Welcome everyone, I’m Robert Dubrow.

I’m a professor of Epidemiology and also the Faculty Director of the Yale Center on Climate Change and Health at the Yale School of Public Health.

And welcome to this Yale Lancet Countdown launch event.

So the Lancet Countdown on Health and Climate Change is an international collaboration that’s been monitoring the health consequences of climate change through an annual report that’s been published in the medical journal, The Lancet since 2015. The collaboration includes researchers from 43 academic institutions and UN agencies. Researchers from Yale have been part of the collaborations since 2019.

The 2021 report was published in the Lancet this year on October 20th and that was followed by a Global Launch Event the following day.

But subsequently there’ve also been regional launch events around the world. And this is one of those regional events.

Given the COP26, that was just completed, the 2021 report which is organized around five domains and 44 indicators was particularly timely.
in framing the climate crisis as a public health crisis.

So today we’re gonna have five speakers and I’m gonna introduce them now.

So the first speaker is, Marina Romanello, who’s the Research Director at the Lancet Countdown and the first author of the 2021 Report.

And she’s gonna give an overview and highlights of the Global Report.

Then Dr. Jodi Sherman, who is a professor at Yale, of both Anesthesiology and Environmental Health Sciences,

and also the director of the Yale Program on Healthcare, Environmental Sustainability will talk about one of the indicators which is Healthcare Sector Emissions.

Then I’m gonna talk about another indicator, which is air conditioning, benefits and harms.

Yes sir, it’s interesting Jeremy is a professor in the Department of Environmental Health Sciences,

and Occupational Health Sciences,

And he’s also the Director of the Center for Health

and the Global Environment at the University of Washington.

And he’s gonna give an overview and highlights of the Lancet Countdown U.S. Policy Brief, which was a very important ancillary report.
53 00:02:44.250 --> 00:02:47.360 that was done in conjunction with the Global Report.
54 00:02:47.360 --> 00:02:49.810 And then finally, Dr. Laura Bozzi,
55 00:02:49.810 --> 00:02:51.570 who’s the Director of Programs
56 00:02:51.570 --> 00:02:53.960 at the Yale Center on Climate Change and Health.
57 00:02:53.960 --> 00:02:57.140 will give an overview and highlights of
58 00:02:57.140 --> 00:02:58.900 a report that our center did
59 00:02:58.900 --> 00:03:02.160 on Climate Change and Health in Connecticut 2020 Report
60 00:03:02.160 --> 00:03:05.200 that was not associated with the Lancet Countdown,
61 00:03:05.200 --> 00:03:09.150 but nevertheless used it as a model in terms
62 00:03:09.150 --> 00:03:12.490 of organizing the report around the indicators.
63 00:03:12.490 --> 00:03:17.490 So without further ado, let me turn it over to Marina.
64 00:03:19.760 --> 00:03:20.910 Let’s see (indistinct).
65 00:03:24.010 --> 00:03:27.020 Thank you Rob, thank you so much. 
66 00:03:27.020 --> 00:03:29.943 Let me see if I can share screen.
67 00:03:31.250 --> 00:03:33.917 Can you see my performance screen there?
68 00:03:36.197 --> 00:03:39.070 Yes. 
69 00:03:39.070 --> 00:03:43.910 Awesome, so I’m gonna try. 
70 00:03:43.910 --> 00:03:46.170 to give you a very brief overview
71 00:03:46.170 --> 00:03:48.740 of the report and (mumbles)
72 00:03:48.740 --> 00:03:50.100 what the Lancet Countdown means
73 00:03:50.100 --> 00:03:51.230 but first of all,
74 00:03:51.230 --> 00:03:55.020 I really wanted to thank Yale for hosting this event.
75 00:03:55.020 --> 00:03:59.646 As Rob said, Yale is one of our key partners
76 00:03:59.646 --> 00:04:02.743 (mumbles) says it’s really an honor to be here with you.
77 00:04:03.970 --> 00:04:06.808 So we are 43 partners around the world.
The Lancet Countdown is patients and UN agencies around the world. And as Rob just said, we produce indicators tracking progress on health and climate change across impacts and what their response to climate change means for health. The report that you see last year is the latest report that is labeled a code red for health. So I’m gonna tell you a bit about why that is, but this is just the latest of the series of the Lancet Countdowns Reports with our 5th year of iterations. The report that you see last year is the latest report of this tracking and monitoring exercise. So I’ll report to say that it’s entitled a code red for a healthy future. And this is because across all of the indicators, we’re tracking the impacts of climate change on health. We’re seeing trends rapidly worsening and affecting particularly the most vulnerable in every society in every country exacerbating in this way, the inequities around the world. When we think about climate change, the first thing that comes to mind is increase of heat waves, increased temperatures. And we’re seeing that the very vulnerable population,
people over 65 years of age are increasingly being exposed to life-threatening heat waves. (mumbles) silent killers they’re more than just uncomfortable and we’re seeing very vulnerable groups increasingly affected. As you can see here mainly starting the year 2010, really rapid increase in exposure to heat waves. And heat waves not only affect our health directly in terms of morbidity or mortality, but they also affect our health indirectly by undermining our capacity to work. We also monitor the extent to which heat exposure is reducing our labor capacity particularly in the agricultural sector. we’re seeing big impacts in terms of hours of labor loss in countries that are very vulnerable, the low Human Development Index country group. the medium Human Developments in this country group seeing particularly big losses. Especially in the agricultural sectors we estimate that the losses in the low Human Developments Index country group amount to 4-8% of the total GDP of those countries being lost due to heat exposure.
So social determinants of health also being put at risk and obviously increase heat-related mortality.

