:21.950 the ugly.

NOTE Confidence: 0.9923503

00:16:22.645 --> 00:16:23.525 So I'm gonna come back

NOTE Confidence: 0.9923503

00:16:23.525 --> 00:16:24.565 to the statement of that

NOTE Confidence: 0.9923503

00:16:24.565 --> 00:16:26.245 core problem. Right? And this

NOTE Confidence: 0.9923503

00:16:26.245 --> 00:16:27.125 is it in a in

NOTE Confidence: 0.9923503

00:16:27.125 --> 00:16:28.485 a nutshell. The idea that

NOTE Confidence: 0.9923503

00:16:28.485 --> 00:16:30.565 the published scientific literature is

NOTE Confidence: 0.9923503

00:16:30.565 --> 00:16:32.485 producing too many false positive

NOTE Confidence: 0.9923503

00:16:32.485 --> 00:16:34.185 findings that are overrated

NOTE Confidence: 0.979872

00:16:34.839 --> 00:16:35.820 and not replicable.

NOTE Confidence: 0.9995117

00:16:36.200 --> 00:16:37.720 And this leads to substantial

NOTE Confidence: 0.9995117

00:16:37.720 --> 00:16:38.220 inefficiencies

NOTE Confidence: 0.77093506

00:16:38.520 --> 00:16:39.660 and waste in research.

NOTE Confidence: 0.9880371

00:16:40.120 --> 00:16:41.260 And the key,

NOTE Confidence: 0.9740641

00:16:42.120 --> 00:16:43.399 characteristic here is this this

NOTE Confidence: 0.9740641

00:16:43.399 --> 00:16:44.680 idea of too many. Right?

NOTE Confidence: 0.9740641

00:16:44.680 --> 00:16:45.560 What is too many? Because

NOTE Confidence: 0.9740641

00:16:45.560 --> 00:16:46.920 we all know that science

NOTE Confidence: 0.9740641

00:16:46.920 --> 00:16:48.279 is exploration, and we're gonna

NOTE Confidence: 0.9740641

00:16:48.279 --> 00:16:49.580 go down some dead ends.

NOTE Confidence: 0.9178874

00:16:50.785 --> 00:16:51.905 And I wanna point out

NOTE Confidence: 0.9178874

00:16:51.905 --> 00:16:52.405 that

NOTE Confidence: 0.9831641

00:16:53.025 --> 00:16:54.305 when you think about the

NOTE Confidence: 0.9831641

00:16:54.305 --> 00:16:55.905 too many, that's been really

NOTE Confidence: 0.9831641

00:16:55.905 --> 00:16:57.425 the the tagline of this

NOTE Confidence: 0.9831641

00:16:57.425 --> 00:16:58.945 idea of the replication crisis.

NOTE Confidence: 0.9831641

00:16:58.945 --> 00:17:00.485 And this has been documented

NOTE Confidence: 0.9529274

00:17:01.025 --> 00:17:02.305 not just recently, but I

NOTE Confidence: 0.9529274

00:17:02.305 --> 00:17:03.345 wanna go back to even

NOTE Confidence: 0.9529274

00:17:03.345 --> 00:17:05.130 Charles Babbage. Right? Like

NOTE Confidence: 0.9548211

00:17:05.530 --> 00:17:07.210 writing, you know, almost like

NOTE Confidence: 0.9548211

00:17:07.210 --> 00:17:08.810 four hundred years ago also

NOTE Confidence: 0.9548211

00:17:08.810 --> 00:17:10.010 wrote about the idea that,

NOTE Confidence: 0.9548211

00:17:10.010 --> 00:17:11.310 like, science is just,

NOTE Confidence: 0.99285334

00:17:12.970 --> 00:17:14.410 you know, filled with too

NOTE Confidence: 0.99285334

00:17:14.410 --> 00:17:15.770 many errors and too many,

NOTE Confidence: 0.99285334

00:17:15.770 --> 00:17:16.170 like,

NOTE Confidence: 0.9987793

00:17:16.810 --> 00:17:17.950 replication issues.

NOTE Confidence: 0.97066575

00:17:18.865 --> 00:17:19.984 Okay. And then the next

NOTE Confidence: 0.97066575

00:17:19.984 --> 00:17:20.945 thing I just wanna say

NOTE Confidence: 0.97066575

00:17:20.945 --> 00:17:22.065 is as I'm approaching this,

NOTE Confidence: 0.97066575

00:17:22.065 --> 00:17:23.265 I I I definitely wanna

NOTE Confidence: 0.97066575

00:17:23.265 --> 00:17:24.544 share with you. I'm not

NOTE Confidence: 0.97066575

00:17:24.544 --> 00:17:25.984 trying to be sanctimonious at

NOTE Confidence: 0.97066575

00:17:25.984 --> 00:17:27.585 all. In fact, many of

NOTE Confidence: 0.97066575

00:17:27.585 --> 00:17:28.544 the things I'm gonna tell

NOTE Confidence: 0.97066575

00:17:28.544 --> 00:17:29.664 you are things that if

NOTE Confidence: 0.97066575

00:17:29.664 --> 00:17:30.705 you even look back at

NOTE Confidence: 0.97066575

00:17:30.705 --> 00:17:32.465 my own research over the

NOTE Confidence: 0.97066575

00:17:32.465 --> 00:17:34.144 years and how we did

NOTE Confidence: 0.97066575

00:17:34.144 --> 00:17:34.644 it,

NOTE Confidence: 0.97478753

00:17:35.480 --> 00:17:36.440 you know, it it it's

NOTE Confidence: 0.97478753

00:17:36.440 --> 00:17:37.080 kind of one of those

NOTE Confidence: 0.97478753

00:17:37.080 --> 00:17:37.960 things where it's been an

NOTE Confidence: 0.97478753

00:17:37.960 --> 00:17:39.480 interesting transformation in my own

NOTE Confidence: 0.97478753

00:17:39.480 --> 00:17:40.760 career, but it is definitely

NOTE Confidence: 0.97478753

00:17:40.760 --> 00:17:42.200 a perspective that's been changed

NOTE Confidence: 0.97478753

00:17:42.200 --> 00:17:43.720 with this idea of an

NOTE Confidence: 0.97478753

00:17:43.720 --> 00:17:44.780 editorial lens.

NOTE Confidence: 0.9803467

00:17:45.560 --> 00:17:47.080 So, again, you know, this

NOTE Confidence: 0.9803467

00:17:47.080 --> 00:17:48.280 isn't about good or bad.

NOTE Confidence: 0.9803467

00:17:48.280 --> 00:17:49.924 This isn't about, like, you

NOTE Confidence: 0.9803467

00:17:49.924 --> 00:17:50.424 know,

NOTE Confidence: 0.99487305

00:17:51.445 --> 00:17:52.825 you know, angels and devils.

NOTE Confidence: 1

00:17:53.285 --> 00:17:54.825 There is a whole talk

NOTE Confidence: 0.98795575

00:17:55.205 --> 00:17:56.825 about fraudulent research,

NOTE Confidence: 0.9914134

00:17:57.765 --> 00:17:58.885 that that could be given,

NOTE Confidence: 0.9914134

00:17:58.885 --> 00:17:59.684 but that's not what I'm

NOTE Confidence: 0.9914134

00:17:59.684 --> 00:18:00.965 talking about. I'm talking about

NOTE Confidence: 0.9914134

00:18:00.965 --> 00:18:02.085 good people trying to do

NOTE Confidence: 0.9914134

00:18:02.085 --> 00:18:03.765 good work, but then sometimes

NOTE Confidence: 0.9914134

00:18:03.765 --> 00:18:04.970 getting caught up in some

NOTE Confidence: 0.9914134

00:18:04.970 --> 00:18:06.170 of the limitations of what

NOTE Confidence: 0.9914134

00:18:06.170 --> 00:18:07.530 we can derive from data

NOTE Confidence: 0.9914134

00:18:07.530 --> 00:18:08.030 itself.

NOTE Confidence: 0.97490096

00:18:08.730 --> 00:18:09.770 Alright. So I told you

NOTE Confidence: 0.97490096

00:18:09.770 --> 00:18:10.970 the story about Brian Nosek,

NOTE Confidence: 0.97490096

00:18:10.970 --> 00:18:11.930 and I'm sure that many

NOTE Confidence: 0.97490096

00:18:11.930 --> 00:18:12.890 of you are like, okay.

NOTE Confidence: 0.97490096

00:18:12.890 --> 00:18:13.930 That's great. But, I mean,

NOTE Confidence: 0.97490096

00:18:13.930 --> 00:18:14.970 come on. You're talking about

NOTE Confidence: 0.97490096

00:18:14.970 --> 00:18:16.490 a psychologist and, like, you

NOTE Confidence: 0.97490096

00:18:16.490 --> 00:18:16.990 know,

NOTE Confidence: 0.9779053

00:18:18.175 --> 00:18:19.855 skin tone and red cards.

NOTE Confidence: 0.9779053

00:18:19.855 --> 00:18:20.415 I mean, what does that

NOTE Confidence: 0.9779053

00:18:20.415 --> 00:18:21.215 have to do with anything

NOTE Confidence: 0.9779053

00:18:21.215 --> 00:18:22.415 in medicine? And I'm gonna

NOTE Confidence: 0.9779053

00:18:22.415 --> 00:18:23.695 spend a slide just telling

NOTE Confidence: 0.9779053

00:18:23.695 --> 00:18:25.155 you how critical this is.

NOTE Confidence: 0.9920247

00:18:25.615 --> 00:18:26.755 And one of the areas

NOTE Confidence: 0.9920247

00:18:26.815 --> 00:18:27.935 is that this is just

NOTE Confidence: 0.9920247

00:18:27.935 --> 00:18:28.915 broadly applicable.

NOTE Confidence: 0.9779053

00:18:29.375 --> 00:18:30.255 You know? In fact, like,

NOTE Confidence: 0.9779053

00:18:30.255 --> 00:18:31.215 you know, we can start

NOTE Confidence: 0.9779053

00:18:31.215 --> 00:18:32.515 with, like, health policy

NOTE Confidence: 0.95554835

00:18:32.869 --> 00:18:34.950 and the hospital readmissions reductions

NOTE Confidence: 0.95554835

00:18:34.950 --> 00:18:36.550 program and mortality. And I'm

NOTE Confidence: 0.95554835

00:18:36.550 --> 00:18:37.850 just gonna make this because

NOTE Confidence: 0.95554835

00:18:37.910 --> 00:18:38.630 this is, like, one of

NOTE Confidence: 0.95554835

00:18:38.630 --> 00:18:39.910 the homes of, like, this

NOTE Confidence: 0.95554835

00:18:39.910 --> 00:18:40.810 debate. Right?

NOTE Confidence: 0.9714692

00:18:41.750 --> 00:18:42.550 And I and I point

NOTE Confidence: 0.9714692

00:18:42.550 --> 00:18:43.590 this out. These are two

NOTE Confidence: 0.9714692

00:18:43.590 --> 00:18:45.109 articles that are published in

NOTE Confidence: 0.9714692

00:18:45.109 --> 00:18:46.684 JAMA a year apart. You

NOTE Confidence: 0.9714692

00:18:46.684 --> 00:18:47.804 know, one is from Yale.

NOTE Confidence: 0.9714692

00:18:47.804 --> 00:18:48.865 The other is from

NOTE Confidence: 0.96257323

00:18:49.165 --> 00:18:50.125 the the group at the

NOTE Confidence: 0.96257323

00:18:50.125 --> 00:18:51.744 BI, at the Smith Center.

NOTE Confidence: 0.9765111

00:18:52.365 --> 00:18:53.325 And what I just find

NOTE Confidence: 0.9765111

00:18:53.325 --> 00:18:54.525 fascinating about this is if

NOTE Confidence: 0.9765111

00:18:54.525 --> 00:18:55.325 you if you look at

NOTE Confidence: 0.9765111

00:18:55.325 --> 00:18:56.945 just the conclusions, right,

NOTE Confidence: 0.9926007

00:18:57.405 --> 00:18:59.085 they are literally the exact

NOTE Confidence: 0.9926007

00:18:59.085 --> 00:19:01.310 opposite. Right? So in one

NOTE Confidence: 0.9926007

00:19:01.310 --> 00:19:02.530 conclusion, it says

NOTE Confidence: 0.99546814

00:19:02.830 --> 00:19:05.250 that the HRRP was significantly

NOTE Confidence: 0.99546814

00:19:05.390 --> 00:19:07.150 correlated with reductions in in

NOTE Confidence: 0.99546814

00:19:07.150 --> 00:19:08.990 hospital thirty day mortality after

NOTE Confidence: 0.99546814

00:19:08.990 --> 00:19:09.490 discharge.

NOTE Confidence: 0.9975586

00:19:09.950 --> 00:19:10.910 And then in the next

NOTE Confidence: 0.9975586

00:19:10.910 --> 00:19:11.410 one,

NOTE Confidence: 0.9959961

00:19:12.115 --> 00:19:13.234 you know, it suggests that

NOTE Confidence: 0.9959961

00:19:13.234 --> 00:19:14.434 there was an increase in

NOTE Confidence: 0.9959961

00:19:14.434 --> 00:19:16.215 thirty day post discharge mortality.

NOTE Confidence: 0.9921875

00:19:16.835 --> 00:19:18.595 Now the the highlight here

NOTE Confidence: 0.9921875

00:19:18.595 --> 00:19:19.335 is that

NOTE Confidence: 0.9941406

00:19:19.955 --> 00:19:20.695 these investigators

NOTE Confidence: 0.9685434

00:19:20.994 --> 00:19:22.595 on both sides are amongst

NOTE Confidence: 0.9685434

00:19:22.595 --> 00:19:24.195 the world's best. Right? These

NOTE Confidence: 0.9685434

00:19:24.195 --> 00:19:25.794 are experts who use these

NOTE Confidence: 0.9685434

00:19:25.794 --> 00:19:27.320 data all the time. They're

NOTE Confidence: 0.9685434

00:19:27.320 --> 00:19:28.840 using the same exact data

NOTE Confidence: 0.9685434

00:19:28.840 --> 00:19:29.340 set,

NOTE Confidence: 0.9996745

00:19:29.720 --> 00:19:30.619 and they're coming

NOTE Confidence: 0.99938965

00:19:31.000 --> 00:19:32.540 to drastically different conclusions.

NOTE Confidence: 0.9783203

00:19:33.560 --> 00:19:35.320 And the problem is not

NOTE Confidence: 0.9783203

00:19:35.320 --> 00:19:37.420 so much, like, the inconsistencies,

NOTE Confidence: 0.9829799

00:19:37.800 --> 00:19:39.240 but they're published in the

NOTE Confidence: 0.9829799

00:19:39.240 --> 00:19:40.140 same journal,

NOTE Confidence: 0.99853516

00:19:40.494 --> 00:19:42.034 one of our greatest journals.

NOTE Confidence: 0.99853516

00:19:42.174 --> 00:19:42.674 Right?

NOTE Confidence: 0.97066176

00:19:43.054 --> 00:19:44.515 It's like a physics journal,

NOTE Confidence: 0.97066176

00:19:44.575 --> 00:19:46.255 like, publishing that electrons are

NOTE Confidence: 0.97066176

00:19:46.255 --> 00:19:48.015 positively charged one year and

NOTE Confidence: 0.97066176

00:19:48.015 --> 00:19:49.615 then saying it's negatively charged

NOTE Confidence: 0.97066176

00:19:49.615 --> 00:19:50.975 the next year. And then

NOTE Confidence: 0.97066176

00:19:50.975 --> 00:19:52.654 nobody really thinks that we

NOTE Confidence: 0.97066176

00:19:52.654 --> 00:19:53.855 have to reconcile this. We

NOTE Confidence: 0.97066176

00:19:53.855 --> 00:19:55.290 just move on. Right? And

NOTE Confidence: 0.97066176

00:19:55.290 --> 00:19:56.410 there are still to this

NOTE Confidence: 0.97066176

00:19:56.410 --> 00:19:57.610 day people who believe the

NOTE Confidence: 0.97066176

00:19:57.610 --> 00:19:59.050 article on the left and

NOTE Confidence: 0.97066176

00:19:59.050 --> 00:20:00.190 people who are passionately

NOTE Confidence: 0.99975586

00:20:00.970 --> 00:20:02.010 convinced of the truth of

NOTE Confidence: 0.99975586

00:20:02.010 --> 00:20:03.230 the article on the right.

NOTE Confidence: 0.94110346

00:20:04.170 --> 00:20:05.690 Okay. So I I pointed

NOTE Confidence: 0.94110346

00:20:05.690 --> 00:20:06.810 this out for health policy,

NOTE Confidence: 0.94110346

00:20:06.810 --> 00:20:07.770 and you guys might say,

NOTE Confidence: 0.94110346

00:20:07.770 --> 00:20:09.050 well, like, look, health policy

NOTE Confidence: 0.94110346

00:20:09.050 --> 00:20:09.805 is is like one step

NOTE Confidence: 0.94110346

00:20:09.805 --> 00:20:11.345 away from the social sciences,

NOTE Confidence: 0.94110346

00:20:11.565 --> 00:20:12.605 you know, give me something

NOTE Confidence: 0.94110346

00:20:12.605 --> 00:20:14.285 more. I mean, if you

NOTE Confidence: 0.94110346

00:20:14.285 --> 00:20:15.185 look at epidemiology,

NOTE Confidence: 0.99453527

00:20:15.805 --> 00:20:17.085 I love this example that

NOTE Confidence: 0.99453527

00:20:17.085 --> 00:20:18.525 I oftentimes give to students

NOTE Confidence: 0.99453527

00:20:18.525 --> 00:20:19.265 about bisphosphonates

NOTE Confidence: 0.74316406

00:20:19.645 --> 00:20:20.305 and cancer.

NOTE Confidence: 0.98636883

00:20:21.289 --> 00:20:23.529 Two articles published just months

NOTE Confidence: 0.98636883

00:20:23.529 --> 00:20:25.369 apart, one in JAMA and

NOTE Confidence: 0.98636883

00:20:25.369 --> 00:20:26.029 the other

NOTE Confidence: 0.99902344

00:20:26.330 --> 00:20:27.230 in the BMJ

NOTE Confidence: 0.8912598

00:20:27.690 --> 00:20:29.549 using the exact same datasets.

NOTE Confidence: 0.99836284

00:20:30.010 --> 00:20:31.289 Right? And on the one

NOTE Confidence: 0.99836284

00:20:31.289 --> 00:20:32.649 on the left, it suggests

NOTE Confidence: 0.99836284

00:20:32.649 --> 00:20:34.510 that there's no significant association

NOTE Confidence: 0.99836284

00:20:34.649 --> 00:20:35.390 with bisphosphonates

NOTE Confidence: 0.98574597

00:20:36.244 --> 00:20:37.445 and GI cancers, and the

NOTE Confidence: 0.98574597

00:20:37.445 --> 00:20:38.484 one on the right suggests

NOTE Confidence: 0.98574597

00:20:38.484 --> 00:20:39.545 the exact opposite.

NOTE Confidence: 0.99186707

00:20:41.045 --> 00:20:41.925 Which one do you think

NOTE Confidence: 0.99186707

00:20:41.925 --> 00:20:43.605 is actually cited more? I'm

NOTE Confidence: 0.99186707

00:20:43.605 --> 00:20:44.885 curious. Do you think the

NOTE Confidence: 0.99186707

00:20:44.885 --> 00:20:46.345 one that shows no association

NOTE Confidence: 0.99186707

00:20:46.565 --> 00:20:47.845 or the one that shows,

NOTE Confidence: 0.99186707

00:20:48.005 --> 00:20:49.765 a positive association? Anybody have

NOTE Confidence: 0.99186707

00:20:49.765 --> 00:20:50.425 any guesses?

NOTE Confidence: 0.9704454

00:20:52.700 --> 00:20:54.859 Yeah. Significantly. Right? So in

NOTE Confidence: 0.9704454

00:20:54.859 --> 00:20:56.220 a lower impact journal, the

NOTE Confidence: 0.9704454

00:20:56.220 --> 00:20:57.980 BMJ, that article is cited

NOTE Confidence: 0.9704454

00:20:57.980 --> 00:20:58.960 much more often.

NOTE Confidence: 0.9555935

00:21:00.540 --> 00:21:01.660 And it just raises the

NOTE Confidence: 0.9555935

00:21:01.660 --> 00:21:03.180 question of, again, you know,

NOTE Confidence: 0.9555935

00:21:03.180 --> 00:21:04.300 we we just live with

NOTE Confidence: 0.9555935

00:21:04.300 --> 00:21:05.260 these kind of,

NOTE Confidence: 0.97744143

00:21:06.225 --> 00:21:08.085 dichotomies and just feel comfortable.

NOTE Confidence: 0.8978923

00:21:08.785 --> 00:21:10.645 You know, okay, that's epidemiology.

NOTE Confidence: 0.93381757

00:21:11.105 --> 00:21:13.105 What about randomized clinical trials?

NOTE Confidence: 0.93381757

00:21:13.105 --> 00:21:14.145 You know, I I'm an

NOTE Confidence: 0.93381757

00:21:14.145 --> 00:21:16.225 interventional cardiologist and it's been

NOTE Confidence: 0.93381757

00:21:16.225 --> 00:21:17.984 fascinating. We've done four studies

NOTE Confidence: 0.93381757

00:21:17.984 --> 00:21:19.045 now on the MitraClip.

NOTE Confidence: 0.9944661

00:21:19.609 --> 00:21:20.430 Two have suggested

NOTE Confidence: 0.8998047

00:21:20.890 --> 00:21:22.590 the MitraClip is is incredibly,

NOTE Confidence: 0.9165483

00:21:25.290 --> 00:21:27.450 you know, important, has survival

NOTE Confidence: 0.9165483

00:21:27.450 --> 00:21:29.130 benefit. Two suggest the exact

NOTE Confidence: 0.9165483

00:21:29.130 --> 00:21:29.630 opposite.

NOTE Confidence: 0.94833493

00:21:31.705 --> 00:21:32.505 And, you know, this isn't

NOTE Confidence: 0.94833493

00:21:32.505 --> 00:21:33.705 gonna be surprising, I think,

NOTE Confidence: 0.94833493

00:21:33.705 --> 00:21:35.385 with randomized clinical trials. You

NOTE Confidence: 0.94833493

00:21:35.385 --> 00:21:36.265 know, this is a a

NOTE Confidence: 0.94833493

00:21:36.265 --> 00:21:38.365 great paper from John Cocotto,

NOTE Confidence: 0.9772949

00:21:38.984 --> 00:21:39.785 who I know is at

NOTE Confidence: 0.9772949

00:21:39.785 --> 00:21:40.285 Yale,

NOTE Confidence: 0.93691784

00:21:40.984 --> 00:21:42.425 and then Ralph Horowitz who

NOTE Confidence: 0.93691784

00:21:42.425 --> 00:21:43.385 was here at the time.

NOTE Confidence: 0.93691784

00:21:43.385 --> 00:21:44.365 But just describing

NOTE Confidence: 0.9898162

00:21:44.960 --> 00:21:46.080 overall that there's always going

NOTE Confidence: 0.9898162

00:21:46.080 --> 00:21:47.200 to be conflicting results from

NOTE Confidence: 0.9898162

00:21:47.200 --> 00:21:49.600 RCTs because they oftentimes represent

NOTE Confidence: 0.9898162

00:21:49.600 --> 00:21:50.960 a range of real outcomes

NOTE Confidence: 0.9898162

00:21:50.960 --> 00:21:51.920 that you expect to see

NOTE Confidence: 0.9898162

00:21:51.920 --> 00:21:53.060 in a clinical setting.

NOTE Confidence: 0.96971434

00:21:54.720 --> 00:21:56.160 What's fascinating is it can

NOTE Confidence: 0.96971434

00:21:56.160 --> 00:21:58.000 even go deeper into the

NOTE Confidence: 0.96971434

00:21:58.000 --> 00:22:00.135 preclinical research setting, right? And

NOTE Confidence: 0.96971434

00:22:00.215 --> 00:22:01.115 you know, this is a

NOTE Confidence: 0.9727783

00:22:01.734 --> 00:22:02.795 paper, in

NOTE Confidence: 0.92374676

00:22:03.255 --> 00:22:05.335 Nature twenty twelve that was

NOTE Confidence: 0.92374676

00:22:05.335 --> 00:22:07.175 written by Glenn Begley and

NOTE Confidence: 0.92374676

00:22:07.175 --> 00:22:09.015 Lee Ellis. These were both

NOTE Confidence: 0.92374676

00:22:09.015 --> 00:22:10.535 individuals that were actually in

NOTE Confidence: 0.92374676

00:22:10.535 --> 00:22:11.675 industry at the time.

