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Hello, and welcome to our webinar and health coverage against the major disasters during the COVID 19 pandemic. The pandemic now has started us all we know about a year and a half ago in Wuhan, China, and in a few months to just spread across the entire world.

Today or yesterday, the statistics shows that there are approximately 169 million. There were approximately 3.5 million people who lost their lives because of this pandemic. The good side, however, is that 1.7 billion people have already been vaccinated, which is great news.

So these big and large numbers at the bottom, what a lot of challenges for everyone, but specifically the health care system, they have to deal with all these patients with all the vast majority of these patients. So infrastructure, staff and supplies, all of these have been really stretched to their limits.

The other side is where we know that many people have an unfair operation that led the population to beat cancer. That's something that some people perhaps have lost their lives because of this. And. However, some opportunities, some of these opportunities are very good, the well, good luck for the work, but for some people, because that's not working

, that perhaps before we thought that was pretty difficult. And also, there are some other good news about, for example, emission of CO2. Most importantly, perhaps, is opportunities to enhance the resilience of health care in general. So the aim of our webinar is to learn from the experience of hospitals to run from expensive researches in order to come

up with lessons to inform our future resilience policies and thoughts. OK. It's great to have five speakers with us. This come from Italy, Turkey and to pay for this, OK? Our presenters come from professional backgrounds. So we've done a lot, hopefully from the professional placements and of course, the research findings.

Agenda normally will have clear, obviously presentations, but then of course, you've got the ability to take part and ask questions of presenters, so please, there's a checkbox when you have a question. And then we will try to answer the vast majority of them.

And bear in mind that we've got to question and answer session. The first was thought about 6:55 for about ten minutes, and the second one would be at about 7:30 until about 740 from the speaker. Now I'd like to introduce our first speaker, Dr Papoose A.D., who comes to us from Turkey.

Well, he joins us from Turkey and Pluto is associate professor in the Department of Istanbul City Hospital, and we'll be talking to us about the process management and outcomes. And that is expensive Istanbul City and hospital emergency department.

Continues to the decrease and start your presentation. Thank you very much, David. And it's a very great pleasure for me to be here with you. Thank you very much, ladies and gentlemen. I'm going to start my screen share.

I help everybody can see it. OK. Is it OK, everybody can see my presentation wonderful. I am an associate professor in Medina at University goes for research and training hospital. And this was the beginning times of, you know, that in 2019, the coronavirus disease was the first recognized in Wuhan, China, and we all have no experience about

that at those times. And especially for the health care workers, we didn't know anything about what kind of a thing it is a pandemic. You can just read on the books and some experiences, but now we have to deal with the real pandemic at those days.

On January 30th, W.H.O. declared the COVID 19 outbreak is a public health emergency of international concern, and on March eleven, the global pandemic started. We restarted hospital trainings and meetings for the hospital staff, especially doctors, nurses, paramedics and all the people who are in charge.

We did at the beginning of March. We are getting together. We didn't have any masks as those times, and we started to train how to protect ourselves. And on March, we activated the disaster planning or preparedness for the outbreak in our hospital, and we move on to training meetings with the hospital staff.

And on March ten, before it become a pandemic, the first case in Turkey was confirmed, and I thought that it was the first one was from our hospital. They didn't explain, but the pandemic committee established after that. Then we started the training for the emergency for my emergency department.

Normally we we were speaking about how to use the protective equipment, how to protect ourselves and especially in the organization of emergency department. We changed some things. We always informed the employees day by day and the rest was restructuring or rearrangement of employee work schedule.

All were shared with all staff with online meetings and after the pandemic started. You see, this is this is the old hospital. Now we change our hospital in a new place and this is the whole hospital.

You see, the red lines are for the COVID 19 isolation areas, and we created a triage outpost here, old ambulances coming

to the recitation room and we accepted them from here and to others may come to the background. You'll see that there's an CBR, an isolation unit here. We have a ward here also, but we also we also work for the other people in the Green Zone and the yellows.