We’ve seen the heat waves this year in Canada, (mumbles) Kazakhstan. And here’s for sure is increasing as is heat-related mortality as well.

On increased heat and increased temperatures, our capacity to grow crops is also reducing. So we’re seeing crop (indistinct) reducing across all major staple crops, anywhere from three to 6% of reduction of crop yield potential of the 1950s baseline, which is even getting exacerbated by the increased land area being affected by extreme drought.

The percentage of land area affected by extreme drought exposure risk about 20% of record in 2019. And with dry weather, hot weather also coming in with incidents of wildfires in the U.S. who have been suffering a horrendous wildfire seasons as a result of climate change, much of which we have detection attribution study that bring down the cause to climate change. As temperatures change, precipitations patterns change and humidity changes.

So to does the environmental suitability for the transmission of infectious diseases.
And we're seeing particular increases in the suitability for transmission of dengue, malaria, vibrio pathogen and vibrio cholerae and other vibrio bacteria as well all around the world, particularly vibrio bacteria in the Pacific, North Eastern Atlantic, Northeast as well. So all of our indicators are flashing red, really raising an alarm to the health risks of climate change, but perhaps the most concerning thing is that not only climate change is exacerbating health impacts, particularly on the most vulnerable, but our response to climate change is also increasing the inequities. Also we have failed to deliver adjust response to COVID-19. The main thing that we need to do in order to reduce the impacts of climate changes is obviously to quickly adapt and decarbonize. And when we talk about climate change mitigation, decarbonization, the energy system is the center. It is the main contributor to greenhouse gas emissions.
the carbon intensity of the global energy system, that is the amount of carbon dioxide produced per unit of energy generated, has not changed practically since the '70s. And at the pace of slow reduction that we've seen from 2014 to 2018, it would take us roughly 150 years to fully decarbonize our energy systems.

The other thing that is notable here is that it is the high Human Development Index countries, the ones that are adopting technologies to decarbonize and to benefit from the health permanently, whereas the high Human Development Index country groups are still growing at a carbon intensive way, not benefiting from a low carbon transition. And the low Human Development Index country groups still has to do that development and industrialization there. And what this mean for health exposure to air pollution is still incredibly high.

We have not managed to reduce exposure to air pollution since 2015 significantly. In 2019, we saw roughly 3 million deaths attributed to ambient PM2.5 air pollution.
and 1/3 that came from fossil fuels.