NOTE Confidence: 0.96432245

00:22:12.940 --> 00:22:14.140 And and one of the

NOTE Confidence: 0.96432245

00:22:14.300 --> 00:22:15.340 just because you just have

NOTE Confidence: 0.96432245

00:22:15.340 --> 00:22:16.460 to read it just to

NOTE Confidence: 0.96432245

00:22:16.460 --> 00:22:17.660 kind of understand this, but

NOTE Confidence: 0.96432245

00:22:17.660 --> 00:22:18.859 like, you know, one of

NOTE Confidence: 0.96432245

00:22:18.859 --> 00:22:19.980 the quotes from this paper

NOTE Confidence: 0.96432245

00:22:19.980 --> 00:22:21.500 that's just so fascinating is

NOTE Confidence: 0.96432245

00:22:21.500 --> 00:22:22.380 that these,

NOTE Confidence: 1

00:22:22.780 --> 00:22:23.280 investigators

NOTE Confidence: 0.9920247

00:22:23.580 --> 00:22:24.720 talked about Amgen

NOTE Confidence: 0.99853516

00:22:25.260 --> 00:22:27.175 going back and targeting

NOTE Confidence: 0.98087287

00:22:27.875 --> 00:22:29.635 fifty three landmark papers that

NOTE Confidence: 0.98087287

00:22:29.635 --> 00:22:31.075 were published in, like, Nature

NOTE Confidence: 0.98087287

00:22:31.075 --> 00:22:32.275 and Science. So they went

NOTE Confidence: 0.98087287

00:22:32.275 --> 00:22:33.155 back and they found these

NOTE Confidence: 0.98087287

00:22:33.155 --> 00:22:35.075 fifty three papers. Everybody considered

NOTE Confidence: 0.98087287

00:22:35.075 --> 00:22:36.455 them, you know, transformative.

NOTE Confidence: 0.9988281

00:22:37.315 --> 00:22:38.775 And so they wanted to

NOTE Confidence: 0.99986047

00:22:39.155 --> 00:22:40.195 go and see if they

NOTE Confidence: 0.99986047

00:22:40.195 --> 00:22:40.934 could reproduce

NOTE Confidence: 0.9117606

00:22:41.560 --> 00:22:43.160 these results. Right? So to

NOTE Confidence: 0.9117606

00:22:43.160 --> 00:22:44.140 replicate them.

NOTE Confidence: 0.94862586

00:22:44.440 --> 00:22:46.460 And what was fascinating was

NOTE Confidence: 0.94862586

00:22:46.680 --> 00:22:48.040 that after doing all that

NOTE Confidence: 0.94862586

00:22:48.040 --> 00:22:49.100 work in that space,

NOTE Confidence: 1

00:22:49.560 --> 00:22:51.260 they could only confirm findings

NOTE Confidence: 0.9977214

00:22:51.640 --> 00:22:52.780 in six cases.

NOTE Confidence: 0.9900468

00:22:53.480 --> 00:22:54.440 And, you know, they write,

NOTE Confidence: 0.9900468

00:22:54.440 --> 00:22:55.740 like, even knowing the limitations

NOTE Confidence: 0.9900468

00:22:55.800 --> 00:22:57.284 of preclinical research, this was

NOTE Confidence: 0.9900468

00:22:57.284 --> 00:22:58.804 a shocking result. In fact,

NOTE Confidence: 0.9900468

00:22:58.804 --> 00:23:00.565 like, you know, Bagley's gone

NOTE Confidence: 0.9900468

00:23:00.565 --> 00:23:01.605 on to write in other

NOTE Confidence: 0.9900468

00:23:01.605 --> 00:23:03.605 areas that many people in

NOTE Confidence: 0.9900468

00:23:03.605 --> 00:23:04.105 industry

NOTE Confidence: 0.939209

00:23:04.565 --> 00:23:06.004 don't even trust that the

NOTE Confidence: 0.939209

00:23:06.004 --> 00:23:06.884 studies that come out of

NOTE Confidence: 0.939209

00:23:06.884 --> 00:23:08.325 nature and science at times

NOTE Confidence: 0.939209

00:23:08.325 --> 00:23:09.684 because sometimes they can be

NOTE Confidence: 0.939209

00:23:09.684 --> 00:23:10.184 so,

NOTE Confidence: 1

00:23:10.559 --> 00:23:10.720 like,

NOTE Confidence: 0.97737885

00:23:11.359 --> 00:23:13.200 extreme in their results. And

NOTE Confidence: 0.97737885

00:23:13.200 --> 00:23:14.320 so here are, again, are

NOTE Confidence: 0.97737885

00:23:14.320 --> 00:23:16.000 are are, like, highest scientific

NOTE Confidence: 0.97737885

00:23:16.000 --> 00:23:17.840 journals, and there's a question

NOTE Confidence: 0.97737885

00:23:17.840 --> 00:23:19.359 about what what we're doing

NOTE Confidence: 0.97737885

00:23:19.359 --> 00:23:20.399 with the the results that

NOTE Confidence: 0.97737885

00:23:20.399 --> 00:23:21.139 we're discovering.

NOTE Confidence: 0.99902344

00:23:22.080 --> 00:23:23.299 Alright. So

NOTE Confidence: 0.97933596

00:23:23.744 --> 00:23:24.705 I hope I've convinced you

NOTE Confidence: 0.97933596

00:23:24.705 --> 00:23:25.505 a little bit that there

NOTE Confidence: 0.97933596

00:23:25.505 --> 00:23:27.125 is this issue around replication

NOTE Confidence: 0.97933596

00:23:27.265 --> 00:23:28.705 in research and, you know,

NOTE Confidence: 0.97933596

00:23:28.705 --> 00:23:29.925 one of the issues that's,

NOTE Confidence: 0.99210614

00:23:30.545 --> 00:23:31.665 you know, very important for

NOTE Confidence: 0.99210614

00:23:31.665 --> 00:23:32.545 us to kind of,

NOTE Confidence: 0.9863281

00:23:33.025 --> 00:23:33.525 understand.

NOTE Confidence: 0.99818254

00:23:34.225 --> 00:23:35.184 I'm gonna talk a little

NOTE Confidence: 0.99818254

00:23:35.184 --> 00:23:36.625 bit now about why it

NOTE Confidence: 0.99818254

00:23:36.625 --> 00:23:38.385 may be occurring and recent

NOTE Confidence: 0.99818254

00:23:38.385 --> 00:23:39.605 drivers in it.

NOTE Confidence: 0.974292

00:23:41.080 --> 00:23:41.960 So I think it all

NOTE Confidence: 0.974292

00:23:41.960 --> 00:23:43.559 comes back to this idea

NOTE Confidence: 0.974292

00:23:43.559 --> 00:23:45.100 or concept of, like, metascience.

NOTE Confidence: 0.9994187

00:23:45.400 --> 00:23:46.840 And metascience is a very

NOTE Confidence: 0.9994187

00:23:46.840 --> 00:23:47.820 interesting term.

NOTE Confidence: 0.99958146

00:23:48.440 --> 00:23:50.280 It really refers to using

NOTE Confidence: 0.99958146

00:23:50.280 --> 00:23:51.020 the tools

NOTE Confidence: 0.9989827

00:23:51.480 --> 00:23:53.720 of science itself to study

NOTE Confidence: 0.9989827

00:23:53.720 --> 00:23:55.244 the science. Right? And, you

NOTE Confidence: 0.9989827

00:23:55.244 --> 00:23:55.984 know, probably,

NOTE Confidence: 0.9968951

00:23:57.405 --> 00:23:58.365 you know, the person that's

NOTE Confidence: 0.9968951

00:23:58.365 --> 00:23:59.965 been most identified with the

NOTE Confidence: 0.9968951

00:23:59.965 --> 00:24:01.265 idea of metascience

NOTE Confidence: 0.9325342

00:24:01.725 --> 00:24:02.845 and and certainly one of

NOTE Confidence: 0.9325342

00:24:02.845 --> 00:24:04.045 the most famous papers in

NOTE Confidence: 0.9325342

00:24:04.045 --> 00:24:05.325 this space is this one

NOTE Confidence: 0.9325342

00:24:05.325 --> 00:24:07.005 by John Ioannidis, a single

NOTE Confidence: 0.9325342

00:24:07.005 --> 00:24:08.285 author study that was in

NOTE Confidence: 0.9325342

00:24:08.285 --> 00:24:08.785 PLOS,

NOTE Confidence: 0.98999023

00:24:09.650 --> 00:24:10.869 and it had the provocative

NOTE Confidence: 0.98999023

00:24:10.929 --> 00:24:12.450 title of why most published

NOTE Confidence: 0.98999023

00:24:12.450 --> 00:24:13.990 research findings are false.

NOTE Confidence: 0.9916016

00:24:15.409 --> 00:24:16.609 You know, in this, he

NOTE Confidence: 0.9916016

00:24:16.609 --> 00:24:18.309 goes through this entire simulation

NOTE Confidence: 0.96777344

00:24:18.770 --> 00:24:19.270 modeling

NOTE Confidence: 0.99575806

00:24:19.650 --> 00:24:21.570 around, you know, the the

NOTE Confidence: 0.99575806

00:24:21.570 --> 00:24:23.234 scientific enterprise and why it

NOTE Confidence: 0.99575806

00:24:23.234 --> 00:24:25.155 seems to generate false positive

NOTE Confidence: 0.99575806

00:24:25.155 --> 00:24:25.655 results.

NOTE Confidence: 0.97276086

00:24:26.755 --> 00:24:28.915 He actually created a specific

NOTE Confidence: 0.97276086

00:24:28.915 --> 00:24:30.595 term within his models of

NOTE Confidence: 0.97276086

00:24:30.595 --> 00:24:32.515 bias, and he defined bias

NOTE Confidence: 0.97276086

00:24:32.515 --> 00:24:33.895 or mu as the combination

NOTE Confidence: 0.97276086

00:24:34.035 --> 00:24:36.375 of various design data analysis

NOTE Confidence: 0.97276086

00:24:36.435 --> 00:24:37.734 and presentation factors

NOTE Confidence: 0.99839276

00:24:38.140 --> 00:24:39.500 that tend to produce research

NOTE Confidence: 0.99839276

00:24:39.500 --> 00:24:40.859 findings when they should not

NOTE Confidence: 0.99839276

00:24:40.859 --> 00:24:41.600 be produced.

NOTE Confidence: 0.972998

00:24:42.220 --> 00:24:43.179 And he went on to

NOTE Confidence: 0.972998

00:24:43.179 --> 00:24:45.440 say that studies in general

NOTE Confidence: 0.99790734

00:24:45.740 --> 00:24:46.940 are less likely to be

NOTE Confidence: 0.99790734

00:24:46.940 --> 00:24:48.940 true based on several factors.

NOTE Confidence: 0.99790734

00:24:48.940 --> 00:24:50.000 Some of these are,

NOTE Confidence: 0.9203288

00:24:50.780 --> 00:24:51.679 you know, pretty,

NOTE Confidence: 0.9992676

00:24:52.695 --> 00:24:53.595 pretty understandable.

NOTE Confidence: 0.95253617

00:24:54.534 --> 00:24:55.734 The first is obviously the

NOTE Confidence: 0.95253617

00:24:55.734 --> 00:24:57.255 smaller the study design, the

NOTE Confidence: 0.95253617

00:24:57.255 --> 00:24:58.215 more likely it is an

NOTE Confidence: 0.95253617

00:24:58.215 --> 00:24:59.195 outlier finding.

NOTE Confidence: 0.9969727

00:24:59.494 --> 00:25:00.855 The smaller the the true

NOTE Confidence: 0.9969727

00:25:00.855 --> 00:25:02.695 effect size, the less likely

NOTE Confidence: 0.9969727

00:25:02.695 --> 00:25:03.835 it is to be true.

NOTE Confidence: 0.9937221

00:25:04.580 --> 00:25:05.700 The greater the number of

NOTE Confidence: 0.9937221

00:25:05.700 --> 00:25:06.840 relationships studied

NOTE Confidence: 0.96725464

00:25:07.140 --> 00:25:09.300 with less discriminate selection, that

NOTE Confidence: 0.96725464

00:25:09.300 --> 00:25:10.740 also is gonna increase the

NOTE Confidence: 0.96725464

00:25:10.740 --> 00:25:12.260 likelihood of a false positive

NOTE Confidence: 0.96725464

00:25:12.260 --> 00:25:12.760 finding.

NOTE Confidence: 0.9802246

00:25:13.380 --> 00:25:14.420 Some of these things, though,

NOTE Confidence: 0.9802246

00:25:14.420 --> 00:25:16.180 were actually really interesting in

NOTE Confidence: 0.9802246

00:25:16.180 --> 00:25:16.920 his modeling.

NOTE Confidence: 0.95518273

00:25:17.365 --> 00:25:18.484 One of them was the

NOTE Confidence: 0.95518273

00:25:18.484 --> 00:25:20.085 the greater the flexibility and

NOTE Confidence: 0.95518273

00:25:20.085 --> 00:25:21.765 design, the more likelihood,

NOTE Confidence: 0.9821533

00:25:23.284 --> 00:25:24.644 that the study would be

NOTE Confidence: 0.9821533

00:25:24.644 --> 00:25:26.024 less likely to be true.

NOTE Confidence: 0.9807617

00:25:26.404 --> 00:25:28.105 Greater the financial and intellectual

NOTE Confidence: 0.9807617

00:25:28.244 --> 00:25:30.024 conflicts of interest, more teams

NOTE Confidence: 0.96881974

00:25:30.380 --> 00:25:31.580 kind of engaged in that

NOTE Confidence: 0.96881974

00:25:31.580 --> 00:25:33.180 science seem to kind of

NOTE Confidence: 0.96881974

00:25:33.180 --> 00:25:34.540 also result in that. And

NOTE Confidence: 0.96881974

00:25:34.540 --> 00:25:35.900 then, obviously, the hotter the

NOTE Confidence: 0.96881974

00:25:35.900 --> 00:25:36.400 topic.

NOTE Confidence: 0.9992676

00:25:39.180 --> 00:25:40.320 Okay. So

NOTE Confidence: 0.9727071

00:25:41.180 --> 00:25:43.100 if studies are likely in

NOTE Confidence: 0.9727071

00:25:43.100 --> 00:25:45.025 this way to be untrue,

NOTE Confidence: 0.9727071

00:25:45.085 --> 00:25:46.044 you know, why might that

NOTE Confidence: 0.9727071

00:25:46.044 --> 00:25:46.924 be driving it? And I'm

NOTE Confidence: 0.9727071

00:25:46.924 --> 00:25:48.205 gonna point to three things

NOTE Confidence: 0.9727071

00:25:48.205 --> 00:25:49.405 that I think have been

NOTE Confidence: 0.9727071

00:25:49.405 --> 00:25:50.785 kind of key aspects here.

NOTE Confidence: 0.9727071

00:25:51.005 --> 00:25:52.684 The first is I think

NOTE Confidence: 0.9727071

00:25:52.684 --> 00:25:53.405 we have to have a

NOTE Confidence: 0.9727071

00:25:53.405 --> 00:25:54.304 little bit more,

NOTE Confidence: 0.99965125

00:25:54.924 --> 00:25:57.005 understanding of statistical limitations of

NOTE Confidence: 0.99965125

00:25:57.005 --> 00:25:57.869 current methods.

NOTE Confidence: 0.97398543

00:25:58.830 --> 00:26:00.109 I think the first is

NOTE Confidence: 0.97398543

00:26:00.109 --> 00:26:01.650 one that's that's well described

NOTE Confidence: 0.97398543

00:26:01.710 --> 00:26:03.070 which is the tyranny of

NOTE Confidence: 0.97398543

00:26:03.070 --> 00:26:03.970 the p value.

NOTE Confidence: 0.9894816

00:26:04.430 --> 00:26:05.309 You know, we we live

NOTE Confidence: 0.9894816

00:26:05.309 --> 00:26:06.270 in a world of these

NOTE Confidence: 0.9894816

00:26:06.270 --> 00:26:07.570 frequentist statistics

NOTE Confidence: 0.97867185

00:26:08.030 --> 00:26:09.790 and they ignore prior evidence

NOTE Confidence: 0.97867185

00:26:09.790 --> 00:26:11.655 when interpreting findings. And and

NOTE Confidence: 0.97867185

00:26:11.655 --> 00:26:12.455 the way that this has

NOTE Confidence: 0.97867185

00:26:12.455 --> 00:26:13.655 an impact is if if

NOTE Confidence: 0.97867185

00:26:13.655 --> 00:26:15.115 you think about p values,

NOTE Confidence: 0.99316406

00:26:15.494 --> 00:26:16.855 you know, p values are

NOTE Confidence: 0.99316406

00:26:16.855 --> 00:26:18.715 not how likely a hypothesis

NOTE Confidence: 0.99316406

00:26:18.935 --> 00:26:19.835 is to be true,

NOTE Confidence: 0.96014404

00:26:20.375 --> 00:26:21.494 but it really just is

NOTE Confidence: 0.96014404

00:26:21.494 --> 00:26:22.955 simply how surprised

NOTE Confidence: 0.97786456

00:26:23.494 --> 00:26:24.475 should you be,

NOTE Confidence: 0.98497593

00:26:25.340 --> 00:26:26.780 with the data you've collected

NOTE Confidence: 0.98497593

00:26:26.780 --> 00:26:28.780 if no relationship exists. Right?

NOTE Confidence: 0.98497593

00:26:28.780 --> 00:26:29.760 That's the exact,

NOTE Confidence: 0.9928669

00:26:30.700 --> 00:26:31.980 term and definition of it.

NOTE Confidence: 0.9928669

00:26:31.980 --> 00:26:33.180 And and when you look

NOTE Confidence: 0.9928669

00:26:33.180 --> 00:26:34.540 at the implications of this,

NOTE Confidence: 0.9928669

00:26:34.540 --> 00:26:35.820 it it it does have,

NOTE Confidence: 0.9928669

00:26:35.820 --> 00:26:36.880 like, some striking,

NOTE Confidence: 1

00:26:37.900 --> 00:26:38.400 consequences.

NOTE Confidence: 0.98249984

00:26:39.915 --> 00:26:41.035 So if you have, like,

NOTE Confidence: 0.98249984

00:26:41.035 --> 00:26:43.035 a toss-up idea, hypothesis that's

NOTE Confidence: 0.98249984

00:26:43.035 --> 00:26:44.315 likely to be true or

NOTE Confidence: 0.98249984

00:26:44.315 --> 00:26:45.195 not true at a rate

NOTE Confidence: 0.98249984

00:26:45.195 --> 00:26:46.494 of about fifty percent,

NOTE Confidence: 0.99749756

00:26:46.875 --> 00:26:47.675 and you have a p

NOTE Confidence: 0.99749756

00:26:47.675 --> 00:26:49.375 value of point zero five,

NOTE Confidence: 0.99749756

00:26:49.595 --> 00:26:50.494 you've nudged

NOTE Confidence: 1

00:26:51.115 --> 00:26:52.175 that hypothesis

NOTE Confidence: 0.97455513

00:26:52.475 --> 00:26:53.755 from a likelihood of being

NOTE Confidence: 0.97455513

00:26:53.755 --> 00:26:55.035 true from fifty percent to

NOTE Confidence: 0.97455513

00:26:55.035 --> 00:26:56.679 about seventy one percent. The

NOTE Confidence: 0.97455513

00:26:56.679 --> 00:26:57.880 p value is point zero

NOTE Confidence: 0.97455513

00:26:57.880 --> 00:26:59.159 one, goes up to about

NOTE Confidence: 0.97455513

00:26:59.159 --> 00:27:00.519 eighty nine percent. Feel a

NOTE Confidence: 0.97455513

00:27:00.519 --> 00:27:01.720 little bit more confident about

NOTE Confidence: 0.97455513

00:27:01.720 --> 00:27:02.220 it.

NOTE Confidence: 0.8041992

00:27:02.840 --> 00:27:03.340 Now,

NOTE Confidence: 0.99654716

00:27:03.799 --> 00:27:05.480 traditionally, science is about this.

NOTE Confidence: 0.99654716

00:27:05.480 --> 00:27:06.759 Right? When you're gonna invest

NOTE Confidence: 0.99654716

00:27:06.759 --> 00:27:08.380 resources, you wanna have,

NOTE Confidence: 0.99069136

00:27:08.755 --> 00:27:10.674 you know, a hypothesis that's

NOTE Confidence: 0.99069136

00:27:10.674 --> 00:27:11.875 likely to be true as

NOTE Confidence: 0.99069136

00:27:11.875 --> 00:27:13.155 not likely. Right? I mean,

NOTE Confidence: 0.99069136

00:27:13.155 --> 00:27:14.115 you know, we even use

NOTE Confidence: 0.99069136

00:27:14.115 --> 00:27:15.715 this language when we talk

NOTE Confidence: 0.99069136

00:27:15.715 --> 00:27:16.914 to patients and recruit them

NOTE Confidence: 0.99069136

00:27:16.914 --> 00:27:17.875 for studies. We say a

NOTE Confidence: 0.99069136

00:27:17.875 --> 00:27:18.934 flip of the coin.

NOTE Confidence: 0.99902344

00:27:20.034 --> 00:27:20.534 Now

NOTE Confidence: 0.9937744

00:27:20.850 --> 00:27:22.210 if you're studying something that

NOTE Confidence: 0.9937744

00:27:22.210 --> 00:27:23.750 you already know that works,

NOTE Confidence: 0.9937744

00:27:23.809 --> 00:27:25.010 yeah, you know, p values

NOTE Confidence: 0.9937744

00:27:25.010 --> 00:27:26.210 that are significant are gonna

NOTE Confidence: 0.9937744

00:27:26.210 --> 00:27:27.730 nudge it even further, but

NOTE Confidence: 0.9937744

00:27:27.730 --> 00:27:28.690 it seems a little bit

NOTE Confidence: 0.9937744

00:27:28.690 --> 00:27:30.070 pointless at that point.

NOTE Confidence: 0.9286702

00:27:30.530 --> 00:27:32.130 But here's the concern is

NOTE Confidence: 0.9286702

00:27:32.130 --> 00:27:32.630 increasingly,

NOTE Confidence: 0.9869472

00:27:33.515 --> 00:27:34.955 I think studies are actually

NOTE Confidence: 0.9869472

00:27:34.955 --> 00:27:36.395 investigating things on the long

NOTE Confidence: 0.9869472

00:27:36.395 --> 00:27:37.515 shot. And I'm not sure

NOTE Confidence: 0.9869472

00:27:37.515 --> 00:27:38.955 if we're being as, you

NOTE Confidence: 0.9869472

00:27:38.955 --> 00:27:40.715 know, transparent about that when

NOTE Confidence: 0.9869472

00:27:40.715 --> 00:27:41.775 it happens. Right?

NOTE Confidence: 0.98781276

00:27:42.155 --> 00:27:43.115 When you have a five

NOTE Confidence: 0.98781276

00:27:43.115 --> 00:27:44.395 percent chance of a real

NOTE Confidence: 0.98781276

00:27:44.395 --> 00:27:46.075 effect, but you're studying it,

NOTE Confidence: 0.98781276

00:27:46.075 --> 00:27:46.795 you can get a p

NOTE Confidence: 0.98781276

00:27:46.795 --> 00:27:48.210 value, and all that's done

NOTE Confidence: 0.98781276

00:27:48.210 --> 00:27:49.410 is change that to an

NOTE Confidence: 0.98781276

00:27:49.410 --> 00:27:50.690 eleven percent chance of a

NOTE Confidence: 0.98781276

00:27:50.690 --> 00:27:51.429 real effect.