And as we can see here, this is disproportionately affecting the high and medium Human Development Index country groups that are very carbon intensive, but the low Human Development country groups is being particularly affected by indoor exposure to air pollution, to the use of dirty fuels for cooking and for heating. So also big inequities in the transition to a cleaner source of fuels. However, there is still some hope that comes from our reports when we talk again about energy system, while we’re still lagging behind, we are seeing a very fast adoption increase in the use of renewable, particularly in the U.S. and in China, the biggest contributors to greenhouse gas emissions, which is really positive. Total energy produced from clean sources has reached 7.2% in 2018, and this is still growing. So we do have the technology. And one other thing that is really worth noting
235 00:10:37.860 --> 00:10:42.090 is that the health sector that is crucial in protecting
236 00:10:42.090 --> 00:10:44.730 our health from climate change and we acknowledged that
237 00:10:44.730 --> 00:10:46.350 a climate change is a health crisis.
238 00:10:46.350 --> 00:10:47.640 They must be at the forefront
239 00:10:47.640 --> 00:10:50.610 of the fight against climate change.
240 00:10:50.610 --> 00:10:52.450 Health sector is now taking the lead
241 00:10:52.450 --> 00:10:56.130 and we’ve seen many commitments made during COVID
242 00:10:56.130 --> 00:10:59.120 of national health systems that have committed
243 00:10:59.120 --> 00:11:01.320 to reaching net zero by 2050,
244 00:11:01.320 --> 00:11:02.843 and over 50 health systems around the world
245 00:11:02.843 --> 00:11:04.880 committing to become more sustainable
246 00:11:04.880 --> 00:11:07.843 and more resilient to climate change.
247 00:11:09.860 --> 00:11:11.950 So just to finish off,
248 00:11:11.950 --> 00:11:14.260 I find a reflection that comes from our report,
249 00:11:14.260 --> 00:11:17.080 but also from what happened at COP26,
250 00:11:17.080 --> 00:11:20.890 we’re currently exiting the COVID-19 pandemic.
251 00:11:20.890 --> 00:11:22.210 And as the world tries to recover
252 00:11:22.210 --> 00:11:24.860 around rolling trillions of funds
253 00:11:24.860 --> 00:11:28.410 towards economic reactivation and reframing.
254 00:11:28.410 --> 00:11:32.400 However, so far we see that only 18% of those trillion,
255 00:11:32.400 --> 00:11:35.940 almost $2 trillion allocated to COVID recovery
256 00:11:35.940 --> 00:11:40.240 would lead to reduction in greenhouse gas emissions.
257 00:11:40.240 --> 00:11:44.320 All the rest will have negative effects on climate change.
258 00:11:44.320 --> 00:11:47.100 So we’re here at five or 10 points where we have to decide
whether we’re gonna go through a carbon intensive route
that will lead us to a new crisis.
A crisis of climate change impacts on health,
and that will undermine our progress against the targets
that we (mumbles) nationally
determined contributions,
or whether the world will act together
to deliver adjust transition and make use of this moment
to deliver a world of environmental sustainability,
economic sustainability and growth,
better health and reducing inequities.
And with that, I will just close
and invite you to visit lancetcountdown.org
where you can explore a bit more of our indicators
that I just gave you a very brief overview of.
<Thanks very much Marina.>/n
<So next we’ll have Dr. Jodi Sherman talking about>/n
<the indicator that she took the lead on.>/n
<Thanks, can you hear me and see the screen okay?>/n
<Yes.>/n
<So my talk is going to focus>/n
<on the role of the healthcare sector,>/n
its contribution to climate change.
Now, as Dr. Romanello was saying,
we have increased demands for health services
because of the problem, the myriad of health impacts of climate change, health care itself is ironically a significant contributor to global greenhouse gas emissions and non-greenhouse gas emissions. We’ve got a very high resource consumption industry, hospitals run 24/7, high-tech diagnostic therapeutic equipment, high energy intensive buildings. And health care is a unique risk for unique infection risks and prevention requirements that drive a lot of disposability and utilization of resource both in our energy as well as materials. We also live in a complex regulatory environment designed to protect our patients, patients and also occupational health, but we also have business models and that regulatory compliance and business models drive low volume consumption of resource. We also particularly in high-income nations and especially in the U.S. have the culture of excess and where disposability is normalized. And how can particularly, because we have a social mission to protect individual patients,
we’ve really been neglecting about
the impact of how care delivery affects public health
and we can’t really do that anymore.
So the key results of the Lancet Countdown
latest publication of 2021,
globally health care emits 4.9% annually.
This is the most recent.
There are several international studies.
This is the most recent result.
U.S. healthcare is an outlier and not in a good way.
We spend twice as much on health care as any industrialized nation,
18% of our GDP, health care globally is 10% of the economy.
So if we can not want,
should health care be leading as an industry
and health care and all policies of protecting health,
because we intersect with so many areas
within the global economy,
we have the opportunity to help drive change globally.
Of that 4.9% emissions of health care in the U.S.
is responsible for a 1/4 of those emissions globally,
despite only having 4% of the global population.
And we have the highest per capita
335 00:15:18.450 --> 00:15:21.060 health care greenhouse gas emissions.

336 00:15:21.060 --> 00:15:24.500 Now, if we have the best health outcomes for that impact,

337 00:15:24.500 --> 00:15:29.500 for those expenditures, there might be some justification,

338 00:15:29.830 --> 00:15:33.400 at least till we transition our energy sources

339 00:15:33.400 --> 00:15:38.400 and our embodied emissions but that's not really the case.

340 00:15:38.610 --> 00:15:41.280 So what we did is we associated

341 00:15:41.280 --> 00:15:44.050 per capita healthcare greenhouse gas emissions,

342 00:15:44.050 --> 00:15:45.740 along with the global burden of diseases,

343 00:15:45.740 --> 00:15:47.133 health care access, and quality index.

344 00:15:47.133 --> 00:15:50.050 This is from the 2020 paper of 2021.

345 00:15:50.050 --> 00:15:53.020 We did the same association with the Human Development Index

346 00:15:53.020 --> 00:15:56.990 and the results are the same.

347 00:15:56.990 --> 00:15:59.650 So we wanna have as low greenhouse gas emissions

348 00:15:59.650 --> 00:16:03.460 per capita greenhouse gas emissions as possible and as high performance

349 00:16:03.460 --> 00:16:05.660 in terms of health care access and quality.

350 00:16:05.660 --> 00:16:08.710 And we can see the highest performers

351 00:16:08.710 --> 00:16:11.610 here in Europe particularly France is a notable performer.

352 00:16:11.610 --> 00:16:14.880 performer in a good way versus the U.S.

353 00:16:14.880 --> 00:16:16.140 So not only do we have the highest

354 00:16:16.140 --> 00:16:19.200 per capita greenhouse gas emissions, we do not perform

355 00:16:19.200 --> 00:16:21.830 the best in terms of health care access and quality.

356 00:16:21.830 --> 00:16:24.930 And we're about 1700 kilograms of CO2

357 00:16:24.930 --> 00:16:27.740 equivalent emissions per capita for health care

358 00:16:27.740 --> 00:16:30.330 versus 450 in France.
So 450 is around the break-even point.
The good news is what that means is we can reduce our emissions without sacrificing quality of care.
And in fact 11% of U.S. population is presently uninsured.
About 1/3 of U.S. healthcare resources are deemed low value and inappropriate, it’s about 1/4 globally.
What that means is that we have room to improve our environmental performance without sacrificing quality of care and preserving resources to improve our access to care.
I’m gonna shift gears in terms of where this information comes from.
In order for us to understand where the levels of influence are, I’m gonna turn to the greenhouse gas protocol.
This is from the U.K.
National Health Service Net Zero report.
The National Health Service in England is leading the world in its commitment to net zero emissions in health care.
The virtue of the greenhouse gas protocol is it allows us to group emissions in terms of our influence so we understand the levels for change.
So scope one, direct emissions are coming from a facility from burning fuel to heat the building for example,
00:17:37.480 --> 00:17:39.280 or release of inhaled anesthetic gases,
00:17:39.280 --> 00:17:42.460 so direct emissions on our scope one.
00:17:42.460 --> 00:17:44.850 Scope two is indirect coming from the supply chain.
00:17:44.850 --> 00:17:48.190 So whether or not, excuse me, is coming from electricity.
00:17:48.190 --> 00:17:51.000 So whether or not that is renewable or not
00:17:51.000 --> 00:17:53.270 affects our calculations.
00:17:53.270 --> 00:17:54.730 And scope three is everything else,
00:17:54.730 --> 00:17:58.090 most notably the supply chain and also travel.
00:17:58.090 --> 00:18:00.683 So applying that to the U.S. healthcare system,
00:18:01.700 --> 00:18:04.940 we see the most recent results
00:18:04.940 --> 00:18:08.390 are absolute emissions from health care in the U.S.,
00:18:08.390 --> 00:18:10.380 554 million metric tons
00:18:10.380 --> 00:18:13.100 or 8.5% of our nation’s greenhouse gases
00:18:13.100 --> 00:18:16.060 coming just from U.S. healthcare.
00:18:16.060 --> 00:18:18.560 And emissions are on the rise.
00:18:18.560 --> 00:18:20.450 We see a slight difference in 2012
00:18:20.450 --> 00:18:24.740 with improvements of renewable energy in our system,
00:18:24.740 --> 00:18:28.210 but overall we’re rising at a faster rate
00:18:28.210 --> 00:18:31.650 than other nations globally this far.
00:18:31.650 --> 00:18:33.540 And as you can see the breakdown by scopes,
00:18:33.540 --> 00:18:36.210 the vast majority of emissions are coming from scope three,
00:18:36.210 --> 00:18:37.970 which we’ll come back to in a moment.
00:18:37.970 --> 00:18:39.390 The other thing that we did in the U.S.
00:18:39.390 --> 00:18:40.920 is we associated greenhouse gas
00:18:40.920 --> 00:18:43.570 and non-greenhouse gas emissions with disease burden
and found that harm from health care pollution from U.S. healthcare pollution is equivalent to 388,000 disability adjusted life years annually. Most of that is due to particulate matter or air pollution and both air pollution and greenhouse gas emissions come from combustion of fossil fuels. So cleaning up our energy system is one of the most important things we can do to reduce health care’s impacts. And then this is similar in magnitude to deaths due to medical errors, which were first reported by this (mumbles) in 2000, the 44-98,000 deaths annually were lost due to medical errors, about 10 years of life loss for age so if you multiply by 10, you see we’re in the same order of magnitude. And why that matters is that this harmful medical errors sparked the patient safety movement that everything we do in healthcare is through the lens of patient safety. And what we’re trying to say is that this problem is just as big and just as serious, and that pollution prevention is a new patient safety movement.
that needs to be taken seriously.