NOTE Confidence: 0.97495484

00:27:52.050 --> 00:27:53.570 And the the the comments

NOTE Confidence: 0.97495484

00:27:53.570 --> 00:27:54.450 I'll make a little bit

NOTE Confidence: 0.97495484

00:27:54.450 --> 00:27:56.210 later about the increasing in

NOTE Confidence: 0.97495484

00:27:56.210 --> 00:27:58.050 data sizes and increasing the

NOTE Confidence: 0.97495484

00:27:58.050 --> 00:27:59.490 exploration and just the volume

NOTE Confidence: 0.97495484

00:27:59.490 --> 00:28:00.609 of studies that are coming

NOTE Confidence: 0.97495484

00:28:00.609 --> 00:28:01.665 through, I have to be

NOTE Confidence: 0.97495484

00:28:01.665 --> 00:28:02.945 honest. I think that more

NOTE Confidence: 0.97495484

00:28:02.945 --> 00:28:04.385 and more studies are being

NOTE Confidence: 0.97495484

00:28:04.385 --> 00:28:05.505 done with the mindset of

NOTE Confidence: 0.97495484

00:28:05.505 --> 00:28:06.485 the long shot.

NOTE Confidence: 0.99449325

00:28:08.545 --> 00:28:09.425 What else can make a

NOTE Confidence: 0.99449325

00:28:09.425 --> 00:28:10.625 difference? Well, I mean, there's

NOTE Confidence: 0.99449325

00:28:10.625 --> 00:28:12.485 obviously the concern around researcher

NOTE Confidence: 0.99449325

00:28:12.545 --> 00:28:13.605 degrees of freedom.

NOTE Confidence: 0.99624026

00:28:13.970 --> 00:28:14.770 So what do I mean

NOTE Confidence: 0.99624026

00:28:14.770 --> 00:28:16.150 by that? I mean that

NOTE Confidence: 0.98590374

00:28:16.530 --> 00:28:18.290 researchers just don't conduct an

NOTE Confidence: 0.98590374

00:28:18.290 --> 00:28:20.450 experiment. They conduct many experiments.

NOTE Confidence: 0.98590374

00:28:20.450 --> 00:28:21.330 You know, just go back

NOTE Confidence: 0.98590374

00:28:21.330 --> 00:28:22.930 to the Nozick example. Right?

NOTE Confidence: 0.98590374

00:28:22.930 --> 00:28:23.730 Like I said, he could

NOTE Confidence: 0.98590374

00:28:23.730 --> 00:28:24.690 have done any one of

NOTE Confidence: 0.98590374

00:28:24.690 --> 00:28:26.415 those twenty nine studies and

NOTE Confidence: 0.98590374

00:28:26.415 --> 00:28:27.935 picked and chose which one,

NOTE Confidence: 0.98590374

00:28:27.935 --> 00:28:28.995 and we would have never

NOTE Confidence: 0.98590374

00:28:29.135 --> 00:28:30.415 known which one that his

NOTE Confidence: 0.98590374

00:28:30.415 --> 00:28:32.255 group had actually, you know,

NOTE Confidence: 0.98590374

00:28:32.255 --> 00:28:32.755 settled

NOTE Confidence: 0.99853516

00:28:33.295 --> 00:28:34.655 on. And that leads to

NOTE Confidence: 0.99853516

00:28:34.655 --> 00:28:36.115 the potential for p hacking.

NOTE Confidence: 0.99853516

00:28:36.175 --> 00:28:36.675 Right?

NOTE Confidence: 0.9837962

00:28:36.975 --> 00:28:38.095 And it doesn't have to

NOTE Confidence: 0.9837962

00:28:38.095 --> 00:28:39.535 be in a nefarious way.

NOTE Confidence: 0.9837962

00:28:39.535 --> 00:28:41.375 Right? As researchers, anyone who's

NOTE Confidence: 0.9837962

00:28:41.375 --> 00:28:42.809 in the trenches knows we

NOTE Confidence: 0.9837962

00:28:42.809 --> 00:28:44.010 all make these decisions on

NOTE Confidence: 0.9837962

00:28:44.010 --> 00:28:44.970 a day to day basis.

NOTE Confidence: 0.9837962

00:28:44.970 --> 00:28:46.169 Right? We we have to

NOTE Confidence: 0.9837962

00:28:46.169 --> 00:28:47.130 think like, oh, should we

NOTE Confidence: 0.9837962

00:28:47.130 --> 00:28:48.890 collect more data? Should some

NOTE Confidence: 0.9837962

00:28:48.890 --> 00:28:50.410 observations be excluded? They just

NOTE Confidence: 0.9837962

00:28:50.410 --> 00:28:52.250 don't make sense. Right? Which

NOTE Confidence: 0.9837962

00:28:52.250 --> 00:28:53.929 control variable should actually even

NOTE Confidence: 0.9837962

00:28:53.929 --> 00:28:54.669 be considered?

NOTE Confidence: 0.98598343

00:28:55.210 --> 00:28:56.684 And then, you know, we

NOTE Confidence: 0.98598343

00:28:56.684 --> 00:28:57.884 all have a limited amount

NOTE Confidence: 0.98598343

00:28:57.884 --> 00:28:59.485 of bandwidth. Right? So we

NOTE Confidence: 0.98598343

00:28:59.485 --> 00:29:00.144 end up

NOTE Confidence: 0.9974437

00:29:00.605 --> 00:29:02.284 being biased to report and

NOTE Confidence: 0.9974437

00:29:02.284 --> 00:29:03.884 publish only what works. Right?

NOTE Confidence: 0.9974437

00:29:03.884 --> 00:29:05.085 This is the classic file

NOTE Confidence: 0.9974437

00:29:05.085 --> 00:29:05.985 drawer problem.

NOTE Confidence: 0.9833171

00:29:06.445 --> 00:29:07.804 You know, we we've done

NOTE Confidence: 0.9833171

00:29:07.804 --> 00:29:09.565 a number of analyses that

NOTE Confidence: 0.9833171

00:29:09.565 --> 00:29:10.764 just didn't seem like they

NOTE Confidence: 0.9833171

00:29:10.764 --> 00:29:11.745 were going anywhere.

NOTE Confidence: 0.98069376

00:29:12.150 --> 00:29:13.590 And, you know, to to

NOTE Confidence: 0.98069376

00:29:13.590 --> 00:29:14.870 spend the limited amount of

NOTE Confidence: 0.98069376

00:29:14.870 --> 00:29:15.830 time we have as a

NOTE Confidence: 0.98069376

00:29:15.830 --> 00:29:17.590 lab to report those out

NOTE Confidence: 0.98069376

00:29:17.590 --> 00:29:18.470 and then try to find

NOTE Confidence: 0.98069376

00:29:18.470 --> 00:29:19.670 someone who's willing to publish

NOTE Confidence: 0.98069376

00:29:19.670 --> 00:29:21.110 it just doesn't happen. And

NOTE Confidence: 0.98069376

00:29:21.110 --> 00:29:23.110 so those actually sit, again,

NOTE Confidence: 0.98069376

00:29:23.110 --> 00:29:24.790 in someone's file drawer while

NOTE Confidence: 0.98069376

00:29:24.790 --> 00:29:26.310 the positive studies end up

NOTE Confidence: 0.98069376

00:29:26.310 --> 00:29:26.805 getting,

NOTE Confidence: 0.99472654

00:29:27.125 --> 00:29:28.425 pushed out to our literature.

NOTE Confidence: 0.9872825

00:29:29.205 --> 00:29:30.085 And then finally, I just

NOTE Confidence: 0.9872825

00:29:30.085 --> 00:29:31.525 wanna talk about study design

NOTE Confidence: 0.9872825

00:29:31.525 --> 00:29:32.025 limitations.

NOTE Confidence: 0.97548133

00:29:33.605 --> 00:29:34.805 You know, it it's it's

NOTE Confidence: 0.97548133

00:29:34.805 --> 00:29:36.245 interesting. You know, Yuan and

NOTE Confidence: 0.97548133

00:29:36.245 --> 00:29:37.385 I had a great conversation

NOTE Confidence: 0.97548133

00:29:37.445 --> 00:29:38.965 earlier today about just the

NOTE Confidence: 0.97548133

00:29:38.965 --> 00:29:40.885 questions of data collection and

NOTE Confidence: 0.97548133

00:29:40.885 --> 00:29:42.425 outcomes measurements. Right?

NOTE Confidence: 0.9991319

00:29:43.310 --> 00:29:44.190 Like, we live in a

NOTE Confidence: 0.9991319

00:29:44.190 --> 00:29:45.890 world that's changed significantly

NOTE Confidence: 0.9980469

00:29:46.190 --> 00:29:47.070 from when I was a

NOTE Confidence: 0.9980469

00:29:47.070 --> 00:29:47.570 fellow.

NOTE Confidence: 0.99749756

00:29:48.030 --> 00:29:49.150 You know, we do studies

NOTE Confidence: 0.99749756

00:29:49.150 --> 00:29:50.610 now on digital,

NOTE Confidence: 0.91593426

00:29:51.310 --> 00:29:52.450 digital health tools.

NOTE Confidence: 0.990339

00:29:52.910 --> 00:29:54.190 And, you know, we have

NOTE Confidence: 0.990339

00:29:54.190 --> 00:29:55.870 analytic files that literally have,

NOTE Confidence: 0.990339

00:29:55.870 --> 00:29:57.250 like, billions of cells.

NOTE Confidence: 0.9901123

00:29:57.685 --> 00:29:58.265 And there's

NOTE Confidence: 0.991333

00:29:58.645 --> 00:30:00.645 so much analytic complexity to,

NOTE Confidence: 0.991333

00:30:00.645 --> 00:30:02.325 like, condensing that down to,

NOTE Confidence: 0.991333

00:30:02.325 --> 00:30:03.865 like, actual manageable data.

NOTE Confidence: 0.9685846

00:30:04.885 --> 00:30:06.245 You know, these these data

NOTE Confidence: 0.9685846

00:30:06.245 --> 00:30:07.365 is in many ways, you

NOTE Confidence: 0.9685846

00:30:07.365 --> 00:30:08.085 know, you have to have,

NOTE Confidence: 0.9685846

00:30:08.085 --> 00:30:09.205 like, almost a leap of

NOTE Confidence: 0.9685846

00:30:09.205 --> 00:30:11.460 faith, right, around, like, is

NOTE Confidence: 0.9685846

00:30:11.460 --> 00:30:12.820 is this actually measuring what

NOTE Confidence: 0.9685846

00:30:12.820 --> 00:30:14.340 we think it's measuring? You

NOTE Confidence: 0.9685846

00:30:14.340 --> 00:30:15.460 know? How do we set

NOTE Confidence: 0.9685846

00:30:15.460 --> 00:30:17.220 up, like, guardrails around that?

NOTE Confidence: 0.9685846

00:30:17.220 --> 00:30:18.100 And I'll talk a little

NOTE Confidence: 0.9685846

00:30:18.100 --> 00:30:19.620 bit about our own team's

NOTE Confidence: 0.9685846

00:30:19.620 --> 00:30:20.740 experience with some of the

NOTE Confidence: 0.9685846

00:30:20.740 --> 00:30:21.240 complexity,

NOTE Confidence: 0.99902344

00:30:21.780 --> 00:30:22.679 in that area.

NOTE Confidence: 0.99448395

00:30:23.220 --> 00:30:24.659 And then, obviously, there's always

NOTE Confidence: 0.99448395

00:30:24.659 --> 00:30:27.355 these challenges of causal inference.

NOTE Confidence: 0.99448395

00:30:27.415 --> 00:30:28.375 Right? And this is an

NOTE Confidence: 0.99448395

00:30:28.375 --> 00:30:29.895 area that, you know, real

NOTE Confidence: 0.99448395

00:30:29.895 --> 00:30:31.175 world evidence has made its

NOTE Confidence: 0.99448395

00:30:31.175 --> 00:30:32.455 way back into a lot

NOTE Confidence: 0.99448395

00:30:32.455 --> 00:30:33.035 of discussion.

NOTE Confidence: 0.99780273

00:30:33.335 --> 00:30:34.695 I think there's definitely some

NOTE Confidence: 0.99780273

00:30:34.695 --> 00:30:35.195 opportunities,

NOTE Confidence: 0.97892255

00:30:36.215 --> 00:30:37.895 for understanding how that data

NOTE Confidence: 0.97892255

00:30:37.895 --> 00:30:39.355 can kind of complement,

NOTE Confidence: 0.9826544

00:30:40.030 --> 00:30:41.550 questions. But, you know, is

NOTE Confidence: 0.9826544

00:30:41.550 --> 00:30:43.150 it enough to always draw

NOTE Confidence: 0.9826544

00:30:43.150 --> 00:30:44.910 that causal inference? And this

NOTE Confidence: 0.9826544

00:30:44.910 --> 00:30:46.190 is something that's real. Right?

NOTE Confidence: 0.9826544

00:30:46.190 --> 00:30:46.690 Like,

NOTE Confidence: 0.87841797

00:30:47.950 --> 00:30:48.450 Kirsten,

NOTE Confidence: 0.9786612

00:30:48.750 --> 00:30:50.430 Bimmons Domingo, who's the editor

NOTE Confidence: 0.9786612

00:30:50.430 --> 00:30:52.190 chief of JAMA, has really

NOTE Confidence: 0.9786612

00:30:52.190 --> 00:30:53.715 talked about how we need

NOTE Confidence: 0.9786612

00:30:53.715 --> 00:30:54.835 to think about ways in

NOTE Confidence: 0.9786612

00:30:54.835 --> 00:30:56.215 which we can leverage observational

NOTE Confidence: 0.9786612

00:30:56.355 --> 00:30:56.855 studies

NOTE Confidence: 0.97212577

00:30:57.235 --> 00:30:58.775 to to draw causal inferences,

NOTE Confidence: 0.97212577

00:30:58.835 --> 00:31:00.755 but there's always concerns and

NOTE Confidence: 0.97212577

00:31:00.755 --> 00:31:02.595 dangers about that path. It's

NOTE Confidence: 0.97212577

00:31:02.595 --> 00:31:04.195 something certainly that in medicine

NOTE Confidence: 0.97212577

00:31:04.195 --> 00:31:05.554 we've gone down a number

NOTE Confidence: 0.97212577

00:31:05.554 --> 00:31:06.215 of times.

NOTE Confidence: 0.9800677

00:31:07.800 --> 00:31:09.160 And then finally, just even

NOTE Confidence: 0.9800677

00:31:09.160 --> 00:31:10.600 the question of even ideal

NOTE Confidence: 0.9800677

00:31:10.600 --> 00:31:12.060 study designs are vulnerable,

NOTE Confidence: 0.9716088

00:31:13.480 --> 00:31:15.240 particularly, given the relevance of

NOTE Confidence: 0.9716088

00:31:15.240 --> 00:31:17.020 the question and population. And,

NOTE Confidence: 0.9716088

00:31:17.080 --> 00:31:17.800 you know, one of my

NOTE Confidence: 0.9716088

00:31:17.800 --> 00:31:19.240 favorite examples is a study

NOTE Confidence: 0.9716088

00:31:19.240 --> 00:31:20.200 that we were involved with.

NOTE Confidence: 0.9716088

00:31:20.200 --> 00:31:21.080 We were able to do

NOTE Confidence: 0.9716088

00:31:21.080 --> 00:31:21.580 with

NOTE Confidence: 0.8630371

00:31:21.975 --> 00:31:23.275 Bobby Yeh and,

NOTE Confidence: 0.9862305

00:31:24.295 --> 00:31:25.595 you know, the Smith Center.

NOTE Confidence: 0.96876436

00:31:25.895 --> 00:31:26.934 You know, we we published

NOTE Confidence: 0.96876436

00:31:26.934 --> 00:31:28.554 a paper about how parachute

NOTE Confidence: 0.96876436

00:31:28.695 --> 00:31:30.615 use, which has oftentimes been

NOTE Confidence: 0.96876436

00:31:30.615 --> 00:31:31.595 described as,

NOTE Confidence: 0.9980469

00:31:31.895 --> 00:31:32.554 you know,

NOTE Confidence: 0.9983724

00:31:33.095 --> 00:31:34.295 something that doesn't need a

NOTE Confidence: 0.9983724

00:31:34.295 --> 00:31:34.795 randomized

NOTE Confidence: 0.9367327

00:31:35.210 --> 00:31:36.570 control trial and has never

NOTE Confidence: 0.9367327

00:31:36.570 --> 00:31:37.230 had one.

NOTE Confidence: 0.9753282

00:31:38.490 --> 00:31:40.010 You know, so we we

NOTE Confidence: 0.9753282

00:31:40.010 --> 00:31:41.130 went out and we tested

NOTE Confidence: 0.9753282

00:31:41.130 --> 00:31:42.410 parachute use, and we found

NOTE Confidence: 0.9753282

00:31:42.410 --> 00:31:43.870 that it actually,

NOTE Confidence: 0.9970432

00:31:44.170 --> 00:31:45.210 as you can see, did

NOTE Confidence: 0.9970432

00:31:45.210 --> 00:31:46.410 not reduce death or a

NOTE Confidence: 0.9970432

00:31:46.410 --> 00:31:48.090 major traumatic injury when jumping

NOTE Confidence: 0.9970432

00:31:48.090 --> 00:31:48.990 from an aircraft.

NOTE Confidence: 0.97868854

00:31:49.534 --> 00:31:50.735 And the the whole tongue

NOTE Confidence: 0.97868854

00:31:50.735 --> 00:31:51.774 in cheek play of that

NOTE Confidence: 0.97868854

00:31:51.774 --> 00:31:52.894 was the aircraft were on

NOTE Confidence: 0.97868854

00:31:52.894 --> 00:31:54.174 the ground, so the jump

NOTE Confidence: 0.97868854

00:31:54.174 --> 00:31:55.475 was about four feet.

NOTE Confidence: 0.98592705

00:31:56.174 --> 00:31:57.054 And so it just makes

NOTE Confidence: 0.98592705

00:31:57.054 --> 00:31:58.095 you realize, like, even if

NOTE Confidence: 0.98592705

00:31:58.095 --> 00:31:59.154 you have that label

NOTE Confidence: 0.9699219

00:31:59.455 --> 00:32:01.054 of, like, a randomized controlled

NOTE Confidence: 0.9699219

00:32:01.054 --> 00:32:02.995 trial, it doesn't necessarily mean

NOTE Confidence: 0.9835069

00:32:03.310 --> 00:32:04.430 that that's gonna give you

NOTE Confidence: 0.9835069

00:32:04.430 --> 00:32:05.950 the answer you want. And

NOTE Confidence: 0.9835069

00:32:05.950 --> 00:32:06.830 if you don't think that

NOTE Confidence: 0.9835069

00:32:06.830 --> 00:32:08.590 this applies, anybody who's tried

NOTE Confidence: 0.9835069

00:32:08.590 --> 00:32:10.510 to do studies in, like,

NOTE Confidence: 0.9835069

00:32:10.510 --> 00:32:11.570 devices like

NOTE Confidence: 0.9726467

00:32:12.110 --> 00:32:13.710 the Impella or in high

NOTE Confidence: 0.9726467

00:32:13.710 --> 00:32:15.630 risk situations like cardiac arrest

NOTE Confidence: 0.9726467

00:32:15.630 --> 00:32:18.265 care, it's very applicable. Right?

NOTE Confidence: 0.9726467

00:32:18.485 --> 00:32:19.925 Many people think that the

NOTE Confidence: 0.9726467

00:32:19.925 --> 00:32:21.605 the randomized clinical trials being

NOTE Confidence: 0.9726467

00:32:21.605 --> 00:32:23.125 null in the cardiac arrest

NOTE Confidence: 0.9726467

00:32:23.125 --> 00:32:24.425 space are largely because

NOTE Confidence: 0.98395854

00:32:25.125 --> 00:32:26.485 most people are already dead

NOTE Confidence: 0.98395854

00:32:26.485 --> 00:32:27.205 by the time you give

NOTE Confidence: 0.98395854

00:32:27.205 --> 00:32:28.725 them an intervention. And then

NOTE Confidence: 0.98395854

00:32:28.725 --> 00:32:29.385 an intervention,

NOTE Confidence: 0.9989909

00:32:29.730 --> 00:32:30.610 you know, trying to find

NOTE Confidence: 0.9989909

00:32:30.610 --> 00:32:31.650 that spot in which you

NOTE Confidence: 0.9989909

00:32:31.650 --> 00:32:32.950 can actually make an impact,

NOTE Confidence: 0.996303

00:32:33.570 --> 00:32:34.770 and show a benefit is

NOTE Confidence: 0.996303

00:32:34.770 --> 00:32:35.510 more challenging

NOTE Confidence: 1

00:32:35.890 --> 00:32:36.950 than one would imagine.

NOTE Confidence: 0.9997371

00:32:38.450 --> 00:32:39.730 Okay. So if these are

NOTE Confidence: 0.9997371

00:32:39.730 --> 00:32:41.330 all true, what about drivers

NOTE Confidence: 0.9997371

00:32:41.330 --> 00:32:42.309 in recent years?

NOTE Confidence: 0.98404425

00:32:42.705 --> 00:32:43.904 Well, I I wanna speak

NOTE Confidence: 0.98404425

00:32:43.904 --> 00:32:45.424 about this. I I think

NOTE Confidence: 0.98404425

00:32:45.424 --> 00:32:46.385 that this is a very

NOTE Confidence: 0.98404425

00:32:46.385 --> 00:32:47.904 important and core problem we

NOTE Confidence: 0.98404425

00:32:47.904 --> 00:32:49.424 have. You know, the first

NOTE Confidence: 0.98404425

00:32:49.424 --> 00:32:51.024 is this just this idea

NOTE Confidence: 0.98404425

00:32:51.024 --> 00:32:51.524 of

NOTE Confidence: 0.9958787

00:32:51.904 --> 00:32:53.664 wide availability of data and

NOTE Confidence: 0.9958787

00:32:53.664 --> 00:32:55.470 analytical tools. Now there's obviously

NOTE Confidence: 0.9958787

00:32:55.470 --> 00:32:56.830 a positive side to this.

NOTE Confidence: 0.9958787

00:32:56.830 --> 00:32:57.950 I'm gonna talk about a

NOTE Confidence: 0.9958787

00:32:57.950 --> 00:32:59.310 little bit about how this

NOTE Confidence: 0.9958787

00:32:59.310 --> 00:33:01.550 has an underbelly too. And

NOTE Confidence: 0.9958787

00:33:01.550 --> 00:33:02.670 and one of my favorite

NOTE Confidence: 0.9958787

00:33:02.670 --> 00:33:04.210 papers of all time is

NOTE Confidence: 0.9958787

00:33:04.350 --> 00:33:05.410 Rohan's paper.

NOTE Confidence: 0.99930245

00:33:05.790 --> 00:33:06.830 I I'm sure many of

NOTE Confidence: 0.99930245

00:33:06.830 --> 00:33:07.650 you have,

NOTE Confidence: 0.99226457

00:33:07.985 --> 00:33:08.945 you know, seen it or

NOTE Confidence: 0.99226457

00:33:08.945 --> 00:33:10.465 remembered it, but he did

NOTE Confidence: 0.99226457

00:33:10.465 --> 00:33:12.385 this very interesting analysis of

NOTE Confidence: 0.99226457

00:33:12.385 --> 00:33:14.005 the national inpatient sample.

NOTE Confidence: 0.9571289

00:33:14.385 --> 00:33:15.745 You know, the NIS is

NOTE Confidence: 0.9571289

00:33:15.745 --> 00:33:17.365 a a dataset that's provided

NOTE Confidence: 0.9975586

00:33:18.065 --> 00:33:19.445 by the federal government.

NOTE Confidence: 0.94821167

00:33:20.065 --> 00:33:21.905 It uses a a sample

NOTE Confidence: 0.94821167

00:33:21.905 --> 00:33:23.525 of hospital admissions,

NOTE Confidence: 0.99316406

00:33:24.120 --> 00:33:25.160 in the country, and it's

NOTE Confidence: 0.99316406

00:33:25.160 --> 00:33:26.440 weighted in a way that

NOTE Confidence: 0.99316406

00:33:26.440 --> 00:33:28.140 you can make nationwide assessments.

NOTE Confidence: 0.99902344

00:33:28.920 --> 00:33:29.420 And

NOTE Confidence: 0.9862639

00:33:29.880 --> 00:33:31.640 it's a very complicated sampling

NOTE Confidence: 0.9862639

00:33:31.640 --> 00:33:33.000 scheme, and there have to

NOTE Confidence: 0.9862639

00:33:33.000 --> 00:33:34.280 be certain rules in which

NOTE Confidence: 0.9862639

00:33:34.280 --> 00:33:35.580 you follow these methodologic

NOTE Confidence: 0.9845016

00:33:37.125 --> 00:33:38.905 recommendations. Otherwise, you can draw,

NOTE Confidence: 0.9845016

00:33:38.965 --> 00:33:40.905 like, completely incorrect inferences.