And so where those emissions come from in terms of levels of impact?

About 4/5ths in the U.S. and this is similar in other health,

this National Health (mumbles) Forfeits is coming from the supply chain.

So notably, pharmaceuticals, chemicals, medical devices, and food.

And these are things we have direct influence over as health care administrators and clinicians and regulators,

because we determine how resources are consumed,

manufacturers and regulators control what’s embedded,

what the emissions are that are embedded,

what goes to marketplace.

So this helps us to understand the different levels of influence.

And ultimately the question is what is best practice both for patients and public health?

And really there are three direct approaches to try and influence.

One is reducing emissions embodied in healthcare service,

so electrification of our buildings and our capital equipment,

but they must be paired with cleaning up our energy sources.
Moving to a circular economy we’re using materials, reducing waste resource stewardship, which could not be more clearly needed as evidenced by the pandemic. Matching supply with the demand meaning we have to address inappropriate or low value care, care that is unwanted, unneeded, ineffective. All those things need to be addressed, and we can do it. And then reducing, moving all the way upstream to reducing the need for health care to begin with health promotion, disease prevention, addressing the social determinants of health, and certainly mitigating all those causes of climate change and ultimately value in health care, high values, maximizing the best benefits for patients and populations, minimizing costs as well as environmental and social harms. Thank you very much. Thanks, Jodi. I think just share the screen. Yes, everyone see? Okay, great. So I’m gonna talk about indicator 2.3.2, which is air conditioning benefits and harms. I’d like to acknowledge my collaborator.
on this Lingzhi Chu and also the International Energy Agency
for providing essential and published data for this indicator.

And so let me get right to the headline finding.
Use of air conditioning averted an estimated 195,000 heat-related deaths among people 65 years or older in 2019, that’s globally.

AC however, AC also contributed to greenhouse gas emissions, air pollution, peak electricity demand, and urban heat islands.

So we could see that on the one hand indoor cooling, you’re represented by air conditioning provides great benefits.
On the other hand there is significant harms.
So I’ll elaborate, but first let’s look at this graph on the right-hand side.
The blue is proportion of households with air conditioning.
This is global.
So you can see a steady rise and in 2019, it was about 33%.
So a 1/3 of the households in the world have air conditioning.
The green up here is carbon dioxide emissions and you can see a steady increase in carbon dioxide emissions as a result of air conditioning using more and more electricity
because they’re being more and more air conditioning. And in 2019, it was up to about one gigaton or a billion tons of carbon, which represents carbon dioxide, representing about 3% of total anthropogenic CO2 emissions. Okay, so now let’s take a deeper dive into some of this. Heat-related deaths were about 345,000. This was estimated in one of the other Lancet Countdown Indicators and note that it’s just for people greater or equal to age 65 years. Heat-related deaths averted by air conditioning was about 195,000. So what that means is that if there had been no air conditioning in the world, there would have been roughly 540,000 heat-related deaths. In people over age 65, instead of the 345,000 that actually occurred and of course these are estimates. And that’s with a proportion of house, overall proportion as I said is 33% with air conditioning. Let’s look at a few of the countries. So first China was estimated to have 72,000 heat-related deaths.
and roughly the same number of heat-related deaths averted due to the presence of air conditioning. So without air conditioning, the number of heat-related deaths would have been about double. And you can see that proportion of households with air conditioning in China is fairly substantial. It’s about two thirds. On the other hand, India is estimated to have 46,500 heat-related deaths, but only 2,400 averted by air conditioning. And that of course is due to the small proportion of households with air conditioning in India which is about 6%. And then one more example, the United States which has a very high proportion of households with air conditioning, 92% is estimated to have had about 20,500 heat-related deaths, but almost 48,000 heat-related deaths averted by the presence of air conditioning meaning that if there had been no air conditioning in the United States, there would have been almost 70,000 heat-related deaths. This is all among people of age 65. So you could see that
one of the points to take out of this is number one, indoor cooling is very effective, but number two, there’re a lot of inequities right now. There are some countries with very low prevalence of air conditioning, others with very high prevalence and you could see how that’s manifested in these numbers. So now let’s go through the harms and a little more detail.

Air conditioning represents 8% of global electricity consumption in 2019. I mentioned the greenhouse gas emissions, the CO2 emissions, but we also have the problem that the main refrigerants that use an air conditioning is hydrofluorocarbons and those are powerful greenhouse gases it turns out in themselves, and they often leak into the atmosphere and that’s an issue. We were able to estimate 21,000 premature deaths due to PM2.5 and that’s the fine particulate matter of emissions from fossil fuel powered electricity used for air conditioning in 2019, that’s global. Air conditioning is a major contributor to peak electricity demand on hot days, often contributing to more than half of the demands.
and that contributes to power outages. And finally, it turns out that there’s so much waste heat that goes from the inside to the outside as a result from using air conditioning, that it could actually contribute to the urban heat island effect as much as one degree centigrade at nighttime. So sustainable indoor cooling is urgently needed. The IEA projects that according to a business-as-usual scenario in 2050, air conditioning use will soar understandably because people in India deserve to have indoor cooling for example and there are a lot of people in India. 16% of air conditioning will represent 16% of global electricity consumption. It will be 2 gigatons of CO2 emissions instead of the current 1 gigaton. And in addition, we have the hydrofluoro carbon emission problem and that would represent 1-2 gigaton CO2 equivalent. So the goal we have before us is to make sustainable indoor cooling accessible to everyone in the world who needs it. So it needs to be accessible and also sustainable. And so this is an outline of a possible way forward.
First, we need energy efficient building design through strong, enforced building codes. And a key element of that is to utilize lessons from traditional building designs and tropical and subtropical regions that over the period of centuries people lived in very hot climates, developed a lot of wisdom about how to build buildings that would remain cool, including by ways to provide shade, thermal mass, insulation and ventilation. And that wisdom has largely been ignored for the past few decades. So we need to return to that wisdom. We need strong weatherization programs and that’s actually a justice issue too. We need low-tech solutions. Fans are often useful, also cool roofs. We need continuous strengthening of air conditioning performance standards and mandatory labeling. So for example if through technology, we could make air conditioning, several orders of magnitude more efficient, then it’s not really onerous. We solve a lot of the problems. So air conditioning just because it’s cold air conditioning isn’t there, in its current form that has these major issues. The electricity that powers air conditioning
needs to be zero-carbon electricity. We need to regulate the use and disposal of the refrigerants. There’s progressing along those lines, the Montreal Protocol Kigali Amendment aims to phase out hydrofluorocarbons and so that needs to be actually implemented. We need to prevent leakage of refrigerants during air conditioning operation and maintenance. And finally, not finally, but we need to recycle or destroy refrigerants at the end of life often when air conditioners are disposed of improperly and then the refrigerants leak out into the atmosphere. And then we need to expand urban green and blue space to cool down cities so that we need less air conditioning in the first place. So with that I’ll conclude and turn it over to Jeremy.

Great, thanks Robert. I’m gonna go ahead and try and share my screen. Okay, good so you have yours on? Yes.

Okay, great.

Excellent.

So I’m gonna give you a very brief overview of the U.S. policy brief for the Lancet Countdown.
on health and climate change.

And I'm gonna start out by highlighting the goals.

The goals of the global countdown are to influence global processes including the COP and so the report is released every year in advance of the COP.

And the goal there is to introduce health into the conversation and it’s been very successful at that over the years.

The goals of the U.S. brief are related to that, but also different.

And so one of our goals is to highlight trends in data from the global report that are relevant and specific to the U.S.

We’re also interested in promoting awareness and understanding of the intersections between climate change and health for a U.S. audience, which sometimes refracts these questions through a different set of considerations and experiences.

We also are a very large country with a diverse population, and a diverse set of environmental climate sensitive hazards.

And so the goal of the U.S. brief is to present findings through the lens of experience of populations in the U.S.

and to highlight the very important,
really fundamental considerations related to equity in these impacts for U.S. populations.
Next, we are very keen on advancing collaboration within the health sector around this issue in the U.S. and that’s a major goal of our effort to organize that community. And then lastly, we wanna promote action by policy makers that is informed by the findings from the global report and the U.S. brief. So this year we produced our fifth report. It presented a suite of indicators from the global report specific to the United States, and also brought in some other scientific work that was relevant to the U.S. context. This brief represents the consensus of over 70 institutions domestically. And as I said, it brings in data from the global report. The brief this year brings in emphasis on three climate sensitive hazards; extreme heat, drought, and wildfires, and it calls for policy makers to make three commitments. One is an urgent investment in research and interventions.
to protect health and prioritize equity in the process.