NOTE Confidence: 0.988678

00:33:41.525 --> 00:33:42.965 And what Rohan did was

NOTE Confidence: 0.988678

00:33:42.965 --> 00:33:44.185 he just basically,

NOTE Confidence: 0.95815206

00:33:44.885 --> 00:33:45.765 you know, looked through the

NOTE Confidence: 0.95815206

00:33:45.765 --> 00:33:47.445 literature, and he found, number

NOTE Confidence: 0.95815206

00:33:47.445 --> 00:33:48.565 one, that the number of

NOTE Confidence: 0.95815206

00:33:48.565 --> 00:33:50.405 studies using this data set

NOTE Confidence: 0.95815206

00:33:50.405 --> 00:33:51.145 is exploding.

NOTE Confidence: 0.96032715

00:33:51.620 --> 00:33:52.600 But then more interestingly,

NOTE Confidence: 1

00:33:53.620 --> 00:33:55.240 just the number of times

NOTE Confidence: 0.8579916

00:33:55.700 --> 00:33:56.440 the adherences

NOTE Confidence: 0.9854785

00:33:57.140 --> 00:33:59.400 of nonadherence to required practices.

NOTE Confidence: 0.9854785

00:33:59.460 --> 00:34:00.900 Right? So what he found

NOTE Confidence: 0.9854785

00:34:00.900 --> 00:34:02.500 was that, you know, the

NOTE Confidence: 0.9854785

00:34:02.500 --> 00:34:04.260 majority of studies, even in

NOTE Confidence: 0.9854785

00:34:04.260 --> 00:34:06.360 journals with high impact factors,

NOTE Confidence: 0.99417114

00:34:06.725 --> 00:34:08.085 you know, showed at least

NOTE Confidence: 0.99417114

00:34:08.085 --> 00:34:09.385 one instance where,

NOTE Confidence: 0.9746094

00:34:10.485 --> 00:34:11.864 the study was not,

NOTE Confidence: 0.97441405

00:34:12.165 --> 00:34:13.545 being done in an appropriate

NOTE Confidence: 0.97441405

00:34:13.605 --> 00:34:14.885 way. And in fact, in

NOTE Confidence: 0.97441405

00:34:14.885 --> 00:34:16.344 one fifth of the studies,

NOTE Confidence: 0.9979553

00:34:16.725 --> 00:34:18.085 they had ignored three of

NOTE Confidence: 0.9979553

00:34:18.085 --> 00:34:19.225 the required practices.

NOTE Confidence: 0.97775996

00:34:19.859 --> 00:34:20.739 And this is a problem.

NOTE Confidence: 0.97775996

00:34:20.739 --> 00:34:21.779 Right? As we get more

NOTE Confidence: 0.97775996

00:34:21.779 --> 00:34:23.460 data and more analytic tools

NOTE Confidence: 0.97775996

00:34:23.460 --> 00:34:24.819 out there, what are we

NOTE Confidence: 0.97775996

00:34:24.819 --> 00:34:25.319 doing,

NOTE Confidence: 0.99853516

00:34:26.019 --> 00:34:27.539 in terms of, you know,

NOTE Confidence: 0.99853516

00:34:27.539 --> 00:34:28.039 protecting,

NOTE Confidence: 0.97766113

00:34:29.700 --> 00:34:31.619 like, our ability to to

NOTE Confidence: 0.97766113

00:34:31.619 --> 00:34:32.759 make sure that the analyses

NOTE Confidence: 0.97766113

00:34:32.900 --> 00:34:33.525 are correct?

NOTE Confidence: 0.99853516

00:34:34.005 --> 00:34:34.505 And,

NOTE Confidence: 0.9965257

00:34:35.444 --> 00:34:36.565 you know, if you think

NOTE Confidence: 0.9965257

00:34:36.565 --> 00:34:37.765 this is just happening in

NOTE Confidence: 0.9965257

00:34:37.765 --> 00:34:38.724 terms of the data side,

NOTE Confidence: 0.9965257

00:34:38.724 --> 00:34:39.525 I mean, I think we're

NOTE Confidence: 0.9965257

00:34:39.525 --> 00:34:41.045 all getting ready for, like,

NOTE Confidence: 0.9965257

00:34:41.045 --> 00:34:43.045 what's already been shown to

NOTE Confidence: 0.9965257

00:34:43.045 --> 00:34:44.724 be happening with the next

NOTE Confidence: 0.9965257

00:34:44.724 --> 00:34:46.265 generation of AI tools.

NOTE Confidence: 0.9541504

00:34:48.150 --> 00:34:49.349 You know, just even this

NOTE Confidence: 0.9541504

00:34:49.349 --> 00:34:50.890 past week in The Lancet,

NOTE Confidence: 0.9541504

00:34:51.109 --> 00:34:52.630 the the cover article was

NOTE Confidence: 0.9541504

00:34:52.630 --> 00:34:54.410 about how there was a

NOTE Confidence: 0.9994507

00:34:55.030 --> 00:34:56.469 an increase in the number

NOTE Confidence: 0.9994507

00:34:56.469 --> 00:34:57.589 of studies that are being

NOTE Confidence: 0.9994507

00:34:57.589 --> 00:34:58.710 published right now in the

NOTE Confidence: 0.9994507

00:34:58.710 --> 00:34:59.210 literature

NOTE Confidence: 0.9991455

00:34:59.510 --> 00:35:01.270 with, like, references that just

NOTE Confidence: 0.9991455

00:35:01.270 --> 00:35:02.410 don't exist. Right?

NOTE Confidence: 0.9710483

00:35:03.575 --> 00:35:04.935 And so it it's it's

NOTE Confidence: 0.9710483

00:35:04.935 --> 00:35:06.215 just becoming more and more

NOTE Confidence: 0.9710483

00:35:06.215 --> 00:35:07.815 of a a concern that

NOTE Confidence: 0.9710483

00:35:07.815 --> 00:35:08.615 we have to have, and

NOTE Confidence: 0.9710483

00:35:08.615 --> 00:35:09.735 we had a great debate

NOTE Confidence: 0.9710483

00:35:09.735 --> 00:35:10.955 last night about this.

NOTE Confidence: 0.98838407

00:35:11.975 --> 00:35:12.855 And part of it was

NOTE Confidence: 0.98838407

00:35:12.855 --> 00:35:14.295 this whole discussion of, like,

NOTE Confidence: 0.98838407

00:35:14.295 --> 00:35:15.415 what are the pluses and

NOTE Confidence: 0.98838407

00:35:15.415 --> 00:35:16.715 minuses of these tools?

NOTE Confidence: 0.9977417

00:35:17.015 --> 00:35:18.055 I will say that these

NOTE Confidence: 0.9977417

00:35:18.055 --> 00:35:19.275 tools do have,

NOTE Confidence: 0.9812622

00:35:20.550 --> 00:35:22.250 you know, several advantages.

NOTE Confidence: 0.9261808

00:35:22.630 --> 00:35:24.150 You know? This is a

NOTE Confidence: 0.9261808

00:35:24.150 --> 00:35:25.910 a really fascinating article from

NOTE Confidence: 0.9261808

00:35:25.910 --> 00:35:26.410 Science,

NOTE Confidence: 0.9653971

00:35:27.110 --> 00:35:28.310 last year that talked about

NOTE Confidence: 0.9653971

00:35:28.310 --> 00:35:29.830 the scientific production in the

NOTE Confidence: 0.9653971

00:35:29.830 --> 00:35:31.530 era of large language models.

NOTE Confidence: 0.99890137

00:35:32.145 --> 00:35:33.105 And what you can see

NOTE Confidence: 0.99890137

00:35:33.105 --> 00:35:34.165 is this discontinuity.

NOTE Confidence: 1

00:35:34.625 --> 00:35:35.125 Right?

NOTE Confidence: 0.9989624

00:35:35.425 --> 00:35:36.225 So what they did was

NOTE Confidence: 0.9989624

00:35:36.225 --> 00:35:37.285 they asked investigators,

NOTE Confidence: 0.9749725

00:35:38.465 --> 00:35:39.425 you know, do you use

NOTE Confidence: 0.9749725

00:35:39.425 --> 00:35:40.785 LLMs? And if you do

NOTE Confidence: 0.9749725

00:35:40.785 --> 00:35:41.605 in your scientific

NOTE Confidence: 0.9994507

00:35:41.905 --> 00:35:43.425 work, when did you start

NOTE Confidence: 0.9994507

00:35:43.425 --> 00:35:45.045 using them? And

NOTE Confidence: 0.69677734

00:35:45.630 --> 00:35:46.130 investigators'

NOTE Confidence: 0.9951172

00:35:46.589 --> 00:35:47.089 relative

NOTE Confidence: 0.98191833

00:35:47.390 --> 00:35:48.670 those who ended up using

NOTE Confidence: 0.98191833

00:35:48.670 --> 00:35:50.529 them in the pre period

NOTE Confidence: 0.98191833

00:35:50.670 --> 00:35:52.289 before, this was their scientific

NOTE Confidence: 0.98191833

00:35:52.349 --> 00:35:52.849 productivity

NOTE Confidence: 0.9510498

00:35:53.549 --> 00:35:54.750 in terms of just, like,

NOTE Confidence: 0.9510498

00:35:54.750 --> 00:35:55.250 papers

NOTE Confidence: 0.9835205

00:35:55.789 --> 00:35:56.450 and publications.

NOTE Confidence: 0.9986572

00:35:57.150 --> 00:35:58.369 And then post adoption,

NOTE Confidence: 0.99853516

00:35:58.785 --> 00:35:59.825 you know, there was a

NOTE Confidence: 0.99853516

00:35:59.825 --> 00:36:01.905 substantial and significant rise in

NOTE Confidence: 0.99853516

00:36:01.905 --> 00:36:02.944 the number of papers that

NOTE Confidence: 0.99853516

00:36:02.944 --> 00:36:04.005 they were putting out.

NOTE Confidence: 0.9854213

00:36:04.704 --> 00:36:05.984 And and I do include

NOTE Confidence: 0.9854213

00:36:05.984 --> 00:36:06.805 this because

NOTE Confidence: 0.9995117

00:36:07.105 --> 00:36:08.164 one of the interesting

NOTE Confidence: 0.95708007

00:36:09.105 --> 00:36:10.645 one of the interesting subanalyses

NOTE Confidence: 0.9947917

00:36:11.184 --> 00:36:12.085 that they did,

NOTE Confidence: 0.9801178

00:36:12.920 --> 00:36:14.040 you know, really spoke to

NOTE Confidence: 0.9801178

00:36:14.040 --> 00:36:15.720 the idea that in many

NOTE Confidence: 0.9801178

00:36:15.720 --> 00:36:17.000 ways, these can be very

NOTE Confidence: 0.9801178

00:36:17.000 --> 00:36:17.500 powerful.

NOTE Confidence: 0.9535929

00:36:18.200 --> 00:36:20.060 In non native English speaking

NOTE Confidence: 0.9535929

00:36:20.120 --> 00:36:21.640 geographies, this seemed to have

NOTE Confidence: 0.9535929

00:36:21.640 --> 00:36:22.940 even more of a pronounced

NOTE Confidence: 0.9535929

00:36:23.080 --> 00:36:23.580 impact.

NOTE Confidence: 0.9955368

00:36:23.880 --> 00:36:24.840 And it does raise the

NOTE Confidence: 0.9955368

00:36:24.840 --> 00:36:25.880 question of, like, if it's

NOTE Confidence: 0.9955368

00:36:25.880 --> 00:36:27.160 a good idea and it's

NOTE Confidence: 0.9955368

00:36:27.160 --> 00:36:28.785 good science, shouldn't we use

NOTE Confidence: 0.9955368

00:36:28.785 --> 00:36:30.305 these tools to express those

NOTE Confidence: 0.9955368

00:36:30.305 --> 00:36:31.665 ideas in the most powerful

NOTE Confidence: 0.9955368

00:36:31.665 --> 00:36:32.484 way possible?

NOTE Confidence: 0.9902588

00:36:34.545 --> 00:36:35.825 But the flip side of

NOTE Confidence: 0.9902588

00:36:35.825 --> 00:36:37.525 it is that, you know,

NOTE Confidence: 0.98725426

00:36:38.625 --> 00:36:39.744 if you just start to

NOTE Confidence: 0.98725426

00:36:39.744 --> 00:36:41.425 increase the volume of science,

NOTE Confidence: 0.98725426

00:36:41.425 --> 00:36:42.145 you know, what what are

NOTE Confidence: 0.98725426

00:36:42.145 --> 00:36:44.070 we actually accomplishing? And and,

NOTE Confidence: 0.98725426

00:36:44.070 --> 00:36:44.570 actually,

NOTE Confidence: 0.9864909

00:36:45.270 --> 00:36:46.730 at dinner last night again,

NOTE Confidence: 0.9864909

00:36:46.950 --> 00:36:47.670 you know, one of the

NOTE Confidence: 0.9864909

00:36:47.670 --> 00:36:48.469 things I was talking to

NOTE Confidence: 0.9864909

00:36:48.469 --> 00:36:49.750 Bob about is that the

NOTE Confidence: 0.9864909

00:36:49.750 --> 00:36:50.950 way I see AI at

NOTE Confidence: 0.9864909

00:36:50.950 --> 00:36:51.910 this point, it's kind of

NOTE Confidence: 0.9864909

00:36:51.910 --> 00:36:52.969 like science fertilizer.

NOTE Confidence: 0.9702962

00:36:53.750 --> 00:36:55.030 It it's really a force

NOTE Confidence: 0.9702962

00:36:55.030 --> 00:36:55.530 multiplier,

NOTE Confidence: 0.9782675

00:36:56.225 --> 00:36:57.425 And it doesn't, at this

NOTE Confidence: 0.9782675

00:36:57.425 --> 00:36:59.185 point in time, distinguish weeds

NOTE Confidence: 0.9782675

00:36:59.185 --> 00:37:00.625 from crops. Right? And so

NOTE Confidence: 0.9782675

00:37:00.625 --> 00:37:01.905 if your field is messy,

NOTE Confidence: 0.9782675

00:37:01.905 --> 00:37:03.105 you just get more weeds

NOTE Confidence: 0.9782675

00:37:03.105 --> 00:37:04.225 faster. And that's kind of

NOTE Confidence: 0.9782675

00:37:04.225 --> 00:37:05.825 the the spot we're in

NOTE Confidence: 0.9782675

00:37:05.825 --> 00:37:07.585 because AI is definitely boosting

NOTE Confidence: 0.9782675

00:37:07.585 --> 00:37:08.085 productivity,

NOTE Confidence: 0.98354495

00:37:08.920 --> 00:37:10.760 but it's currently agnostic to

NOTE Confidence: 0.98354495

00:37:10.760 --> 00:37:11.960 quality, and that that does

NOTE Confidence: 0.98354495

00:37:11.960 --> 00:37:13.180 raise a lot of challenges.

NOTE Confidence: 0.861084

00:37:16.280 --> 00:37:16.780 Alright.

NOTE Confidence: 1

00:37:17.960 --> 00:37:19.340 I think that AI

NOTE Confidence: 0.9962943

00:37:19.640 --> 00:37:20.920 and some of these data

NOTE Confidence: 0.9962943

00:37:20.920 --> 00:37:22.404 tools would not be as

NOTE Confidence: 0.9962943

00:37:22.404 --> 00:37:23.605 big of a problem unless

NOTE Confidence: 0.9962943

00:37:23.605 --> 00:37:25.224 there was this huge inflationary

NOTE Confidence: 0.9962943

00:37:25.444 --> 00:37:27.045 incentive that's growing to publish

NOTE Confidence: 0.9962943

00:37:27.045 --> 00:37:28.025 more and more.

NOTE Confidence: 0.9393894

00:37:29.045 --> 00:37:30.164 And, you know, this is

NOTE Confidence: 0.9393894

00:37:30.244 --> 00:37:31.605 there's so many examples of

NOTE Confidence: 0.9393894

00:37:31.605 --> 00:37:32.805 this in the literature. This

NOTE Confidence: 0.9393894

00:37:32.805 --> 00:37:33.924 is one that we published

NOTE Confidence: 0.9393894

00:37:33.924 --> 00:37:34.964 in Search CQL,

NOTE Confidence: 0.9718192

00:37:35.880 --> 00:37:36.920 that was just a a

NOTE Confidence: 0.9718192

00:37:36.920 --> 00:37:38.140 really, quirky

NOTE Confidence: 0.9959542

00:37:38.440 --> 00:37:39.719 little take on this. At

NOTE Confidence: 0.9959542

00:37:39.719 --> 00:37:40.380 the time,

NOTE Confidence: 0.9747884

00:37:40.760 --> 00:37:41.960 you know, we were getting

NOTE Confidence: 0.9747884

00:37:41.960 --> 00:37:43.480 so many systematic reviews and

NOTE Confidence: 0.9747884

00:37:43.480 --> 00:37:45.260 meta analyses, like, every week.

NOTE Confidence: 0.9848633

00:37:45.640 --> 00:37:45.960 And,

NOTE Confidence: 0.99762833

00:37:46.680 --> 00:37:47.960 one of them that was

NOTE Confidence: 0.99762833

00:37:47.960 --> 00:37:48.779 very interesting

NOTE Confidence: 0.94113994

00:37:49.395 --> 00:37:51.075 was, you know, this perspective

NOTE Confidence: 0.94113994

00:37:51.075 --> 00:37:52.535 on it. Again, John Ioannidis

NOTE Confidence: 0.94113994

00:37:52.755 --> 00:37:54.435 as well as, Kostas Sientes,

NOTE Confidence: 0.94113994

00:37:54.435 --> 00:37:55.955 who's a cardiologist at the

NOTE Confidence: 0.94113994

00:37:55.955 --> 00:37:56.695 Mayo Clinic,

NOTE Confidence: 0.9466187

00:37:57.075 --> 00:37:58.275 they did a review. And

NOTE Confidence: 0.9466187

00:37:58.275 --> 00:37:59.875 and what they pointed out

NOTE Confidence: 0.9466187

00:37:59.875 --> 00:38:00.995 was simply, at the time

NOTE Confidence: 0.9466187

00:38:00.995 --> 00:38:02.215 they were looking at DOACs

NOTE Confidence: 0.98095703

00:38:02.790 --> 00:38:03.290 in

NOTE Confidence: 0.9822998

00:38:03.750 --> 00:38:05.210 AFib for stroke prevention,

NOTE Confidence: 0.9781959

00:38:05.910 --> 00:38:07.510 there were fourteen clinical trials

NOTE Confidence: 0.9781959

00:38:07.510 --> 00:38:08.550 that had been done to

NOTE Confidence: 0.9781959

00:38:08.550 --> 00:38:10.390 date on that particular topic,

NOTE Confidence: 0.9781959

00:38:10.390 --> 00:38:11.830 and there were nearly sixty

NOTE Confidence: 0.9781959

00:38:11.830 --> 00:38:13.510 meta analyses of those fourteen

NOTE Confidence: 0.9781959

00:38:13.510 --> 00:38:15.474 clinical trials. Right? Which is

NOTE Confidence: 0.9781959

00:38:15.474 --> 00:38:16.435 just raising the question of,

NOTE Confidence: 0.9781959

00:38:16.435 --> 00:38:17.315 like, what what are we

NOTE Confidence: 0.9781959

00:38:17.315 --> 00:38:18.135 actually doing?

NOTE Confidence: 0.9849338

00:38:19.075 --> 00:38:20.035 And then, you know, on

NOTE Confidence: 0.9849338

00:38:20.035 --> 00:38:21.395 top of that, you know,

NOTE Confidence: 0.9849338

00:38:21.395 --> 00:38:23.795 there's this huge industry that's

NOTE Confidence: 0.9849338

00:38:23.795 --> 00:38:25.155 growing. I know I didn't

NOTE Confidence: 0.9849338

00:38:25.155 --> 00:38:26.195 think I was gonna spend

NOTE Confidence: 0.9849338

00:38:26.195 --> 00:38:26.915 a lot of time on

NOTE Confidence: 0.9849338

00:38:26.915 --> 00:38:27.954 this, but, you know, of

NOTE Confidence: 0.9849338

00:38:27.954 --> 00:38:29.875 paper mills and predatory publishing

NOTE Confidence: 0.9849338

00:38:29.875 --> 00:38:32.030 that's making it even more,

NOTE Confidence: 0.99594724

00:38:33.130 --> 00:38:35.370 lower barriers towards, you know,

NOTE Confidence: 0.99543566

00:38:35.850 --> 00:38:37.290 you know, pushing these these

NOTE Confidence: 0.99543566

00:38:37.290 --> 00:38:38.250 types of work out there.

NOTE Confidence: 0.99543566

00:38:38.250 --> 00:38:39.290 And, you know, this this

NOTE Confidence: 0.99543566

00:38:39.290 --> 00:38:40.810 Wall Street Journal article had

NOTE Confidence: 0.99543566

00:38:40.810 --> 00:38:41.630 a a wonderful,

NOTE Confidence: 0.9787369

00:38:42.170 --> 00:38:43.450 you know, I think, summary

NOTE Confidence: 0.9787369

00:38:43.450 --> 00:38:44.385 of it, which is that

NOTE Confidence: 0.9787369

00:38:44.705 --> 00:38:46.385 world over, scientists are under

NOTE Confidence: 0.9787369

00:38:46.385 --> 00:38:47.585 pressure to publish in peer

NOTE Confidence: 0.9787369

00:38:47.585 --> 00:38:49.105 reviewed journals, sometimes to win

NOTE Confidence: 0.9787369

00:38:49.105 --> 00:38:51.105 grants, other times as conditions

NOTE Confidence: 0.9787369

00:38:51.105 --> 00:38:51.844 for promotions.

NOTE Confidence: 0.9970259

00:38:52.545 --> 00:38:53.825 And that really can motivate

NOTE Confidence: 0.9970259

00:38:53.825 --> 00:38:55.265 people to, like, think through,

NOTE Confidence: 0.9970259

00:38:55.265 --> 00:38:55.765 like,

NOTE Confidence: 0.9809758

00:38:56.065 --> 00:38:57.265 you know, the currency. If

NOTE Confidence: 0.9809758

00:38:57.265 --> 00:38:58.750 that's the currency, how do

NOTE Confidence: 0.9809758

00:38:58.750 --> 00:38:59.870 I get more and more

NOTE Confidence: 0.9809758

00:38:59.870 --> 00:39:01.870 out there without really, you

NOTE Confidence: 0.9809758

00:39:01.870 --> 00:39:03.150 know, thinking carefully about the

NOTE Confidence: 0.9809758

00:39:03.150 --> 00:39:03.650 quality?

NOTE Confidence: 0.9771046

00:39:05.790 --> 00:39:06.750 The third thing that I

NOTE Confidence: 0.9771046

00:39:06.750 --> 00:39:08.750 just wanna kinda describe as

NOTE Confidence: 0.9771046

00:39:08.750 --> 00:39:10.875 this drivers of replication crisis

NOTE Confidence: 0.9771046

00:39:10.875 --> 00:39:11.915 is, like, I I I

NOTE Confidence: 0.9771046

00:39:11.915 --> 00:39:13.035 do think this is a

NOTE Confidence: 0.9771046

00:39:13.035 --> 00:39:14.635 really important concern these days

NOTE Confidence: 0.9771046

00:39:14.635 --> 00:39:16.395 is this we've become, like,

NOTE Confidence: 0.9771046

00:39:16.555 --> 00:39:17.275 you know, caught up in

NOTE Confidence: 0.9771046

00:39:17.275 --> 00:39:18.895 this hype cycle in contemporary

NOTE Confidence: 0.9771046

00:39:18.955 --> 00:39:20.395 science. Right? And what I

NOTE Confidence: 0.9771046

00:39:20.395 --> 00:39:21.755 mean by that is, you

NOTE Confidence: 0.9771046

00:39:21.755 --> 00:39:23.375 know, when I started

NOTE Confidence: 0.9857178

00:39:23.890 --> 00:39:25.250 in in science, we didn't

NOTE Confidence: 0.9857178

00:39:25.250 --> 00:39:26.369 really use the words that

NOTE Confidence: 0.9857178

00:39:26.369 --> 00:39:27.730 I think we're adopting now

NOTE Confidence: 0.9857178

00:39:27.730 --> 00:39:28.850 often that seem like they're

NOTE Confidence: 0.9857178

00:39:28.850 --> 00:39:29.969 coming from, like, the tech

NOTE Confidence: 0.9857178

00:39:29.969 --> 00:39:31.650 industry in Silicon Valley. I

NOTE Confidence: 0.9857178

00:39:31.650 --> 00:39:32.790 mean, we talk about

NOTE Confidence: 0.9597168

00:39:33.090 --> 00:39:33.590 moonshots

NOTE Confidence: 0.94178605

00:39:33.969 --> 00:39:35.650 and hacking health and, you

NOTE Confidence: 0.94178605

00:39:35.650 --> 00:39:37.030 know, one brave idea.