The second is to account for the health costs of fossil fuel combustion in their decision-making.

And the third is to rapidly cut greenhouse gas emissions.

I’m gonna go into each of those briefly, and then tell you a little bit about the report and the launch.

So as Marina emphasized, we know from global data that health risks from extreme heat are growing and the trend is the same in the United States. And particularly we wanted to emphasize the impact on groups at different points in the life cycle.

The data for the U.S. shows that we continue to see a pretty dramatic rise in exposure among people over 65 and among infants to extreme heat.

The second point is the droughts harm health. And this is something that a lot of people may not be as well aware of.

And so we put some energy this year into clarifying the ways in which drought harms health.
and those are elaborated here in this infographic. Of course, some of the impacts are mediated through extreme heat exposure, but a number of others go through pathways that are a little more indirect, including changes in water quality, changes in infectious disease exposure and changes in infectious disease ecology associated with drought, impacts on mental health particularly in rural communities and then also respiratory disease impacts. And we also brought out the equity dimension highlighting the wide range in intensity of exposure to drought across the United States and then how drought affects different communities quite differently in its various impacts and particularly highlighting the impact on rural and farming communities. And then lastly, we focus this year on wildfires. And of course, as you all know, wildfire seasons have been very intense of late. So we collaborated with some colleagues at Emory who developed this figure showing that we’re seeing earlier onset of the wildfire season, the wildfire season is becoming more intense, and there’s a clear correlation with temperature anomalies over this 20 year time series.
We also emphasize in the report the fact that smoke exposure, it seems like it’s a local issue and of course it is very intense locally when these fires occur mostly in the West, but that the smoke extends all the way over to you all in the Northeast and impacts your air quality quite adversely. And these impacts again are really not equitably distributed. And these communities here, Black, Latino, Latino communities, American Indian communities, and low income groups are all much more highly exposed and more adversely affected the groups. The report also developed some case studies and I don’t have a chance to go into all of the specifics here, but we explored the role of climate change in increasing risk for dengue in the United States, particularly through increasing vectorial capacity and/or not. And then also throwing some analogies between the COVID pandemic energy issues and infrastructure challenges that we’ve seen, and then interactions with climate sensitive hazards, including extreme heat and wildfires that exacerbated the impacts.
of those hazards at multiple points.

We experienced that definitely here in the Pacific Northwest with our extreme heat event this past summer, which was catastrophic and would have been really difficult on its own, but was that much more difficult to handle because of all of the capacity issues we're focusing, we've experienced with COVID, and this is likely a glimpse of what we'll see in the future in terms of strain on the healthcare system driven certainly by climate sensitive hazards, but also interacting with a number of other elements of social destabilization that we're seeing in the U.S.

So our policy recommendations are to focus on adaptation through research that really gets down to local levels and thinks through how to reduce exposure, how to implement effective interventions quickly and at scale, focusing on economics and finance, and do a more comprehensive accounting of the health-related costs of fossil fuels. So taking those externalities and incorporating them into decision-making, policy-making.

And then lastly of course, an urgent focus on mitigation...
and an emphasis there on policies that will advance health equity rather than undermine it. We have a suite of additional resources in addition to our policy brief, we have executive summaries, we have briefs that are aimed at the general public both of those are in English and Spanish. We have a brief that is written specifically for health professionals, and we have a brief that focuses on the novel science that is in this year’s report. We also have regional briefs that emphasize impacts for different areas of the United States. And we have a big launch event every year and it coincides with the launch of the global report and we really work hard with our partner Climate Nexus to bring in a diverse range of voices and perspectives, and to reach a large range of communities with this launch. And so you can see here we had a really nice diverse collection of speakers at this last year’s event which was recorded, and you can access the recording and all of those other resources at this link here, lancetcountdownus.org.
Thanks and I look forward to ongoing conversation and answering your questions later in the session.

Okay, so last but not least is Laura Bozzi who’s gonna talk about the Connecticut Report.

The report is based on 19 Indicators, you can see on the right, tracking changes to the environment and health outcomes.

It’s purpose is to inform policy makers, health professionals, advocates, and residents, about the impacts of climate change.

Now in the future on human health in Connecticut.

Wherever possible, we were printed indicator results for each county.
There are eight counties in Connecticut. We talked as far back as the dataset would allow and some cases to the late 1800s. Some of our indicators do already demonstrate a trend consistent with what’s expected under climate change, such as increasing the average temperature or rising number of heavy rainfall events. Other indicators don’t yet show a trend, but scientific studies project such changes. We also produced an issue for each series, three of what you see here. The issue briefs (mumbles) the 2020 reports for domains, summarizing key indicator findings, and extending the report to include specific policy requisitions. An important theme of the 2020 report and the issue briefs is recognition of climate change as an environmental justice issue. A climate change affects everyone we know but some people are hit much harder. It’s often called a risk amplifier or a threat multiplier. Some people are more vulnerable than others because of where they live or work, their age or race, their health condition, their socioeconomic status. These underlying drivers of vulnerability...
are often tied to deep among standing inequities which are now made worse by climate change. Our issue briefs in particular elevate policy solutions that apply a justice or an equity lens in response.

I'll now turn to some examples of our indicators following that they’re ports for domains beginning with temperature.

Annual average temperature has increased over three degrees Fahrenheit across Connecticut and in each county in the last 125 years. Over that time, six of the hottest years in Connecticut have since 2005 versus has very broad implications for health among other impacts, high heat days causing stress, heat stroke and even death. High heat days often coincide with close and alert days because high temperatures magnify those official levels.

Annual winter temperatures that we’re seeing now in here in Connecticut this year can create conditions for larger tick and mosquito populations that are active over a greater proportion of the year. A longer season for ragweed pollen,
which causes hay fever and exacerbates asthma.

And particularly in heat-related illness, we tracked reported cases of heat stress in Connecticut and found that from 2007-2016 there were on average 422 emergency department visits and 45 hospitalizations per year for heat stress but this is certainly an underestimate.

Young adults were more likely to be admitted to the ED for heat-related illness than other age groups, but the risk of inpatient admission increases with age and is highest for those 75 and older.

Heat risks can be confounded to do the urban heat island effect. As you can see on the right that cities are hotter than the surrounding area because of more manmade infrastructure that absorbs heat as well as air conditioning accepted by (mumbles).

This health risk is magnified for those low financial or social resources to adapt.

And importantly vulnerability factors are cumulative.

Some people are associated with a number of the categories that are on the left, which puts them at people greater risk.
As we look to the future, the Governor’s Council on Climate Change reported five projected five degree very high increase in average temperature by 2015 in Connecticut compared to a 1978 and 1999 reference period. So we can expect more extreme heat events for them to become more common and more severe and to last longer. Importantly temperature increases after 2050 depends on how quickly we stop emitting greenhouse gases. And thus the Governor’s Council on Climate Change said, "Coordinated mitigation now means it is more likely the temperatures will stabilize after 2050. If not, warming is likely to accelerate.” Moving to extreme events. We tracked national or really declared weather disasters that were issued for Connecticut and found that from 2010-2019, there were nine such disaster declarations compared to only 13 in the previous 56 years. In addition to direct health apart from weather disasters, there’re important indirect effects, including disruptions that can occur to critical infrastructure, assessment of electricity, drinking water, food refrigeration, internet service,
Transportation is one implication of health. Losing our electricity can be life-threatening for someone who uses home dialysis. There are mental health impacts from the trauma of disasters and their long-term community impacts.

And the building staff and lower income communities, the doctrine that increased risk for damage by natural disasters, partly because of historic patterns of development in vulnerable areas, plus a chronic under investment in public infrastructure.

We tracked Lyme disease cases in Connecticut and found that the number of cases in the last decade or so have decreased statewide, which is good news. However, there are emerging concerns when issues we highlighted at the report is expansion of the lone star tick in Connecticut. Once a tick transmit a number of diseases and medical conditions that you can see on the slide, it’s the most common human biting tick in the Southeastern U.S. It’s expanding into Connecticut likely due to factors, including warming temperatures and especially warmer winters. Importantly established breeding populations...
were discovered in Fairfield County in 2018 and New Haven County where we are today in 2019, meaning that ticks aren’t transient but established here. Finally air quality.

You may be aware that Connecticut has issues with ground-level ozone solutions which is a strong long year attempt. And back to the American Lung Association gave each county thinking that getting an upgrade for ozone solution in its 2019 report. And as you can see from this figure, we found that while the number of air quality alert days for ozone decreased over time, the more still needs to be done. Ground-level ozone is largely the result of burning fossil fuels, whether in our vehicles or power plants or our homes. So this is where we can see the strong health benefit of climate mitigation as other speakers have mentioned. Switching into clean energy sources also drives, also reduces fuse drivers of global air pollution. And on that note I’ll conclude with our systems level recommendations.
that we have in our report. I invite you to read the report to learn more about those,

but I'll conclude with our overarching recommendation for swift action to reduce greenhouse gas emissions in Connecticut for our health today and for the future.

Thanks Laura.

Think we could end it here.

Thanks to all the speakers and thanks to everyone who attended and have a good day.

Thank you everyone.