NOTE Confidence: 0.9820382

00:39:37.434 --> 00:39:38.954 You know? And and I

NOTE Confidence: 0.9820382

00:39:38.954 --> 00:39:39.614 love this

NOTE Confidence: 0.9516059

00:39:40.234 --> 00:39:42.315 this centerpiece here, right, because

NOTE Confidence: 0.9516059

00:39:42.315 --> 00:39:43.454 it's such a telling,

NOTE Confidence: 0.9646446

00:39:44.154 --> 00:39:45.434 image. This is from the

NOTE Confidence: 0.9646446

00:39:45.434 --> 00:39:46.795 New York Times, and this

NOTE Confidence: 0.9646446

00:39:46.795 --> 00:39:48.154 is a very generous gift,

NOTE Confidence: 0.9646446

00:39:48.154 --> 00:39:49.515 right, by Mark Zuckerberg and

NOTE Confidence: 0.9646446

00:39:49.515 --> 00:39:51.420 Priscilla Chan. And they pledged

NOTE Confidence: 0.9646446

00:39:51.420 --> 00:39:52.940 three billion dollars. But if

NOTE Confidence: 0.9646446

00:39:52.940 --> 00:39:54.160 you look in the background,

NOTE Confidence: 0.9646446

00:39:54.219 --> 00:39:55.739 right, they have this statement,

NOTE Confidence: 0.9646446

00:39:55.739 --> 00:39:57.200 can we cure all diseases

NOTE Confidence: 0.9646446

00:39:57.339 --> 00:39:58.619 in our children's lifetime, as

NOTE Confidence: 0.9646446

00:39:58.619 --> 00:40:00.300 if we're only three billion

NOTE Confidence: 0.9646446

00:40:00.300 --> 00:40:01.280 dollars short

NOTE Confidence: 0.9899414

00:40:01.660 --> 00:40:03.440 from from this goal. Right?

NOTE Confidence: 0.97291803

00:40:03.905 --> 00:40:04.945 And it just makes you

NOTE Confidence: 0.97291803

00:40:04.945 --> 00:40:06.545 kinda pause and think. And

NOTE Confidence: 0.97291803

00:40:06.545 --> 00:40:07.665 all of this, I think,

NOTE Confidence: 0.97291803

00:40:07.665 --> 00:40:09.265 came to a head when

NOTE Confidence: 0.97291803

00:40:09.265 --> 00:40:10.224 we just saw, like, five

NOTE Confidence: 0.97291803

00:40:10.224 --> 00:40:11.585 or six years ago with

NOTE Confidence: 0.97291803

00:40:11.585 --> 00:40:13.105 the COVID nineteen pandemic. In

NOTE Confidence: 0.97291803

00:40:13.105 --> 00:40:14.545 many ways, this was like

NOTE Confidence: 0.97291803

00:40:14.545 --> 00:40:16.065 a stress test for science.

NOTE Confidence: 0.97291803

00:40:16.065 --> 00:40:16.565 Right?

NOTE Confidence: 0.9586589

00:40:16.864 --> 00:40:18.145 And I'm not sure how

NOTE Confidence: 0.9586589

00:40:18.145 --> 00:40:19.364 well we did because

NOTE Confidence: 0.97284406

00:40:20.680 --> 00:40:22.200 science basically was facing this

NOTE Confidence: 0.97284406

00:40:22.200 --> 00:40:23.560 idea of this huge growth

NOTE Confidence: 0.97284406

00:40:23.560 --> 00:40:24.460 of data sources,

NOTE Confidence: 0.984432

00:40:25.160 --> 00:40:26.840 this, you know, opportunity to

NOTE Confidence: 0.984432

00:40:26.840 --> 00:40:28.120 publish more and more, and

NOTE Confidence: 0.984432

00:40:28.120 --> 00:40:29.719 then this hype cycle. And

NOTE Confidence: 0.984432

00:40:29.719 --> 00:40:30.440 and you can see all

NOTE Confidence: 0.984432

00:40:30.440 --> 00:40:31.800 these little examples. Right? Just

NOTE Confidence: 0.984432

00:40:31.800 --> 00:40:33.020 even in the data sources,

NOTE Confidence: 0.7468872

00:40:33.560 --> 00:40:34.219 the surgeosphere

NOTE Confidence: 0.9028895

00:40:34.600 --> 00:40:36.094 scandal, right, where papers papers

NOTE Confidence: 0.9028895

00:40:36.094 --> 00:40:37.135 had to get retracted from

NOTE Confidence: 0.9028895

00:40:37.135 --> 00:40:38.255 the New England Journal and

NOTE Confidence: 0.9028895

00:40:38.255 --> 00:40:38.914 The Lancet,

NOTE Confidence: 0.9473389

00:40:39.855 --> 00:40:41.855 you know, publishing more and

NOTE Confidence: 0.9473389

00:40:41.855 --> 00:40:43.474 more the rise of, like,

NOTE Confidence: 0.9890137

00:40:43.775 --> 00:40:44.674 many of these,

NOTE Confidence: 0.9696121

00:40:45.535 --> 00:40:47.135 preprint servers. Right? And then

NOTE Confidence: 0.9696121

00:40:47.135 --> 00:40:48.335 the clutter of low value

NOTE Confidence: 0.9696121

00:40:48.335 --> 00:40:49.694 science, especially when it went

NOTE Confidence: 0.9696121

00:40:49.694 --> 00:40:51.540 straight from preprint server to,

NOTE Confidence: 0.9696121

00:40:51.540 --> 00:40:53.140 like, front page of, like,

NOTE Confidence: 0.9696121

00:40:53.140 --> 00:40:54.660 The Wall Street Journal. And

NOTE Confidence: 0.9696121

00:40:54.660 --> 00:40:55.320 then finally,

NOTE Confidence: 0.9674805

00:40:55.780 --> 00:40:57.560 you know, the hype cycle

NOTE Confidence: 0.9902344

00:40:57.860 --> 00:40:58.840 had a really,

NOTE Confidence: 0.9993164

00:40:59.300 --> 00:41:00.660 huge impact in terms of

NOTE Confidence: 0.9993164

00:41:00.660 --> 00:41:01.960 the idea of the pandemic

NOTE Confidence: 0.98280895

00:41:02.420 --> 00:41:03.940 science mixing with politics. And

NOTE Confidence: 0.98280895

00:41:03.940 --> 00:41:04.980 I'll just give you a

NOTE Confidence: 0.98280895

00:41:04.980 --> 00:41:06.180 quick case study of this

NOTE Confidence: 0.98280895

00:41:06.180 --> 00:41:07.125 that was just, you know,

NOTE Confidence: 0.98280895

00:41:07.125 --> 00:41:08.565 very telling for our institution

NOTE Confidence: 0.98280895

00:41:08.565 --> 00:41:10.005 for reasons you'll see. But,

NOTE Confidence: 0.98280895

00:41:10.005 --> 00:41:11.285 you know, when COVID nineteen

NOTE Confidence: 0.98280895

00:41:11.285 --> 00:41:12.645 came out, there was some

NOTE Confidence: 0.98280895

00:41:12.645 --> 00:41:13.145 initial,

NOTE Confidence: 0.9984131

00:41:14.165 --> 00:41:16.025 identification of cardiac complications,

NOTE Confidence: 0.9927907

00:41:17.205 --> 00:41:18.725 with with COVID nineteen. You

NOTE Confidence: 0.9927907

00:41:18.725 --> 00:41:20.245 know, people started to recognize

NOTE Confidence: 0.9927907

00:41:20.245 --> 00:41:21.844 this almost on, you know,

NOTE Confidence: 0.9927907

00:41:21.844 --> 00:41:22.585 day one.

NOTE Confidence: 0.9995117

00:41:23.340 --> 00:41:25.020 There was this really interesting

NOTE Confidence: 0.9995117

00:41:25.020 --> 00:41:25.520 study

NOTE Confidence: 0.99736327

00:41:26.140 --> 00:41:28.000 of about a hundred patients,

NOTE Confidence: 1

00:41:28.860 --> 00:41:29.680 from Europe

NOTE Confidence: 0.94663084

00:41:30.060 --> 00:41:32.320 that described some MRI abnormalities,

NOTE Confidence: 0.99464816

00:41:33.500 --> 00:41:35.335 in about seventy eight of

NOTE Confidence: 0.99464816

00:41:35.335 --> 00:41:36.775 these individuals. And so then

NOTE Confidence: 0.99464816

00:41:36.775 --> 00:41:37.975 the whole question came up

NOTE Confidence: 0.99464816

00:41:37.975 --> 00:41:39.515 around, you know, myocarditis,

NOTE Confidence: 0.9868164

00:41:40.455 --> 00:41:42.155 especially amongst young people.

NOTE Confidence: 0.9826378

00:41:43.255 --> 00:41:44.375 This had a huge impact.

NOTE Confidence: 0.9826378

00:41:44.375 --> 00:41:45.655 Right? This this happened. This

NOTE Confidence: 0.9826378

00:41:45.655 --> 00:41:47.175 paper came out right around

NOTE Confidence: 0.9826378

00:41:47.175 --> 00:41:48.055 the time that the football

NOTE Confidence: 0.9826378

00:41:48.055 --> 00:41:49.335 season was starting in Ann

NOTE Confidence: 0.9826378

00:41:49.335 --> 00:41:49.835 Arbor.

NOTE Confidence: 0.95798904

00:41:50.295 --> 00:41:51.599 And, you you know, they

NOTE Confidence: 0.95798904

00:41:51.599 --> 00:41:52.719 care a lot about football

NOTE Confidence: 0.95798904

00:41:52.719 --> 00:41:53.539 in Ann Arbor.

NOTE Confidence: 0.9744001

00:41:54.000 --> 00:41:56.400 And even though almost from

NOTE Confidence: 0.9744001

00:41:56.400 --> 00:41:57.059 the immediate

NOTE Confidence: 0.9991862

00:41:57.440 --> 00:41:58.960 aspect of this paper getting

NOTE Confidence: 0.9991862

00:41:58.960 --> 00:41:59.460 published,

NOTE Confidence: 0.9566786

00:42:00.160 --> 00:42:01.759 there were data concerns. There

NOTE Confidence: 0.9566786

00:42:01.759 --> 00:42:03.059 were questions about inadequate

NOTE Confidence: 0.9958671

00:42:03.414 --> 00:42:05.015 controls. There were unclear clinical

NOTE Confidence: 0.9958671

00:42:05.015 --> 00:42:07.015 implications of, like, whatever MRI

NOTE Confidence: 0.9958671

00:42:07.015 --> 00:42:08.555 findings they were discovering,

NOTE Confidence: 0.99316406

00:42:09.015 --> 00:42:10.375 but they actually canceled the

NOTE Confidence: 0.99316406

00:42:10.375 --> 00:42:11.275 football season.

NOTE Confidence: 0.98828125

00:42:12.535 --> 00:42:13.734 And then what was really

NOTE Confidence: 0.98828125

00:42:13.734 --> 00:42:15.335 interesting was a few months

NOTE Confidence: 0.98828125

00:42:15.335 --> 00:42:16.630 later, a group from the

NOTE Confidence: 0.98828125

00:42:16.630 --> 00:42:17.770 University of Wisconsin

NOTE Confidence: 0.9823405

00:42:18.230 --> 00:42:19.830 replicated this study in more

NOTE Confidence: 0.9823405

00:42:19.830 --> 00:42:20.330 patients

NOTE Confidence: 0.90844727

00:42:21.270 --> 00:42:21.770 and,

NOTE Confidence: 0.9995117

00:42:22.390 --> 00:42:23.210 found that

NOTE Confidence: 0.9776232

00:42:23.590 --> 00:42:25.270 the actual incidence of, like,

NOTE Confidence: 0.9776232

00:42:25.270 --> 00:42:27.670 cardiac MRR imaging associated with

NOTE Confidence: 0.9776232

00:42:27.670 --> 00:42:29.110 myocarditis was more like around

NOTE Confidence: 0.9776232

00:42:29.110 --> 00:42:30.855 one percent. Right? That's just

NOTE Confidence: 0.9776232

00:42:30.855 --> 00:42:32.215 the imaging. Right? Not even

NOTE Confidence: 0.9776232

00:42:32.215 --> 00:42:33.675 talking about clinical implications.

NOTE Confidence: 0.9985962

00:42:34.295 --> 00:42:35.815 But what's fascinating about this

NOTE Confidence: 0.9985962

00:42:35.815 --> 00:42:36.715 all is that

NOTE Confidence: 0.9681629

00:42:37.094 --> 00:42:38.455 these were actually drawn from

NOTE Confidence: 0.9681629

00:42:38.455 --> 00:42:39.495 just this morning because I

NOTE Confidence: 0.9681629

00:42:39.495 --> 00:42:41.094 always update. Like, I'm always

NOTE Confidence: 0.9681629

00:42:41.094 --> 00:42:42.855 curious about this. Right? So

NOTE Confidence: 0.9681629

00:42:42.855 --> 00:42:44.570 to date, this study that's

NOTE Confidence: 0.9681629

00:42:44.570 --> 00:42:46.430 published just six months after

NOTE Confidence: 0.9681629

00:42:46.570 --> 00:42:48.010 that other study has been

NOTE Confidence: 0.9681629

00:42:48.010 --> 00:42:49.210 cited a hundred and sixty

NOTE Confidence: 0.9681629

00:42:49.210 --> 00:42:49.870 four times.

NOTE Confidence: 0.99934894

00:42:51.610 --> 00:42:52.590 The other study,

NOTE Confidence: 0.98620605

00:42:53.210 --> 00:42:54.270 right, has been studied,

NOTE Confidence: 0.86450195

00:42:54.730 --> 00:42:55.390 you know,

NOTE Confidence: 0.9951782

00:42:55.930 --> 00:42:57.870 cited fifteen hundred times.

NOTE Confidence: 0.99246323

00:42:58.275 --> 00:42:59.075 And then you can look

NOTE Confidence: 0.99246323

00:42:59.075 --> 00:43:00.194 at, like, the number of

NOTE Confidence: 0.99246323

00:43:00.194 --> 00:43:01.555 views, and you can also

NOTE Confidence: 0.99246323

00:43:01.555 --> 00:43:02.694 look at just the altmetric

NOTE Confidence: 0.99246323

00:43:02.755 --> 00:43:03.954 score in general. Right? This

NOTE Confidence: 0.99246323

00:43:03.954 --> 00:43:04.674 is one of the highest

NOTE Confidence: 0.99246323

00:43:04.674 --> 00:43:06.454 altmetric scores that's ever been

NOTE Confidence: 0.99246323

00:43:06.515 --> 00:43:07.015 produced

NOTE Confidence: 0.94883895

00:43:07.395 --> 00:43:08.594 versus, you know, one that's,

NOTE Confidence: 0.94883895

00:43:08.594 --> 00:43:09.954 you know, good paper but

NOTE Confidence: 0.94883895

00:43:09.954 --> 00:43:10.994 not getting the attention that

NOTE Confidence: 0.94883895

00:43:10.994 --> 00:43:11.670 it probably deserves.

NOTE Confidence: 0.9991455

00:43:12.150 --> 00:43:14.069 Again, you know, raising all

NOTE Confidence: 0.9991455

00:43:14.069 --> 00:43:15.210 these issues. Now

NOTE Confidence: 0.99590045

00:43:15.829 --> 00:43:16.790 I'm not gonna leave you

NOTE Confidence: 0.99590045

00:43:16.790 --> 00:43:18.549 drowning. Okay? I told you

NOTE Confidence: 0.99590045

00:43:18.549 --> 00:43:19.910 I did learn something ten

NOTE Confidence: 0.99590045

00:43:19.910 --> 00:43:20.950 years here, and I'm gonna

NOTE Confidence: 0.99590045

00:43:20.950 --> 00:43:21.910 give you some lessons,

NOTE Confidence: 0.9711711

00:43:22.230 --> 00:43:23.190 that I'm gonna come back

NOTE Confidence: 0.9711711

00:43:23.190 --> 00:43:24.390 to because I do think

NOTE Confidence: 0.9711711

00:43:24.390 --> 00:43:25.349 that there is a way

NOTE Confidence: 0.9711711

00:43:25.349 --> 00:43:25.989 out of this, and I

NOTE Confidence: 0.9711711

00:43:25.989 --> 00:43:27.369 think we're actually already,

NOTE Confidence: 0.9962616

00:43:28.355 --> 00:43:29.315 you know, on that path.

NOTE Confidence: 0.9962616

00:43:29.315 --> 00:43:30.515 And I I wanna just

NOTE Confidence: 0.9962616

00:43:30.515 --> 00:43:31.795 point out some of this

NOTE Confidence: 0.9962616

00:43:31.795 --> 00:43:32.234 stuff,

NOTE Confidence: 0.98125637

00:43:32.675 --> 00:43:34.594 especially these, you know, potential

NOTE Confidence: 0.98125637

00:43:34.594 --> 00:43:36.515 lessons and solutions. And, you

NOTE Confidence: 0.98125637

00:43:36.515 --> 00:43:37.555 know, I I'm gonna come

NOTE Confidence: 0.98125637

00:43:37.555 --> 00:43:38.994 back to this is something

NOTE Confidence: 0.98125637

00:43:38.994 --> 00:43:40.790 I learned as a clinician,

NOTE Confidence: 0.98125637

00:43:40.930 --> 00:43:41.810 and I brought it back

NOTE Confidence: 0.98125637

00:43:41.810 --> 00:43:43.030 to kind of the editorial

NOTE Confidence: 0.98125637

00:43:43.170 --> 00:43:44.610 role. And I think it's

NOTE Confidence: 0.98125637

00:43:44.610 --> 00:43:45.969 something that anybody who sees

NOTE Confidence: 0.98125637

00:43:45.969 --> 00:43:46.850 patients on a day to

NOTE Confidence: 0.98125637

00:43:46.850 --> 00:43:48.130 day basis will agree with

NOTE Confidence: 0.98125637

00:43:48.130 --> 00:43:48.630 is,

NOTE Confidence: 0.95185196

00:43:49.170 --> 00:43:50.130 I I think there's no

NOTE Confidence: 0.95185196

00:43:50.130 --> 00:43:51.969 lesson like humility, and I

NOTE Confidence: 0.95185196

00:43:51.969 --> 00:43:53.110 think that is hitting

NOTE Confidence: 0.96750426

00:43:53.410 --> 00:43:54.895 a number of, like, you

NOTE Confidence: 0.96750426

00:43:54.895 --> 00:43:56.655 know, scientific areas. And, you

NOTE Confidence: 0.96750426

00:43:56.655 --> 00:43:57.935 know, so there's five things

NOTE Confidence: 0.96750426

00:43:57.935 --> 00:43:58.815 that I I hope we

NOTE Confidence: 0.96750426

00:43:58.815 --> 00:44:00.015 can start to accomplish over

NOTE Confidence: 0.96750426

00:44:00.015 --> 00:44:01.455 the next few years and

NOTE Confidence: 0.96750426

00:44:01.455 --> 00:44:02.895 build on, because many of

NOTE Confidence: 0.96750426

00:44:02.895 --> 00:44:04.195 these are already underway.

NOTE Confidence: 0.99045974

00:44:04.735 --> 00:44:05.775 The first is we we

NOTE Confidence: 0.99045974

00:44:05.775 --> 00:44:07.710 obviously need open science and,

NOTE Confidence: 0.99045974

00:44:07.869 --> 00:44:08.690 you know, transparency

NOTE Confidence: 0.9733887

00:44:09.230 --> 00:44:10.530 and experimental methodology,

NOTE Confidence: 0.9128196

00:44:10.910 --> 00:44:12.510 observation and data collection has

NOTE Confidence: 0.9128196

00:44:12.510 --> 00:44:14.030 just gotta, you know, move

NOTE Confidence: 0.9128196

00:44:14.030 --> 00:44:14.530 forward.

NOTE Confidence: 0.97818404

00:44:15.630 --> 00:44:16.930 You know, the public availability

NOTE Confidence: 0.97818404

00:44:17.150 --> 00:44:18.830 and reusability of data, I

NOTE Confidence: 0.97818404

00:44:18.830 --> 00:44:20.130 I think, is a great

NOTE Confidence: 0.97818404

00:44:20.385 --> 00:44:21.505 idea. I think we have

NOTE Confidence: 0.97818404

00:44:21.505 --> 00:44:22.885 to start figuring out guardrails

NOTE Confidence: 0.97818404

00:44:22.945 --> 00:44:23.685 around this.

NOTE Confidence: 0.982387

00:44:25.105 --> 00:44:26.545 And then also making sure

NOTE Confidence: 0.982387

00:44:26.545 --> 00:44:28.465 that there's more transparency in

NOTE Confidence: 0.982387

00:44:28.465 --> 00:44:30.325 the scientific communication side.

NOTE Confidence: 0.95272666

00:44:31.825 --> 00:44:32.705 This is, again, this is

NOTE Confidence: 0.95272666

00:44:32.705 --> 00:44:34.029 an old idea. Right? I

NOTE Confidence: 0.95272666

00:44:34.029 --> 00:44:35.869 mean, Michael Faraday, the great,

NOTE Confidence: 0.95272666

00:44:35.869 --> 00:44:37.410 like, nineteenth century chemist,

NOTE Confidence: 0.9670985

00:44:38.509 --> 00:44:39.630 when when some a young

NOTE Confidence: 0.9670985

00:44:39.630 --> 00:44:40.829 person asked them, like, you

NOTE Confidence: 0.9670985

00:44:40.829 --> 00:44:41.869 know, what what they should

NOTE Confidence: 0.9670985

00:44:41.869 --> 00:44:42.989 do, you know, he had

NOTE Confidence: 0.9670985

00:44:42.989 --> 00:44:44.109 the famous line, you know,

NOTE Confidence: 0.9670985

00:44:44.109 --> 00:44:44.989 you should work, you should

NOTE Confidence: 0.9670985

00:44:44.989 --> 00:44:46.505 finish, you should publish. And

NOTE Confidence: 0.9670985

00:44:46.505 --> 00:44:47.665 I think many have pointed

NOTE Confidence: 0.9670985

00:44:47.665 --> 00:44:48.944 out that need one more

NOTE Confidence: 0.9670985

00:44:48.944 --> 00:44:50.145 step. You need to release.

NOTE Confidence: 0.9670985

00:44:50.145 --> 00:44:50.645 Right?

NOTE Confidence: 0.9972331

00:44:51.344 --> 00:44:53.025 And a great example of,

NOTE Confidence: 0.9972331

00:44:53.025 --> 00:44:53.905 like, when we do it

NOTE Confidence: 0.9972331

00:44:53.905 --> 00:44:54.565 the best

NOTE Confidence: 0.99209595

00:44:54.864 --> 00:44:56.625 is is this, this study

NOTE Confidence: 0.99209595

00:44:56.625 --> 00:44:57.525 that was done,

NOTE Confidence: 0.976888

00:44:58.224 --> 00:44:59.125 out of Boston,

NOTE Confidence: 0.9352128

00:45:00.250 --> 00:45:01.050 and was published in the

NOTE Confidence: 0.9352128

00:45:01.050 --> 00:45:02.570 New England Journal. And if

NOTE Confidence: 0.9352128

00:45:02.570 --> 00:45:03.850 you guys remember, in in

NOTE Confidence: 0.9352128

00:45:03.850 --> 00:45:05.070 two thousand and seventeen,

NOTE Confidence: 0.8601074

00:45:05.610 --> 00:45:06.590 hurricane Maria

NOTE Confidence: 0.99334717

00:45:06.890 --> 00:45:08.190 tore through Puerto Rico.

NOTE Confidence: 0.9549683

00:45:08.810 --> 00:45:10.010 And at the time, there

NOTE Confidence: 0.9549683

00:45:10.010 --> 00:45:11.150 was a lot of confusion

NOTE Confidence: 0.9549683

00:45:11.210 --> 00:45:12.650 about, you know, what was

NOTE Confidence: 0.9549683

00:45:12.650 --> 00:45:14.270 the actual impact of this.

NOTE Confidence: 0.99902344

00:45:15.325 --> 00:45:15.825 Now

NOTE Confidence: 0.91748047

00:45:16.125 --> 00:45:16.605 when,

NOTE Confidence: 0.9703776

00:45:17.085 --> 00:45:18.245 The New York Times and

NOTE Confidence: 0.9703776

00:45:18.245 --> 00:45:19.405 a couple of other media

NOTE Confidence: 0.9703776

00:45:19.405 --> 00:45:21.005 outlets did some estimates, they

NOTE Confidence: 0.9703776

00:45:21.005 --> 00:45:22.765 thought that there was probably

NOTE Confidence: 0.9703776

00:45:22.765 --> 00:45:24.205 about a thousand to twelve

NOTE Confidence: 0.9703776

00:45:24.205 --> 00:45:25.565 hundred deaths that had happened

NOTE Confidence: 0.9703776

00:45:25.565 --> 00:45:26.465 because of that.

NOTE Confidence: 0.9923503

00:45:27.140 --> 00:45:28.040 The Trump administration

NOTE Confidence: 0.85355633

00:45:28.340 --> 00:45:29.880 thought that were sixty four.

NOTE Confidence: 0.85355633

00:45:30.020 --> 00:45:30.520 Right?

NOTE Confidence: 0.97572064

00:45:30.980 --> 00:45:32.180 And so then these guys

NOTE Confidence: 0.97572064

00:45:32.180 --> 00:45:33.300 went out and they did,

NOTE Confidence: 0.97572064

00:45:33.700 --> 00:45:35.219 a very elegant study where

NOTE Confidence: 0.97572064

00:45:35.219 --> 00:45:36.660 they actually did population based

NOTE Confidence: 0.97572064

00:45:36.660 --> 00:45:38.020 sampling the right way that

NOTE Confidence: 0.97572064

00:45:38.020 --> 00:45:39.239 science should be done,

NOTE Confidence: 0.9908622

00:45:39.795 --> 00:45:40.835 And they came up with

NOTE Confidence: 0.9908622

00:45:40.835 --> 00:45:41.575 this conclusion.

NOTE Confidence: 0.98687744

00:45:41.954 --> 00:45:42.755 And what I love about

NOTE Confidence: 0.98687744

00:45:42.755 --> 00:45:43.795 this is a couple things.

NOTE Confidence: 0.98687744

00:45:43.795 --> 00:45:45.395 One is that, you know,

NOTE Confidence: 0.98687744

00:45:45.395 --> 00:45:46.435 you can see that the

NOTE Confidence: 0.98687744

00:45:46.435 --> 00:45:47.875 the point estimates are much

NOTE Confidence: 0.98687744

00:45:47.875 --> 00:45:49.234 higher than what, you know,

NOTE Confidence: 0.98687744

00:45:49.234 --> 00:45:50.835 was previously reported. But look

NOTE Confidence: 0.98687744

00:45:50.835 --> 00:45:52.614 at these confidence intervals. Right?

NOTE Confidence: 0.9941406

00:45:52.960 --> 00:45:54.800 The uncertainty is actually marked

NOTE Confidence: 0.9941406

00:45:54.800 --> 00:45:55.300 here.

NOTE Confidence: 0.9653468

00:45:55.760 --> 00:45:57.780 And even more brilliant was

NOTE Confidence: 0.9653468

00:45:58.000 --> 00:45:59.040 on the date that they

NOTE Confidence: 0.9653468

00:45:59.040 --> 00:46:00.960 published this, they released the

NOTE Confidence: 0.9653468

00:46:00.960 --> 00:46:02.800 full data and analysis so

NOTE Confidence: 0.9653468

00:46:02.800 --> 00:46:04.080 the entire study could be

NOTE Confidence: 0.9653468

00:46:04.080 --> 00:46:06.160 replicated by anybody. Right? So

NOTE Confidence: 0.9653468

00:46:06.160 --> 00:46:07.060 they just said,

NOTE Confidence: 0.95947266

00:46:07.360 --> 00:46:07.860 okay.

NOTE Confidence: 0.978597

00:46:08.585 --> 00:46:10.025 You know, we want a

NOTE Confidence: 0.978597

00:46:10.025 --> 00:46:11.704 real debate, a real time

NOTE Confidence: 0.978597

00:46:11.704 --> 00:46:13.144 debate of these findings. Right?

NOTE Confidence: 0.978597

00:46:13.144 --> 00:46:14.424 This is what we found.

NOTE Confidence: 0.978597

00:46:14.424 --> 00:46:15.305 You tell us where we

NOTE Confidence: 0.978597

00:46:15.305 --> 00:46:16.344 got this wrong or how

NOTE Confidence: 0.978597

00:46:16.344 --> 00:46:17.144 you would have done this

NOTE Confidence: 0.978597

00:46:17.144 --> 00:46:17.644 better.

NOTE Confidence: 0.9723633

00:46:18.025 --> 00:46:19.864 And Andrew Gelman, who runs,

NOTE Confidence: 0.9930827

00:46:20.424 --> 00:46:21.464 you know, the the stat

NOTE Confidence: 0.9930827

00:46:21.464 --> 00:46:23.450 modeling site, you know, had

NOTE Confidence: 0.9930827

00:46:23.450 --> 00:46:25.130 this wonderful line about, you

NOTE Confidence: 0.9930827

00:46:25.130 --> 00:46:26.969 know, these adjustments represent one

NOTE Confidence: 0.9930827

00:46:26.969 --> 00:46:28.010 simple way to account for

NOTE Confidence: 0.9930827

00:46:28.010 --> 00:46:29.049 biases, but we have made

NOTE Confidence: 0.9930827

00:46:29.049 --> 00:46:30.809 our data publicly available for

NOTE Confidence: 0.9930827

00:46:30.809 --> 00:46:32.329 additional analyses. I I love

NOTE Confidence: 0.9930827

00:46:32.329 --> 00:46:32.989 that thought.

NOTE Confidence: 0.99382675

00:46:33.529 --> 00:46:34.410 The second thing we need

NOTE Confidence: 0.99382675

00:46:34.410 --> 00:46:35.049 to do is we need

NOTE Confidence: 0.99382675

00:46:35.049 --> 00:46:36.190 to think about preregistration

NOTE Confidence: 1

00:46:36.569 --> 00:46:37.309 more broadly.

NOTE Confidence: 0.94975585

00:46:37.655 --> 00:46:39.195 This has been a dramatic,

NOTE Confidence: 0.99869794

00:46:40.614 --> 00:46:41.835 impact on RCTs.

NOTE Confidence: 0.9955672

00:46:43.335 --> 00:46:44.295 You know, this is a

NOTE Confidence: 0.9955672

00:46:44.295 --> 00:46:45.974 study from, you know, years

NOTE Confidence: 0.9955672

00:46:45.974 --> 00:46:47.255 ago. This is the time

NOTE Confidence: 0.9955672

00:46:47.255 --> 00:46:48.234 when RCTs

NOTE Confidence: 0.99991864

00:46:48.614 --> 00:46:50.234 started to require preregistration

NOTE Confidence: 0.95532227

00:46:50.614 --> 00:46:51.435 before publication.

NOTE Confidence: 0.9998372

00:46:52.770 --> 00:46:54.150 And what they found was

NOTE Confidence: 0.9998372

00:46:54.370 --> 00:46:54.850 that,

NOTE Confidence: 0.97545445

00:46:55.410 --> 00:46:57.090 you know, prior to two

NOTE Confidence: 0.97545445

00:46:57.090 --> 00:46:58.450 thousand, when this became a

NOTE Confidence: 0.97545445

00:46:58.450 --> 00:47:00.070 mandate across the,

NOTE Confidence: 0.99487305

00:47:00.530 --> 00:47:02.230 medical journals and community,

NOTE Confidence: 0.99857956

00:47:02.850 --> 00:47:04.850 seventeen of thirty studies had

NOTE Confidence: 0.99857956

00:47:04.850 --> 00:47:06.370 a significant benefit for the

NOTE Confidence: 0.99857956

00:47:06.370 --> 00:47:06.870 intervention

NOTE Confidence: 0.9998047

00:47:07.344 --> 00:47:08.965 on the primary outcome. Now

NOTE Confidence: 0.9895935

00:47:09.425 --> 00:47:10.385 I'm not saying this is

NOTE Confidence: 0.9895935

00:47:10.385 --> 00:47:11.825 the only thing, but, you

NOTE Confidence: 0.9895935

00:47:11.825 --> 00:47:14.065 know, after two thousand, after

NOTE Confidence: 0.9895935

00:47:14.065 --> 00:47:14.565 preregistration

NOTE Confidence: 0.9788161

00:47:14.945 --> 00:47:16.545 were required, only two of

NOTE Confidence: 0.9788161

00:47:16.545 --> 00:47:18.245 the twenty five trials funded

NOTE Confidence: 0.9788161

00:47:18.385 --> 00:47:19.125 by the NIH,

NOTE Confidence: 0.99902344

00:47:20.790 --> 00:47:21.530 had a positive,

NOTE Confidence: 0.99698895

00:47:22.390 --> 00:47:23.290 you know, finding.

NOTE Confidence: 0.99440694

00:47:23.750 --> 00:47:25.030 Again, just speaking to the

NOTE Confidence: 0.99440694

00:47:25.030 --> 00:47:27.190 importance of, like, stating your

NOTE Confidence: 0.99440694

00:47:27.190 --> 00:47:27.690 claim,

NOTE Confidence: 0.9909352

00:47:27.989 --> 00:47:29.590 before you collect and analyze

NOTE Confidence: 0.9909352

00:47:29.590 --> 00:47:31.190 the data. And and I

NOTE Confidence: 0.9909352

00:47:31.190 --> 00:47:32.790 think that there is a

NOTE Confidence: 0.9909352

00:47:32.790 --> 00:47:34.330 role in terms of expanding

NOTE Confidence: 0.9909352

00:47:34.390 --> 00:47:36.145 this to preclinical research, to

NOTE Confidence: 0.9909352

00:47:36.145 --> 00:47:38.145 epidemiology, and to observational studies.

NOTE Confidence: 0.9909352

00:47:38.145 --> 00:47:39.444 It's something that we oftentimes

NOTE Confidence: 0.9909352

00:47:39.664 --> 00:47:40.164 ask,

NOTE Confidence: 0.93603516

00:47:40.704 --> 00:47:42.164 authors for at our journal.

NOTE Confidence: 0.9885254

00:47:42.785 --> 00:47:44.385 And there are also guidelines

NOTE Confidence: 0.9885254

00:47:44.385 --> 00:47:45.265 that are starting to come

NOTE Confidence: 0.9885254

00:47:45.265 --> 00:47:47.125 out. There's also many websites

NOTE Confidence: 0.9885254

00:47:47.184 --> 00:47:48.645 also that allow for preregistration,

NOTE Confidence: 0.99658203

00:47:49.664 --> 00:47:50.164 too.

NOTE Confidence: 0.991333

00:47:50.960 --> 00:47:51.599 The third,

NOTE Confidence: 0.9719238

00:47:52.079 --> 00:47:53.200 lesson, I think, is we

NOTE Confidence: 0.9719238

00:47:53.200 --> 00:47:54.819 need to accept corrections.

NOTE Confidence: 0.94462585

00:47:55.920 --> 00:47:56.880 Just do this as a

NOTE Confidence: 0.94462585

00:47:56.880 --> 00:47:58.640 community. Right? Like, a a

NOTE Confidence: 0.94462585

00:47:58.640 --> 00:48:00.020 great example is the PREDIMED

NOTE Confidence: 0.94462585

00:48:00.160 --> 00:48:00.660 study,

NOTE Confidence: 0.99672157

00:48:00.960 --> 00:48:02.480 which was the study around

NOTE Confidence: 0.99672157

00:48:02.480 --> 00:48:03.140 the Mediterranean

NOTE Confidence: 0.992513

00:48:03.440 --> 00:48:04.500 diet and cardiovascular

NOTE Confidence: 0.7590332

00:48:05.599 --> 00:48:06.099 disease.

NOTE Confidence: 0.96796876

00:48:06.905 --> 00:48:08.765 When this was originally published,

NOTE Confidence: 1

00:48:09.545 --> 00:48:10.285 there were

NOTE Confidence: 0.92361885

00:48:10.585 --> 00:48:12.025 some data sloots that noticed

NOTE Confidence: 0.92361885

00:48:12.025 --> 00:48:12.844 some irregularities

NOTE Confidence: 0.996693

00:48:13.545 --> 00:48:14.585 in the data that were

NOTE Confidence: 0.996693

00:48:14.585 --> 00:48:16.025 presented. And a few years

NOTE Confidence: 0.996693

00:48:16.025 --> 00:48:16.525 later,

NOTE Confidence: 0.9861738

00:48:17.625 --> 00:48:19.224 they they realized, like, as

NOTE Confidence: 0.9861738

00:48:19.224 --> 00:48:20.265 part of the protocol, there

NOTE Confidence: 0.9861738

00:48:20.265 --> 00:48:21.305 was a break in one

NOTE Confidence: 0.9861738

00:48:21.305 --> 00:48:22.900 region. And they went back,

NOTE Confidence: 0.9861738

00:48:22.900 --> 00:48:24.520 and they reanalyzed the data.

NOTE Confidence: 0.9861738

00:48:24.660 --> 00:48:26.020 And then they put the

NOTE Confidence: 0.9861738

00:48:26.020 --> 00:48:28.040 correct data out there. And

NOTE Confidence: 0.9861738

00:48:28.100 --> 00:48:29.460 I love this because it

NOTE Confidence: 0.9861738

00:48:29.460 --> 00:48:30.739 was a way in which

NOTE Confidence: 0.9861738

00:48:30.739 --> 00:48:32.040 the scientific community,

NOTE Confidence: 0.9912623

00:48:33.300 --> 00:48:35.060 actually responded in a positive

NOTE Confidence: 0.9912623

00:48:35.060 --> 00:48:37.000 manner. Right? They didn't immediately

NOTE Confidence: 0.9912623

00:48:37.060 --> 00:48:38.075 throw this out. And the

NOTE Confidence: 0.9912623

00:48:38.075 --> 00:48:39.454 authors had great intention

NOTE Confidence: 0.975708

00:48:39.755 --> 00:48:40.954 in terms of correcting the

NOTE Confidence: 0.975708

00:48:40.954 --> 00:48:41.454 record.

NOTE Confidence: 0.98196846

00:48:41.914 --> 00:48:42.714 But I have to say

NOTE Confidence: 0.98196846

00:48:42.714 --> 00:48:43.434 that, you know, this is

NOTE Confidence: 0.98196846

00:48:43.434 --> 00:48:44.315 where it gets a little

NOTE Confidence: 0.98196846

00:48:44.315 --> 00:48:45.355 personal for me is, like,

NOTE Confidence: 0.98196846

00:48:45.355 --> 00:48:46.555 this question of, does science

NOTE Confidence: 0.98196846

00:48:46.555 --> 00:48:47.775 really self correct?

NOTE Confidence: 0.96255696

00:48:48.394 --> 00:48:49.434 You know, we published a

NOTE Confidence: 0.96255696

00:48:49.434 --> 00:48:50.634 paper in in our own

NOTE Confidence: 0.96255696

00:48:50.634 --> 00:48:51.914 journal, right, in my own

NOTE Confidence: 0.96255696

00:48:51.914 --> 00:48:52.950 journal. And I think I'm

NOTE Confidence: 0.96255696

00:48:52.950 --> 00:48:54.630 the only editor to ever

NOTE Confidence: 0.96255696

00:48:54.630 --> 00:48:56.170 retract from his own journal.

NOTE Confidence: 0.96643883

00:48:57.349 --> 00:48:58.790 And, you know, to talk

NOTE Confidence: 0.96643883

00:48:58.790 --> 00:49:00.270 about this, you know, it

NOTE Confidence: 0.96643883

00:49:00.270 --> 00:49:01.770 it it it really is

NOTE Confidence: 0.7967122

00:49:02.310 --> 00:49:03.130 a a complicated

NOTE Confidence: 0.9995117

00:49:03.590 --> 00:49:04.650 space. Right?

NOTE Confidence: 0.9935547

00:49:05.385 --> 00:49:07.965 There's embarrassment. There's unclear responsibility.

NOTE Confidence: 0.9949544

00:49:08.585 --> 00:49:09.465 It can be very time

NOTE Confidence: 0.9949544

00:49:09.465 --> 00:49:09.965 consuming.

NOTE Confidence: 0.96713865

00:49:10.825 --> 00:49:12.025 We don't make it easy

NOTE Confidence: 0.96713865

00:49:12.025 --> 00:49:13.385 to retract even when you're

NOTE Confidence: 0.96713865

00:49:13.385 --> 00:49:14.665 the editor in chief. Like,

NOTE Confidence: 0.96713865

00:49:14.665 --> 00:49:15.864 I had to, you know,

NOTE Confidence: 0.96713865

00:49:15.864 --> 00:49:17.225 push every week to, like,

NOTE Confidence: 0.96713865

00:49:17.225 --> 00:49:18.105 hey. Where where are we

NOTE Confidence: 0.96713865

00:49:18.105 --> 00:49:19.405 gonna do with this? Because,

NOTE Confidence: 0.9937744

00:49:20.109 --> 00:49:21.150 you know, we need to

NOTE Confidence: 0.9937744

00:49:21.150 --> 00:49:23.070 retract this. And the story

NOTE Confidence: 0.9937744

00:49:23.070 --> 00:49:24.369 is actually quite interesting.

NOTE Confidence: 0.99194336

00:49:24.989 --> 00:49:25.390 The,

NOTE Confidence: 0.97753906

00:49:25.790 --> 00:49:26.609 the PhD,

NOTE Confidence: 0.9335124

00:49:27.790 --> 00:49:29.230 student who is kind of

NOTE Confidence: 0.9335124

00:49:29.230 --> 00:49:30.530 responsible for the analyses,

NOTE Confidence: 0.985957

00:49:30.830 --> 00:49:32.270 she felt awful about this.

NOTE Confidence: 0.985957

00:49:32.270 --> 00:49:33.150 And the only way we

NOTE Confidence: 0.985957

00:49:33.150 --> 00:49:34.614 discovered it was when we

NOTE Confidence: 0.985957

00:49:34.614 --> 00:49:35.895 tried to apply the same

NOTE Confidence: 0.985957

00:49:35.895 --> 00:49:37.275 tool in a different population,

NOTE Confidence: 0.9821214

00:49:37.735 --> 00:49:39.335 and we recognized that the

NOTE Confidence: 0.9821214

00:49:39.335 --> 00:49:40.614 results were absurd. Right? They

NOTE Confidence: 0.9821214

00:49:40.614 --> 00:49:41.515 were just nonsensical.

NOTE Confidence: 0.9874878

00:49:41.975 --> 00:49:43.095 So then we went back,

NOTE Confidence: 0.9874878

00:49:43.095 --> 00:49:44.135 and it was a small

NOTE Confidence: 0.9874878

00:49:44.135 --> 00:49:44.955 coding error.

NOTE Confidence: 0.9885254

00:49:45.495 --> 00:49:45.995 And,

NOTE Confidence: 0.99703544

00:49:46.450 --> 00:49:47.969 you know, again, thinking through

NOTE Confidence: 0.99703544

00:49:47.969 --> 00:49:48.790 this, like,

NOTE Confidence: 0.9910678

00:49:49.090 --> 00:49:50.610 she was very in a

NOTE Confidence: 0.9910678

00:49:50.610 --> 00:49:52.130 very vulnerable position, and I

NOTE Confidence: 0.9910678

00:49:52.130 --> 00:49:53.170 always, like, come back to

NOTE Confidence: 0.9910678

00:49:53.170 --> 00:49:54.390 the fact that she was

NOTE Confidence: 0.9910678

00:49:54.530 --> 00:49:55.730 brave enough to kind of

NOTE Confidence: 0.9910678

00:49:55.730 --> 00:49:56.870 come and tell us.

NOTE Confidence: 0.9859122

00:49:57.250 --> 00:49:58.530 And, you know, we we

NOTE Confidence: 0.9859122

00:49:58.530 --> 00:49:59.985 tried to encourage that, but

NOTE Confidence: 0.9859122

00:50:00.065 --> 00:50:01.025 I don't think that this

NOTE Confidence: 0.9859122

00:50:01.025 --> 00:50:02.225 happens enough. And I don't

NOTE Confidence: 0.9859122

00:50:02.225 --> 00:50:03.505 think we've created a culture

NOTE Confidence: 0.9859122

00:50:03.505 --> 00:50:04.165 of that,

NOTE Confidence: 0.9995931

00:50:04.785 --> 00:50:05.825 to the extent we need

NOTE Confidence: 0.9995931

00:50:05.825 --> 00:50:06.325 to.

NOTE Confidence: 0.9878133

00:50:07.745 --> 00:50:09.025 Lesson four, I think, is

NOTE Confidence: 0.9878133

00:50:09.025 --> 00:50:10.225 we need to accept no

NOTE Confidence: 0.9878133

00:50:10.225 --> 00:50:11.125 easy answers.

NOTE Confidence: 0.96454537

00:50:12.360 --> 00:50:14.920 Many changes will require improving

NOTE Confidence: 0.96454537

00:50:14.920 --> 00:50:16.200 training in research at all

NOTE Confidence: 0.96454537

00:50:16.200 --> 00:50:17.240 levels. That's why we need

NOTE Confidence: 0.96454537

00:50:17.240 --> 00:50:18.620 institutions like Yale,

NOTE Confidence: 0.9430664

00:50:19.080 --> 00:50:20.780 that produce, like, really good,

NOTE Confidence: 0.99736327

00:50:21.240 --> 00:50:23.340 physician scientists and clinical researchers.

NOTE Confidence: 0.9984267

00:50:24.120 --> 00:50:24.920 You know, we need to

NOTE Confidence: 0.9984267

00:50:24.920 --> 00:50:26.060 just know the limitations

NOTE Confidence: 0.99443614

00:50:26.415 --> 00:50:27.375 of the ways in which

NOTE Confidence: 0.99443614

00:50:27.375 --> 00:50:29.135 we analyze data. We need

NOTE Confidence: 0.99443614

00:50:29.135 --> 00:50:30.255 to push towards the use

NOTE Confidence: 0.99443614

00:50:30.255 --> 00:50:31.715 of stronger study designs.

NOTE Confidence: 0.9730399

00:50:32.975 --> 00:50:34.175 And then, you know, the

NOTE Confidence: 0.9730399

00:50:34.175 --> 00:50:36.094 idea that also better long

NOTE Confidence: 0.9730399

00:50:36.094 --> 00:50:37.455 term education of the public

NOTE Confidence: 0.9730399

00:50:37.455 --> 00:50:39.455 on scientific discourse overall and

NOTE Confidence: 0.9730399

00:50:39.455 --> 00:50:41.090 just communication. And I do

NOTE Confidence: 0.9730399

00:50:41.090 --> 00:50:42.370 really feel that editors and

NOTE Confidence: 0.9730399

00:50:42.370 --> 00:50:43.730 journals must lead in this

NOTE Confidence: 0.9730399

00:50:43.730 --> 00:50:44.690 space, and I know that

NOTE Confidence: 0.9730399

00:50:44.690 --> 00:50:45.730 this is the vision that

NOTE Confidence: 0.9730399

00:50:45.730 --> 00:50:47.570 that Harlan has certainly for

NOTE Confidence: 0.9730399

00:50:47.570 --> 00:50:48.770 JACC, which will be important

NOTE Confidence: 0.9730399

00:50:48.770 --> 00:50:49.270 because

NOTE Confidence: 0.96257097

00:50:49.810 --> 00:50:51.010 it's gonna take, like, our

NOTE Confidence: 0.96257097

00:50:51.010 --> 00:50:53.430 our flagship journals, JACC, Circulation,

NOTE Confidence: 0.96257097

00:50:53.730 --> 00:50:55.270 and EHA to really,

NOTE Confidence: 0.99731445

00:50:55.674 --> 00:50:56.895 push us towards this.

NOTE Confidence: 0.9859619

00:50:57.755 --> 00:50:59.275 There's an example that that's

NOTE Confidence: 0.9859619

00:50:59.275 --> 00:51:00.635 really telling of this idea

NOTE Confidence: 0.9859619

00:51:00.635 --> 00:51:02.335 of hacking journals. Right?

NOTE Confidence: 0.89398193

00:51:04.075 --> 00:51:05.454 There's a a fascinating,

NOTE Confidence: 0.9030762

00:51:07.914 --> 00:51:08.795 oh, it it doesn't show

NOTE Confidence: 0.9030762

00:51:08.795 --> 00:51:09.454 up, but,

NOTE Confidence: 0.9737956

00:51:09.914 --> 00:51:10.895 there was a

NOTE Confidence: 0.99417114

00:51:11.360 --> 00:51:12.400 there was a paper that

NOTE Confidence: 0.99417114

00:51:12.400 --> 00:51:13.840 was published in Nature about

NOTE Confidence: 0.99417114

00:51:13.840 --> 00:51:14.640 a year and a half

NOTE Confidence: 0.99417114

00:51:14.640 --> 00:51:15.140 ago,

NOTE Confidence: 0.994043

00:51:15.600 --> 00:51:17.380 on the climate science topic.

NOTE Confidence: 0.99651545

00:51:17.760 --> 00:51:19.440 And right after the author

NOTE Confidence: 0.99651545

00:51:19.440 --> 00:51:21.280 published it, he he wrote

NOTE Confidence: 0.99651545

00:51:21.280 --> 00:51:21.680 a,

NOTE Confidence: 0.99658203

00:51:22.080 --> 00:51:22.660 a piece

NOTE Confidence: 0.8562012

00:51:23.120 --> 00:51:24.260 in the free press

NOTE Confidence: 0.95262927

00:51:24.714 --> 00:51:26.335 that was titled, I overhyped

NOTE Confidence: 0.95262927

00:51:26.474 --> 00:51:27.675 climate change to get it

NOTE Confidence: 0.95262927

00:51:27.675 --> 00:51:28.175 published.

NOTE Confidence: 0.9928996

00:51:28.795 --> 00:51:29.994 And he went through it's

NOTE Confidence: 0.9928996

00:51:29.994 --> 00:51:31.194 almost like a tell all

NOTE Confidence: 0.9928996

00:51:31.194 --> 00:51:31.934 of, like,

NOTE Confidence: 0.9642013

00:51:32.234 --> 00:51:33.434 how, you know, he wrote,

NOTE Confidence: 0.9642013

00:51:33.434 --> 00:51:34.315 if you adhere to the

NOTE Confidence: 0.9642013

00:51:34.315 --> 00:51:36.155 mainstream narrative, if you focus

NOTE Confidence: 0.9642013

00:51:36.155 --> 00:51:37.694 on problems, not solutions,

NOTE Confidence: 0.9564087

00:51:38.200 --> 00:51:40.280 even when improvement exists, like

NOTE Confidence: 0.9564087

00:51:40.280 --> 00:51:42.040 pointing out that climate, you

NOTE Confidence: 0.9564087

00:51:42.040 --> 00:51:43.400 know, climate change has actually

NOTE Confidence: 0.9564087

00:51:43.400 --> 00:51:44.940 slowed down in some aspects.

NOTE Confidence: 0.98089045

00:51:45.560 --> 00:51:46.600 But if you don't focus

NOTE Confidence: 0.98089045

00:51:46.600 --> 00:51:47.400 on that and you just

NOTE Confidence: 0.98089045

00:51:47.400 --> 00:51:49.420 focus on overhyping it again,

NOTE Confidence: 0.98089045

00:51:49.560 --> 00:51:50.840 and then you you you

NOTE Confidence: 0.98089045

00:51:50.840 --> 00:51:52.575 report the eye popping statistics

NOTE Confidence: 0.98089045

00:51:52.734 --> 00:51:53.855 rather than the the ones

NOTE Confidence: 0.98089045

00:51:53.855 --> 00:51:54.755 that show improvement,

NOTE Confidence: 0.990005

00:51:55.375 --> 00:51:56.575 that you can really get

NOTE Confidence: 0.990005

00:51:56.575 --> 00:51:57.935 the mainstream journals to be

NOTE Confidence: 0.990005

00:51:57.935 --> 00:51:59.295 excited about this. And it

NOTE Confidence: 0.990005

00:51:59.295 --> 00:52:00.734 was a very interesting whether

NOTE Confidence: 0.990005

00:52:00.734 --> 00:52:01.775 you agree with him or

NOTE Confidence: 0.990005

00:52:01.775 --> 00:52:03.535 not, just his thought process

NOTE Confidence: 0.990005

00:52:03.535 --> 00:52:04.515 was very fascinating,

NOTE Confidence: 0.9625

00:52:05.135 --> 00:52:06.500 to kinda go through. And

NOTE Confidence: 0.9625

00:52:06.500 --> 00:52:07.780 then finally, this lesson of,

NOTE Confidence: 0.9625

00:52:07.780 --> 00:52:08.980 like, starting to ask what

NOTE Confidence: 0.9625

00:52:08.980 --> 00:52:10.359 I call the hard questions.

NOTE Confidence: 0.9325684

00:52:10.819 --> 00:52:11.700 You know, we do need

NOTE Confidence: 0.9325684

00:52:11.700 --> 00:52:13.480 to understand funders and policymakers'

NOTE Confidence: 0.99397784

00:52:13.940 --> 00:52:14.839 role in reform.

NOTE Confidence: 0.97928137

00:52:15.460 --> 00:52:16.819 They played a major role

NOTE Confidence: 0.97928137

00:52:16.819 --> 00:52:18.500 in open science and protocol

NOTE Confidence: 0.97928137

00:52:18.500 --> 00:52:19.000 preregistration.

NOTE Confidence: 0.99769175

00:52:19.745 --> 00:52:20.465 And then many of you

NOTE Confidence: 0.99769175

00:52:20.465 --> 00:52:21.825 have probably seen the NIH

NOTE Confidence: 0.99769175

00:52:21.825 --> 00:52:22.325 director

NOTE Confidence: 0.97495115

00:52:22.705 --> 00:52:24.145 as in recent, you know,

NOTE Confidence: 0.97495115

00:52:24.145 --> 00:52:25.585 months, he's pushed this idea

NOTE Confidence: 0.97495115

00:52:25.585 --> 00:52:26.785 that the NIH needs to

NOTE Confidence: 0.97495115

00:52:26.785 --> 00:52:28.485 be focused on replication science.

NOTE Confidence: 0.9573498

00:52:29.185 --> 00:52:30.545 The challenge has been that

NOTE Confidence: 0.9573498

00:52:30.545 --> 00:52:32.225 they haven't really funded that

NOTE Confidence: 0.9573498

00:52:32.225 --> 00:52:33.685 aspect of it. And an,

NOTE Confidence: 0.9573498

00:52:33.980 --> 00:52:35.579 you know, an unfunded mandate.

NOTE Confidence: 0.9573498

00:52:35.579 --> 00:52:36.619 I'm not sure it's gonna

NOTE Confidence: 0.9573498

00:52:36.619 --> 00:52:37.599 really move the needle.

NOTE Confidence: 0.9793579

00:52:38.140 --> 00:52:39.020 But I think that at

NOTE Confidence: 0.9793579

00:52:39.020 --> 00:52:40.140 least it's, like, starting to

NOTE Confidence: 0.9793579

00:52:40.140 --> 00:52:41.260 make its way to the

NOTE Confidence: 0.9793579

00:52:41.260 --> 00:52:43.279 highest levels of, of sponsors.

NOTE Confidence: 0.97986394

00:52:44.059 --> 00:52:45.660 And then really just, you

NOTE Confidence: 0.97986394

00:52:45.660 --> 00:52:47.420 know, this, like, fundamental idea

NOTE Confidence: 0.97986394

00:52:47.420 --> 00:52:47.980 at the end of the

NOTE Confidence: 0.97986394

00:52:47.980 --> 00:52:49.680 day of too much research.

NOTE Confidence: 0.97986394

00:52:49.844 --> 00:52:51.364 You know? How much real

NOTE Confidence: 0.97986394

00:52:51.364 --> 00:52:52.565 value have tens of thousands

NOTE Confidence: 0.97986394

00:52:52.565 --> 00:52:54.005 of COVID nineteen studies brought

NOTE Confidence: 0.97986394

00:52:54.005 --> 00:52:54.805 us? I mean, I I've

NOTE Confidence: 0.97986394

00:52:54.805 --> 00:52:55.765 seen so many of those

NOTE Confidence: 0.97986394

00:52:55.765 --> 00:52:57.045 studies come across my desk

NOTE Confidence: 0.97986394

00:52:57.045 --> 00:52:58.165 and, you know, to try

NOTE Confidence: 0.97986394

00:52:58.165 --> 00:52:59.525 to understand how they actually

NOTE Confidence: 0.97986394

00:52:59.525 --> 00:53:00.965 change clinical care or impact

NOTE Confidence: 0.97986394

00:53:00.965 --> 00:53:01.465 us,

NOTE Confidence: 0.9864095

00:53:02.165 --> 00:53:03.285 you know, is marginal at

NOTE Confidence: 0.9864095

00:53:03.285 --> 00:53:03.785 best.

NOTE Confidence: 0.9970467

00:53:04.320 --> 00:53:05.440 And and how we think

NOTE Confidence: 0.9970467

00:53:05.440 --> 00:53:06.400 about that when, you know,

NOTE Confidence: 0.9970467

00:53:06.400 --> 00:53:07.680 we think about this idea

NOTE Confidence: 0.9970467

00:53:07.680 --> 00:53:09.680 of democratizing science, which sounds

NOTE Confidence: 0.9970467

00:53:09.680 --> 00:53:10.960 like a great idea on

NOTE Confidence: 0.9970467

00:53:10.960 --> 00:53:12.880 paper, but the implications of

NOTE Confidence: 0.9970467

00:53:12.880 --> 00:53:13.380 that,

NOTE Confidence: 0.9998372

00:53:14.080 --> 00:53:14.980 can be tremendous.

NOTE Confidence: 0.98999023

00:53:15.920 --> 00:53:16.420 So,

NOTE Confidence: 0.97568357

00:53:17.275 --> 00:53:18.395 you know, I I'm gonna,

NOTE Confidence: 0.99347794

00:53:18.795 --> 00:53:20.075 finish off with just this

NOTE Confidence: 0.99347794

00:53:20.075 --> 00:53:20.895 last slide,

NOTE Confidence: 0.99975586

00:53:21.195 --> 00:53:21.835 which is,

NOTE Confidence: 0.9904175

00:53:22.635 --> 00:53:23.675 you know, one of my

NOTE Confidence: 0.9904175

00:53:23.675 --> 00:53:24.635 favorites. I'm a I'm a

NOTE Confidence: 0.9904175

00:53:24.635 --> 00:53:26.155 rational optimist, I think, at

NOTE Confidence: 0.9904175

00:53:26.155 --> 00:53:26.655 heart.

NOTE Confidence: 0.99546593

00:53:27.035 --> 00:53:28.635 And, you know, I love

NOTE Confidence: 0.99546593

00:53:28.635 --> 00:53:29.375 this slide.

NOTE Confidence: 0.9562581

00:53:30.710 --> 00:53:32.390 When the New England Journal

NOTE Confidence: 0.9562581

00:53:32.390 --> 00:53:33.910 was celebrating its its two

NOTE Confidence: 0.9562581

00:53:33.910 --> 00:53:34.969 hundredth anniversary,

NOTE Confidence: 0.999721

00:53:36.549 --> 00:53:38.069 the very first article in

NOTE Confidence: 0.999721

00:53:38.069 --> 00:53:38.969 their series

NOTE Confidence: 0.9921875

00:53:39.349 --> 00:53:40.089 of reflections

NOTE Confidence: 0.9541911

00:53:40.630 --> 00:53:42.569 was by Betsy Nabel and

NOTE Confidence: 0.9541911

00:53:42.710 --> 00:53:44.150 Eugene Braunwald, and it was

NOTE Confidence: 0.9541911

00:53:44.150 --> 00:53:45.805 titled A Tale of Coronary

NOTE Confidence: 0.9541911

00:53:45.805 --> 00:53:47.745 Artery Disease and Myocardial Infarction.

NOTE Confidence: 0.94485474

00:53:48.685 --> 00:53:49.725 And if you look at

NOTE Confidence: 0.94485474

00:53:49.725 --> 00:53:51.405 this slide, it's just really

NOTE Confidence: 0.94485474

00:53:51.405 --> 00:53:52.765 remarkable. Right? You look at

NOTE Confidence: 0.94485474

00:53:52.765 --> 00:53:53.265 these

NOTE Confidence: 0.97080076

00:53:53.645 --> 00:53:56.065 deaths per hundred thousand population

NOTE Confidence: 0.97897947

00:53:56.364 --> 00:53:58.125 rates, you know, going north

NOTE Confidence: 0.97897947

00:53:58.125 --> 00:53:59.665 of, you know, four hundred

NOTE Confidence: 0.9359976

00:54:00.350 --> 00:54:01.950 down over the years from

NOTE Confidence: 0.9359976

00:54:01.950 --> 00:54:03.390 nineteen fifty to about two

NOTE Confidence: 0.9359976

00:54:03.390 --> 00:54:04.370 thousand and ten

NOTE Confidence: 0.97914124

00:54:05.070 --> 00:54:06.910 to, you know, almost like

NOTE Confidence: 0.97914124

00:54:06.910 --> 00:54:08.430 a seventy five percent decrease.

NOTE Confidence: 0.97914124

00:54:08.430 --> 00:54:10.190 And that's just incredible when

NOTE Confidence: 0.97914124

00:54:10.190 --> 00:54:11.070 you think about it. But

NOTE Confidence: 0.97914124

00:54:11.070 --> 00:54:12.510 what I really love more

NOTE Confidence: 0.97914124

00:54:12.510 --> 00:54:13.630 about this slide than anything

NOTE Confidence: 0.97914124

00:54:13.630 --> 00:54:14.290 else is

NOTE Confidence: 0.96041435

00:54:14.705 --> 00:54:15.745 what you just see is

NOTE Confidence: 0.96041435

00:54:15.745 --> 00:54:16.565 this steady,

NOTE Confidence: 0.9995117

00:54:17.265 --> 00:54:19.045 progressive decline. Right?

NOTE Confidence: 0.9735352

00:54:19.344 --> 00:54:21.045 There was no, like, moonshot

NOTE Confidence: 0.99902344

00:54:21.425 --> 00:54:22.785 that that did this. Right?

NOTE Confidence: 0.99902344

00:54:22.785 --> 00:54:24.085 Nobody hacked health.

NOTE Confidence: 0.9832209

00:54:24.625 --> 00:54:26.065 It was just you know,

NOTE Confidence: 0.9832209

00:54:26.065 --> 00:54:27.425 you just have this slow

NOTE Confidence: 0.9832209

00:54:27.425 --> 00:54:27.925 decline,

NOTE Confidence: 0.9801758

00:54:28.290 --> 00:54:29.730 you know, based on real

NOTE Confidence: 0.9801758

00:54:29.730 --> 00:54:31.590 advancements in science that happen

NOTE Confidence: 0.9847819

00:54:31.969 --> 00:54:32.690 in a way that I

NOTE Confidence: 0.9847819

00:54:32.690 --> 00:54:33.910 think, you know, incrementalism

NOTE Confidence: 0.9928385

00:54:34.290 --> 00:54:35.110 gets oftentimes,

NOTE Confidence: 0.9980469

00:54:35.730 --> 00:54:36.370 you know,

NOTE Confidence: 0.966483

00:54:37.010 --> 00:54:38.210 diminished. But but I think

NOTE Confidence: 0.966483

00:54:38.210 --> 00:54:39.170 it's at the core of

NOTE Confidence: 0.966483

00:54:39.170 --> 00:54:40.230 of how we progress,

NOTE Confidence: 0.98652345

00:54:40.864 --> 00:54:42.385 because, you know, really, science

NOTE Confidence: 0.98652345

00:54:42.385 --> 00:54:43.505 is not as much about

NOTE Confidence: 0.98652345

00:54:43.505 --> 00:54:45.344 being right, just about being

NOTE Confidence: 0.98652345

00:54:45.344 --> 00:54:46.944 less wrong over time. So,

NOTE Confidence: 0.98652345

00:54:46.944 --> 00:54:48.224 anyway, thank you. It's it's

NOTE Confidence: 0.98652345

00:54:48.224 --> 00:54:49.184 wonderful to be here. It's

NOTE Confidence: 0.98652345

00:54:49.184 --> 00:54:50.645 wonderful to visit with everyone.

NOTE Confidence: 0.5430908

00:54:54.910 --> 00:54:55.410 Baoji,

NOTE Confidence: 0.96738464

00:54:56.910 --> 00:54:58.190 that was excellent. Thank you

NOTE Confidence: 0.96738464

00:54:58.190 --> 00:54:59.230 for joining us and and

NOTE Confidence: 0.96738464

00:54:59.230 --> 00:55:00.989 for this great visit. Maybe

NOTE Confidence: 0.96738464

00:55:00.989 --> 00:55:01.630 I'll start it off. I'm

NOTE Confidence: 0.96738464

00:55:01.630 --> 00:55:02.510 sure there's gonna be millions

NOTE Confidence: 0.96738464

00:55:02.510 --> 00:55:03.090 of questions.

NOTE Confidence: 0.953125

00:55:03.630 --> 00:55:05.310 You you introduced the concept

NOTE Confidence: 0.953125

00:55:05.310 --> 00:55:06.690 of the need for preregistration,

NOTE Confidence: 0.99104816

00:55:06.989 --> 00:55:07.710 which I think,

NOTE Confidence: 0.98372394

00:55:08.190 --> 00:55:09.469 I I completely agree with

NOTE Confidence: 0.98372394

00:55:09.469 --> 00:55:09.969 you.

NOTE Confidence: 0.9564209

00:55:11.895 --> 00:55:13.175 Do you can you speak

NOTE Confidence: 0.9564209

00:55:13.175 --> 00:55:14.135 to how you would see

NOTE Confidence: 0.9564209

00:55:14.135 --> 00:55:15.735 that happening? We've done it

NOTE Confidence: 0.9564209

00:55:15.735 --> 00:55:17.255 in the clinical trial realm

NOTE Confidence: 0.9564209

00:55:17.255 --> 00:55:18.375 realm, I think, particularly well.

NOTE Confidence: 0.9564209

00:55:18.375 --> 00:55:19.015 And by the way, I

NOTE Confidence: 0.9564209

00:55:19.015 --> 00:55:20.935 think preregistration step one, you

NOTE Confidence: 0.9564209

00:55:20.935 --> 00:55:21.435 know,

NOTE Confidence: 0.9194336

00:55:22.980 --> 00:55:23.480 submitting

NOTE Confidence: 0.9163411

00:55:23.940 --> 00:55:25.480 planned analysis plans

NOTE Confidence: 0.96529645

00:55:25.860 --> 00:55:27.300 before that first patient's enrolled,

NOTE Confidence: 0.96529645

00:55:27.300 --> 00:55:28.340 I think probably would be

NOTE Confidence: 0.96529645

00:55:28.340 --> 00:55:29.060 a step in the right

NOTE Confidence: 0.96529645

00:55:29.060 --> 00:55:30.520 direction, which is not preregistration.

NOTE Confidence: 0.96529645

00:55:30.739 --> 00:55:31.700 It's it's actually a

NOTE Confidence: 0.98175603

00:55:32.660 --> 00:55:33.540 but how do you see

NOTE Confidence: 0.98175603

00:55:33.540 --> 00:55:34.994 that actually happening in the

NOTE Confidence: 0.98175603

00:55:34.994 --> 00:55:35.494 outcomes

NOTE Confidence: 0.66845703

00:55:35.954 --> 00:55:36.454 arena?

NOTE Confidence: 0.99986047

00:55:36.914 --> 00:55:37.795 And does it need to

NOTE Confidence: 0.99986047

00:55:37.795 --> 00:55:38.454 be applied

NOTE Confidence: 0.9981864

00:55:38.835 --> 00:55:40.295 to the work we do

NOTE Confidence: 0.9981864

00:55:40.515 --> 00:55:41.255 in preclinical

NOTE Confidence: 0.98254395

00:55:41.634 --> 00:55:43.234 spaces as well? Because I

NOTE Confidence: 0.98254395

00:55:43.234 --> 00:55:44.694 do think that, you know,

NOTE Confidence: 0.7207031

00:55:45.075 --> 00:55:45.575 putting

NOTE Confidence: 0.9995117

00:55:45.954 --> 00:55:46.775 your analysis

NOTE Confidence: 0.9987793

00:55:47.634 --> 00:55:49.015 your goals in front

NOTE Confidence: 0.97198486

00:55:50.400 --> 00:55:51.839 should be almost a a

NOTE Confidence: 0.97198486

00:55:51.839 --> 00:55:53.299 way to define

NOTE Confidence: 0.9926842

00:55:53.920 --> 00:55:54.960 the quality of the science

NOTE Confidence: 0.9926842

00:55:54.960 --> 00:55:55.760 that comes out of it.

NOTE Confidence: 0.9926842

00:55:55.760 --> 00:55:56.880 So I'm just curious how

NOTE Confidence: 0.9926842

00:55:56.880 --> 00:55:58.160 you see it kind of

NOTE Confidence: 0.9926842

00:55:58.160 --> 00:56:00.160 rolling out in the outcome

NOTE Confidence: 0.9926842

00:56:00.160 --> 00:56:01.380 space as an example.

NOTE Confidence: 0.9375

00:56:01.839 --> 00:56:03.119 Yeah. I I think it's

NOTE Confidence: 0.9375

00:56:03.119 --> 00:56:03.940 a great question.

NOTE Confidence: 0.9970432

00:56:04.719 --> 00:56:06.105 Eric, I I really appreciate

NOTE Confidence: 0.9970432

00:56:06.105 --> 00:56:07.065 it. I I think that

NOTE Confidence: 0.9970432

00:56:07.065 --> 00:56:08.185 there's two things I'd say.

NOTE Confidence: 0.9970432

00:56:08.185 --> 00:56:09.085 One is that

NOTE Confidence: 0.95564777

00:56:09.785 --> 00:56:11.165 I believe that,

NOTE Confidence: 0.987571

00:56:11.864 --> 00:56:13.065 there are ways in which

NOTE Confidence: 0.987571

00:56:13.065 --> 00:56:14.025 we can do this even

NOTE Confidence: 0.987571

00:56:14.025 --> 00:56:14.525 immediately.

NOTE Confidence: 0.9284668

00:56:15.625 --> 00:56:16.844 You know, Brian Nosig

NOTE Confidence: 0.7928874

00:56:17.145 --> 00:56:17.850 is one example.

NOTE Confidence: 0.7645671

00:56:19.050 --> 00:56:20.270 Open science framework,

NOTE Confidence: 0.9260344

00:56:20.970 --> 00:56:22.170 OSF. You can go on

NOTE Confidence: 0.9260344

00:56:22.170 --> 00:56:23.630 his site. You can,

NOTE Confidence: 0.98114693

00:56:24.570 --> 00:56:27.210 register your observational study. You

NOTE Confidence: 0.98114693

00:56:27.210 --> 00:56:29.150 can register the analytic plan,

NOTE Confidence: 0.98114693

00:56:29.370 --> 00:56:30.489 and you can date and

NOTE Confidence: 0.98114693

00:56:30.489 --> 00:56:31.515 time stamp it,

NOTE Confidence: 0.9986328

00:56:32.075 --> 00:56:33.535 which is which is wonderful.

NOTE Confidence: 0.97857666

00:56:34.635 --> 00:56:35.434 You know, it's it's a

NOTE Confidence: 0.97857666

00:56:35.434 --> 00:56:36.875 little harder, especially when you're

NOTE Confidence: 0.97857666

00:56:36.875 --> 00:56:38.474 doing secondary day data analysis

NOTE Confidence: 0.97857666

00:56:38.474 --> 00:56:39.594 because sometimes these things have

NOTE Confidence: 0.97857666

00:56:39.594 --> 00:56:40.795 been around for, you know,

NOTE Confidence: 0.97857666

00:56:40.795 --> 00:56:42.075 the data. You know, you

NOTE Confidence: 0.97857666

00:56:42.075 --> 00:56:42.954 you have to have some

NOTE Confidence: 0.97857666

00:56:42.954 --> 00:56:44.154 faith in, like, what the

NOTE Confidence: 0.97857666

00:56:44.154 --> 00:56:45.780 investigator and team are doing.

NOTE Confidence: 0.97857666

00:56:45.940 --> 00:56:46.900 I do think that there's

NOTE Confidence: 0.97857666

00:56:46.900 --> 00:56:48.200 a frame shift of mindset

NOTE Confidence: 0.97857666

00:56:48.260 --> 00:56:49.480 too that needs to happen.

NOTE Confidence: 0.9846849

00:56:49.860 --> 00:56:51.160 I'm not saying that exploratory

NOTE Confidence: 0.9846849

00:56:51.380 --> 00:56:53.460 analysis is not worthwhile. Right?

NOTE Confidence: 0.9846849

00:56:53.460 --> 00:56:54.260 I mean, I think, you

NOTE Confidence: 0.9846849

00:56:54.260 --> 00:56:55.140 know, many of the things

NOTE Confidence: 0.9846849

00:56:55.140 --> 00:56:56.920 we we discover, we discover

NOTE Confidence: 0.9846849

00:56:57.060 --> 00:56:57.560 accidentally,

NOTE Confidence: 0.9960038

00:56:58.100 --> 00:56:58.820 and I think there's a

NOTE Confidence: 0.9960038

00:56:58.820 --> 00:57:00.295 role for it. I think

NOTE Confidence: 0.9960038

00:57:00.295 --> 00:57:02.555 what is troubling is when

NOTE Confidence: 0.9960038

00:57:02.775 --> 00:57:04.315 you're doing data exploration,

NOTE Confidence: 0.99641925

00:57:04.855 --> 00:57:06.775 but you're reporting it as

NOTE Confidence: 0.99641925

00:57:06.775 --> 00:57:08.395 if it's hypothesis testing.

NOTE Confidence: 0.9839226

00:57:08.695 --> 00:57:09.975 That's the disconnect. I think

NOTE Confidence: 0.9839226

00:57:09.975 --> 00:57:10.935 there's a role for both

NOTE Confidence: 0.9839226

00:57:10.935 --> 00:57:12.475 types of science for sure,

NOTE Confidence: 0.9839226

00:57:12.600 --> 00:57:13.560 but I think that that's

NOTE Confidence: 0.9839226

00:57:13.560 --> 00:57:15.239 the challenge when you're telling

NOTE Confidence: 0.9839226

00:57:15.239 --> 00:57:16.540 a different type of story

NOTE Confidence: 0.9839226

00:57:16.760 --> 00:57:18.620 from what actually happened.

NOTE Confidence: 0.99943036

00:57:18.920 --> 00:57:19.800 And that's where we can

NOTE Confidence: 0.99943036

00:57:19.800 --> 00:57:21.080 get down these these different

NOTE Confidence: 0.99943036

00:57:21.080 --> 00:57:21.980 rabbit holes.

NOTE Confidence: 0.9965964

00:57:24.440 --> 00:57:25.995 You've given us some great

NOTE Confidence: 0.9965964

00:57:26.235 --> 00:57:27.595 solutions that I think will

NOTE Confidence: 0.9965964

00:57:27.595 --> 00:57:29.515 incrementally improve the quality of

NOTE Confidence: 0.9965964

00:57:29.515 --> 00:57:30.175 our data.

NOTE Confidence: 0.9694824

00:57:30.635 --> 00:57:31.455 But tomorrow,

NOTE Confidence: 0.96351564

00:57:31.835 --> 00:57:33.195 what would you say to

NOTE Confidence: 0.96351564

00:57:33.195 --> 00:57:36.095 your anti vaxx Maha sister-in-law

NOTE Confidence: 0.9580078

00:57:36.715 --> 00:57:37.835 when she asks you about

NOTE Confidence: 0.9580078

00:57:37.835 --> 00:57:38.975 the NOSEC study?

NOTE Confidence: 1

00:57:45.460 --> 00:57:45.960 Yeah.

NOTE Confidence: 0.9556152

00:57:46.900 --> 00:57:48.680 Yeah. No. It's it's a

NOTE Confidence: 0.9973389

00:57:49.300 --> 00:57:50.260 it's a it's a really

NOTE Confidence: 0.9973389

00:57:50.260 --> 00:57:51.780 tough question. I mean, I

NOTE Confidence: 0.9877742

00:57:53.724 --> 00:57:54.605 okay. So I'm gonna I'm

NOTE Confidence: 0.9877742

00:57:54.605 --> 00:57:55.885 gonna answer it. I'm gonna

NOTE Confidence: 0.9877742

00:57:55.885 --> 00:57:57.185 tread carefully here.

NOTE Confidence: 0.9996745

00:57:58.204 --> 00:57:59.105 I think that,

NOTE Confidence: 0.9797363

00:57:59.964 --> 00:58:01.005 you know, the the two

NOTE Confidence: 0.9797363

00:58:01.005 --> 00:58:01.885 things that I just think

NOTE Confidence: 0.9797363

00:58:01.885 --> 00:58:03.724 about immediately are, you know,

NOTE Confidence: 0.9797363

00:58:03.724 --> 00:58:04.605 if you go back,

NOTE Confidence: 0.9977583

00:58:06.020 --> 00:58:07.140 about ten or twenty years

NOTE Confidence: 0.9977583

00:58:07.140 --> 00:58:08.020 ago and I was probably

NOTE Confidence: 0.9977583

00:58:08.020 --> 00:58:09.380 one of the strongest advocates

NOTE Confidence: 0.9977583

00:58:09.380 --> 00:58:11.060 for saying, oh, just release

NOTE Confidence: 0.9977583

00:58:11.060 --> 00:58:12.200 data. Right?

NOTE Confidence: 0.972798

00:58:13.619 --> 00:58:14.740 And I do believe that

NOTE Confidence: 0.972798

00:58:14.740 --> 00:58:16.260 that's still probably the right

NOTE Confidence: 0.972798

00:58:16.260 --> 00:58:17.460 way to do it. But

NOTE Confidence: 0.972798

00:58:17.460 --> 00:58:18.579 what we've seen over the

NOTE Confidence: 0.972798

00:58:18.579 --> 00:58:20.505 years is people can take

NOTE Confidence: 0.972798

00:58:20.505 --> 00:58:21.625 data and they can, you

NOTE Confidence: 0.972798

00:58:21.625 --> 00:58:23.145 know, manipulate it to a

NOTE Confidence: 0.972798

00:58:23.145 --> 00:58:24.765 prior story. In fact, like,

NOTE Confidence: 0.972798

00:58:24.905 --> 00:58:25.865 I'll be honest. I think

NOTE Confidence: 0.972798

00:58:25.865 --> 00:58:26.905 all human beings, it doesn't

NOTE Confidence: 0.972798

00:58:26.905 --> 00:58:28.424 matter your political spectrum. We

NOTE Confidence: 0.972798

00:58:28.424 --> 00:58:29.565 all tend to do it.

NOTE Confidence: 0.972798

00:58:29.625 --> 00:58:30.204 You know?

NOTE Confidence: 0.9917922

00:58:30.984 --> 00:58:32.424 We we have some answer

NOTE Confidence: 0.9917922

00:58:32.424 --> 00:58:33.450 in mind, and then we

NOTE Confidence: 0.9917922

00:58:33.450 --> 00:58:34.730 kind of selectively go looking

NOTE Confidence: 0.9917922

00:58:34.730 --> 00:58:36.510 for the answers that support

NOTE Confidence: 0.9917922

00:58:36.570 --> 00:58:37.070 it.

NOTE Confidence: 0.9934082

00:58:38.329 --> 00:58:39.530 So I I I think

NOTE Confidence: 0.9934082

00:58:39.530 --> 00:58:40.510 that that's challenging.

NOTE Confidence: 0.99576825

00:58:41.690 --> 00:58:42.650 I think the second thing

NOTE Confidence: 0.99576825

00:58:42.650 --> 00:58:43.790 I'll just say about,

NOTE Confidence: 0.8911133

00:58:44.250 --> 00:58:45.130 you know, that I

NOTE Confidence: 0.97998047

00:58:45.770 --> 00:58:47.130 you know, Michigan's a purple

NOTE Confidence: 0.97998047

00:58:47.130 --> 00:58:48.750 state. Right? And,

NOTE Confidence: 0.99044365

00:58:49.425 --> 00:58:50.625 you know, it was very

NOTE Confidence: 0.99044365

00:58:50.625 --> 00:58:51.765 interesting because

NOTE Confidence: 0.98932755

00:58:52.385 --> 00:58:53.425 if you go outside of

NOTE Confidence: 0.98932755

00:58:53.425 --> 00:58:54.085 Ann Arbor,

NOTE Confidence: 0.99853516

00:58:54.625 --> 00:58:55.125 like,

NOTE Confidence: 0.9974301

00:58:55.585 --> 00:58:57.345 just even thirty miles, you're

NOTE Confidence: 0.9974301

00:58:57.345 --> 00:58:58.785 in a much different place

NOTE Confidence: 0.9974301

00:58:58.785 --> 00:58:59.665 than you are in the

NOTE Confidence: 0.9974301

00:58:59.665 --> 00:59:00.725 heart of Ann Arbor.

NOTE Confidence: 0.9977214

00:59:01.905 --> 00:59:02.705 I've tried to

NOTE Confidence: 0.9587952

00:59:03.640 --> 00:59:04.680 I don't know. I don't

NOTE Confidence: 0.9587952

00:59:04.680 --> 00:59:05.960 know. I try I try

NOTE Confidence: 0.9587952

00:59:05.960 --> 00:59:06.920 to listen a little bit

NOTE Confidence: 0.9587952

00:59:06.920 --> 00:59:09.020 more to my Maha sister-in-law,

NOTE Confidence: 0.9661255

00:59:09.880 --> 00:59:11.320 but, like, I it's it

NOTE Confidence: 0.9661255

00:59:11.320 --> 00:59:12.220 could be challenging.

NOTE Confidence: 0.9872233

00:59:13.160 --> 00:59:14.040 But the one thing I've

NOTE Confidence: 0.9872233

00:59:14.040 --> 00:59:15.320 realized is nobody wants to

NOTE Confidence: 0.9872233

00:59:15.320 --> 00:59:17.020 be told they're wrong. And,

NOTE Confidence: 0.9872233

00:59:17.135 --> 00:59:18.015 you know, I I don't

NOTE Confidence: 0.9872233

00:59:18.015 --> 00:59:18.515 know.

NOTE Confidence: 0.9666443

00:59:18.895 --> 00:59:19.694 I if you have an

NOTE Confidence: 0.9666443

00:59:19.694 --> 00:59:20.815 answer, I'd love to hear

NOTE Confidence: 0.9666443

00:59:20.815 --> 00:59:22.335 it, but it's like trying

NOTE Confidence: 0.9666443

00:59:22.335 --> 00:59:22.835 to

NOTE Confidence: 0.98752666

00:59:23.295 --> 00:59:24.734 data itself is not gonna

NOTE Confidence: 0.98752666

00:59:24.734 --> 00:59:26.015 get us out of, like,

NOTE Confidence: 0.98752666

00:59:26.015 --> 00:59:27.295 you know, the the the

NOTE Confidence: 0.98752666

00:59:27.295 --> 00:59:28.494 situation I feel like we're

NOTE Confidence: 0.98752666

00:59:28.494 --> 00:59:29.474 sometimes in.

NOTE Confidence: 0.9685872

00:59:30.720 --> 00:59:32.160 Yeah. I'm I wish I

NOTE Confidence: 0.9685872

00:59:32.160 --> 00:59:33.140 had a better answer.

NOTE Confidence: 0.95112103

00:59:35.040 --> 00:59:36.980 Amarjeet, that was a wonderful

NOTE Confidence: 0.95112103

00:59:37.040 --> 00:59:37.540 talk,

NOTE Confidence: 0.984096

00:59:38.000 --> 00:59:39.280 and thank you for your

NOTE Confidence: 0.984096

00:59:39.280 --> 00:59:40.260 visit. I,

NOTE Confidence: 0.9984267

00:59:41.040 --> 00:59:42.560 as a basic scientist, I

NOTE Confidence: 0.9984267

00:59:42.560 --> 00:59:44.100 couldn't help but continually

NOTE Confidence: 0.99902344

00:59:45.200 --> 00:59:45.700 compare

NOTE Confidence: 0.9840035

00:59:46.345 --> 00:59:47.885 a lot of your discussion

NOTE Confidence: 0.9840035

00:59:48.025 --> 00:59:49.305 with what I think about

NOTE Confidence: 0.9840035

00:59:49.305 --> 00:59:51.065 in the preclinical or basic

NOTE Confidence: 0.9840035

00:59:51.065 --> 00:59:52.505 science world. And I wanna

NOTE Confidence: 0.9840035

00:59:52.505 --> 00:59:53.405 go back to

NOTE Confidence: 0.99934894

00:59:53.785 --> 00:59:56.185 your concept about hypothesis driven

NOTE Confidence: 0.99934894

00:59:56.185 --> 00:59:56.685 versus

NOTE Confidence: 0.8850911

00:59:57.465 --> 00:59:58.445 sort of observational

NOTE Confidence: 0.96712554

00:59:58.825 --> 01:00:00.420 science. And I've I've joked

NOTE Confidence: 0.96712554

01:00:00.420 --> 01:00:01.700 with Harlan about this over

NOTE Confidence: 0.96712554

01:00:01.700 --> 01:00:02.579 the years. At least, I

NOTE Confidence: 0.96712554

01:00:02.579 --> 01:00:03.380 thought it was a joke.

NOTE Confidence: 0.96712554

01:00:03.380 --> 01:00:04.260 I'm not sure he did.

NOTE Confidence: 0.96712554

01:00:04.260 --> 01:00:04.760 But,

NOTE Confidence: 0.9778103

01:00:06.500 --> 01:00:07.700 you know, I wonder if

NOTE Confidence: 0.9778103

01:00:07.700 --> 01:00:09.480 you see a difference

NOTE Confidence: 0.99934894

01:00:09.780 --> 01:00:10.760 in how much

NOTE Confidence: 0.9539388

01:00:11.380 --> 01:00:12.660 the science is, and I

NOTE Confidence: 0.9539388

01:00:12.660 --> 01:00:14.714 use the word pushed if

NOTE Confidence: 0.9539388

01:00:14.714 --> 01:00:16.894 it's hypothesis driven. When we

NOTE Confidence: 0.9539388

01:00:17.115 --> 01:00:18.174 make a hypothesis,

NOTE Confidence: 0.9995117

01:00:19.275 --> 01:00:20.095 we're intellectually

NOTE Confidence: 0.9995117

01:00:20.474 --> 01:00:21.214 and emotionally

NOTE Confidence: 0.98913574

01:00:21.515 --> 01:00:23.055 invested in that hypothesis.

NOTE Confidence: 0.998291

01:00:24.075 --> 01:00:26.414 And I think science basic

NOTE Confidence: 0.998291

01:00:26.474 --> 01:00:27.775 science gets pushed

NOTE Confidence: 0.9798177

01:00:28.410 --> 01:00:29.790 based on hypotheses

NOTE Confidence: 0.97265625

01:00:30.569 --> 01:00:32.190 in a bad way often.

NOTE Confidence: 0.99658203

01:00:32.970 --> 01:00:34.730 And I I wouldn't think

NOTE Confidence: 0.99658203

01:00:34.730 --> 01:00:36.510 that that would happen in

NOTE Confidence: 0.99523926

01:00:37.290 --> 01:00:39.710 data observational data analysis

NOTE Confidence: 0.9941406

01:00:40.010 --> 01:00:40.910 or outcomes

NOTE Confidence: 0.93256295

01:00:41.755 --> 01:00:43.994 analysis where you're looking at

NOTE Confidence: 0.93256295

01:00:43.994 --> 01:00:45.455 data without a preconceived

NOTE Confidence: 0.9938965

01:00:46.395 --> 01:00:47.915 hypothesis. So I'm I'm wondering

NOTE Confidence: 0.9938965

01:00:47.915 --> 01:00:49.135 if you see any

NOTE Confidence: 0.93913573

01:00:50.475 --> 01:00:52.475 any advantage or disadvantage to

NOTE Confidence: 0.93913573

01:00:52.475 --> 01:00:54.095 coming in science that way.

NOTE Confidence: 0.97514415

01:00:54.590 --> 01:00:55.470 Well, I I I think

NOTE Confidence: 0.97514415

01:00:55.550 --> 01:00:56.110 first of all, I think

NOTE Confidence: 0.97514415

01:00:56.110 --> 01:00:57.310 you're giving too much credit

NOTE Confidence: 0.97514415

01:00:57.310 --> 01:00:58.670 to us as, like, outcomes

NOTE Confidence: 0.97514415

01:00:58.670 --> 01:00:59.170 researchers.

NOTE Confidence: 0.9984538

01:00:59.470 --> 01:01:00.850 I think we come with

NOTE Confidence: 0.9984538

01:01:00.990 --> 01:01:01.490 extreme,

NOTE Confidence: 0.99902344

01:01:01.790 --> 01:01:02.290 like,

NOTE Confidence: 0.9749645

01:01:03.070 --> 01:01:05.410 intellectual biases. In fact, like,

NOTE Confidence: 0.9749645

01:01:05.630 --> 01:01:06.910 you you know, in our

NOTE Confidence: 0.9749645

01:01:06.910 --> 01:01:07.410 journal,

NOTE Confidence: 0.9807488

01:01:07.805 --> 01:01:08.525 one of the things that

NOTE Confidence: 0.9807488

01:01:08.525 --> 01:01:09.965 always comes up is, you

NOTE Confidence: 0.9807488

01:01:09.965 --> 01:01:11.165 know, sometimes, like, we'll get

NOTE Confidence: 0.9807488

01:01:11.165 --> 01:01:12.365 a paper, and it'll have

NOTE Confidence: 0.9807488

01:01:12.365 --> 01:01:13.985 a number of industry collaborators

NOTE Confidence: 0.9807488

01:01:14.045 --> 01:01:15.645 on it, sometimes even first

NOTE Confidence: 0.9807488

01:01:15.645 --> 01:01:17.025 authors or senior authors.

NOTE Confidence: 0.96719897

01:01:17.485 --> 01:01:19.245 And someone will inevitably, in

NOTE Confidence: 0.96719897

01:01:19.245 --> 01:01:20.925 the editorial team meeting, raise

NOTE Confidence: 0.96719897

01:01:20.925 --> 01:01:22.205 that question and say, well,

NOTE Confidence: 0.96719897

01:01:22.205 --> 01:01:22.865 you know,

NOTE Confidence: 0.958374

01:01:25.690 --> 01:01:26.990 what about this, like, conflict?

NOTE Confidence: 0.958374

01:01:27.049 --> 01:01:28.410 And I always tell folks,

NOTE Confidence: 0.958374

01:01:28.410 --> 01:01:29.069 you know,

NOTE Confidence: 0.9768971

01:01:29.609 --> 01:01:31.049 tell me where the science

NOTE Confidence: 0.9768971

01:01:31.049 --> 01:01:32.410 is wrong, but, like, we

NOTE Confidence: 0.9768971

01:01:32.410 --> 01:01:33.609 can't, like, be stuck in

NOTE Confidence: 0.9768971

01:01:33.609 --> 01:01:34.490 this model because,

NOTE Confidence: 0.9902344

01:01:36.365 --> 01:01:37.184 I think intellectual

NOTE Confidence: 0.99487305

01:01:37.964 --> 01:01:39.585 conflicts like, when you've dedicated

NOTE Confidence: 0.99487305

01:01:39.645 --> 01:01:41.244 your entire life and career

NOTE Confidence: 0.99487305

01:01:41.244 --> 01:01:43.105 to, like, one particular model,

NOTE Confidence: 0.99938965

01:01:43.565 --> 01:01:44.944 like, you have incredible

NOTE Confidence: 0.9909668

01:01:45.244 --> 01:01:45.744 conflicts,

NOTE Confidence: 0.9877014

01:01:46.204 --> 01:01:47.565 in that space. In fact,

NOTE Confidence: 0.9877014

01:01:47.565 --> 01:01:48.865 more powerful sometimes

NOTE Confidence: 0.99912107

01:01:49.244 --> 01:01:50.865 than the financial ones. Right?

NOTE Confidence: 0.9701172

01:01:51.900 --> 01:01:52.859 And I I don't know

NOTE Confidence: 0.9701172

01:01:52.859 --> 01:01:54.480 if we acknowledge it enough.

NOTE Confidence: 0.9844401

01:01:54.780 --> 01:01:56.780 I think outcomes researchers come

NOTE Confidence: 0.9844401

01:01:56.780 --> 01:01:57.900 with just the same types

NOTE Confidence: 0.9844401

01:01:57.900 --> 01:02:00.079 of biases. You know, again,

NOTE Confidence: 0.9379883

01:02:00.460 --> 01:02:02.060 it's a cute example, the

NOTE Confidence: 0.9379883

01:02:02.060 --> 01:02:03.735 the one Brian Nosek won,

NOTE Confidence: 0.9379883

01:02:03.815 --> 01:02:05.255 but we all know. Right?

NOTE Confidence: 0.9379883

01:02:05.255 --> 01:02:06.875 If that dataset were analyzed

NOTE Confidence: 1

01:02:07.175 --> 01:02:08.075 in one way,

NOTE Confidence: 0.9825614

01:02:08.455 --> 01:02:09.655 Fox News would be all

NOTE Confidence: 0.9825614

01:02:09.655 --> 01:02:10.935 over it. If it were

NOTE Confidence: 0.9825614

01:02:10.935 --> 01:02:11.975 analyzed in a different way,

NOTE Confidence: 0.9825614

01:02:11.975 --> 01:02:12.935 The New York Times would

NOTE Confidence: 0.9825614

01:02:12.935 --> 01:02:14.135 be all over it. And,

NOTE Confidence: 0.9825614

01:02:14.135 --> 01:02:15.975 you know, and nobody knows.

NOTE Confidence: 0.9825614

01:02:15.975 --> 01:02:17.495 Right? And you could see

NOTE Confidence: 0.9825614

01:02:17.495 --> 01:02:18.510 people, you know, to the

NOTE Confidence: 0.9825614

01:02:18.510 --> 01:02:20.050 point that was raised earlier,

NOTE Confidence: 0.9825614

01:02:20.270 --> 01:02:22.110 you know, just closing in

NOTE Confidence: 0.9825614

01:02:22.110 --> 01:02:23.550 on that and just, you

NOTE Confidence: 0.9825614

01:02:23.550 --> 01:02:24.050 know,

NOTE Confidence: 0.91445315

01:02:24.510 --> 01:02:26.370 reporting or choosing which narrative

NOTE Confidence: 0.94965756

01:02:26.750 --> 01:02:28.350 is more impactful. So I

NOTE Confidence: 0.94965756

01:02:28.350 --> 01:02:30.130 I think outcomes researchers, observational

NOTE Confidence: 0.94965756

01:02:30.270 --> 01:02:31.550 researchers, we got, like, Rohan

NOTE Confidence: 0.94965756

01:02:31.550 --> 01:02:33.410 and several others, Bob here.

NOTE Confidence: 0.94965756

01:02:33.495 --> 01:02:34.295 I I think we have

NOTE Confidence: 0.94965756

01:02:34.295 --> 01:02:35.195 the same biases.

NOTE Confidence: 0.94059247

01:02:36.855 --> 01:02:38.635 So Mhmm. Yeah.

NOTE Confidence: 0.9122889

01:02:39.015 --> 01:02:40.215 Well, first of all, end

NOTE Confidence: 0.9122889

01:02:40.215 --> 01:02:41.095 of the hour. But thank

NOTE Confidence: 0.9122889

01:02:41.095 --> 01:02:42.375 you, Brahmajee, for for coming

NOTE Confidence: 0.9122889

01:02:42.375 --> 01:02:43.655 and spending the day with

NOTE Confidence: 0.9122889

01:02:43.655 --> 01:02:45.355 us and, for a fantastic

NOTE Confidence: 0.9122889

01:02:45.415 --> 01:02:46.615 talk. I really let's everyone

NOTE Confidence: 0.9122889

01:02:46.615 --> 01:02:47.515 give him a hand.

NOTE Confidence: 0.83081055

01:02:49.360 --> 01:02:50.100 Thank you.