We didn't stop accepting the patients at those times. We looked for the both of them and you see the protective equipment and we created. They will share with you. A triage outpost outside the emergency department. And we started to make it easier, especially for the WHO, the people who thought they may have COVID or infectious diseases.

And we have their situation. Office and doctor and nurse will take the parameters and question it. We have we produced a questionnaire at those times and also at the beginning of the pandemic, we didn't have any PCR laboratory in couple days.

It just began. And then you know that this is the Minister of Health or the Ministry of Health's produced some questioning guides for. Do you have a fever or unknown immeasurably have a cough? Or do you have breathing difficulties?

If you say, well, yes, then we are asking for. Have you been abroad within 14 days or is there anybody you can contact with COVID disease, COVID 19 disease or who is there anybody who diagnosed with you? And these are the in the left side is here.

It is the first algorithm of us and we were looking for the fever and cough. If there's dyspnea, we are looking for the saturation and breath for a minute. And then if they are, yes, we are looking for the black causes.

And then after at the end of the march, we established a new one and then we are looking for that the constant. Haitians parameters and the key parameters. And at the end of the march, at the beginning of April, we started another algorithm.

This is the the algorithm that we used for the COVID outbreak. And you know that we prepared that for 33 diagnostic assessment, clinical scanning and laboratory and definitive treatment. first of all, we isolated the emergency department as I explained before, and then we looked for the fever and cough.

The thing is here we thought we are not treating the COVID infected people. We we want to treat it. The people who has no money available for pneumonia. Because of that, we are looking for the symptoms. If they have virus vital for pneumonia or some kind of pneumonia.

We have to treat them. Otherwise, we don't want to treat them. We just want to send them their home because especially in COVID 19, not everybody it can affect as a pneumonia and we look for the fever and cough.

We say that these are the suspicious patients and we look for the respiratory rate if they are higher and saturation is lower than 93. We sent them to the observation boards and in consultation with the infectious diseases as we can get them at all times as a foreign girl so that if we need to, we can get

Chest X-ray and C.T. And then we started in the pandemic, worst in their treatment. But if there is no respiratory syndromes, we ask with the contact with COVID 19 patients, especially in Turkey. We say that a contact with a COVID 19 patient is more than 30 minutes in a very closed area.

If you get together with some suspicious people, we explain that their contact with COVID 19 patients and if they are old because we know that some of the old elderly people can affect it more than others and not the teenagers we sent them also the infectious disease worse and we produced a Grayson in here.

This is important because the gray zone we work together with internal medicine because so many patients with comorbid diseases, they are coming for suspicious COVID 19. But the real problem is their heart problems, their kidney problem, liver problem.

We have to send them to the green zones and we organize them and make the diagnosis in alternative diagnosis and the consultations, more consultations and at the same time in our emergency department that our emergency admissions. We accept it and we created another triage for them.

And we, we accept are the trauma and the other diseases. This is interesting because I I compare with the 2019 and 2020. You know that the Red Red area is the daily patients of ours in 2019. You see that the daily patients approximately 8000 or 900, between 700 900.

But in 2020, then we recognize that the COVID outbreak become became. We will see that most of the patients are not coming to the emergency departments because they are afraid of that getting COVID 19. They are afraid of that contact with the people who are COVID 19 at those days.

We were lucky. I mean, in emergency department staff site and we were lucky. But in the next months, we can see that it's not a very good thing. I will show you later. You know, in March 2020 and in April 2020, at the beginning of March, we have so many patients at the same as the day before

here and in April saw many patients don't want to come to emergency department. But you'll see that the number of the consultations getting really higher because there are so many suspicious people coming to the emergency department and we sat for the hospitalization.

And but I want you to see that after the algorithms, we are sending them less often in the hospital for as a new patient. We are sending them today. They are home for us for isolation in their home.

This is important because we don't wanna make our emergency department or our wards full of patients without any pre pneumonia because of that. And you see, these are the green lines for the intensive care unit needs at those days and the red lines.

In fact, these days worth. You see the blue lines, the blue lines, the people we sent them to their home for isolation. There is no symptoms, very or very less symptoms. They are they don't need any pre pneumonia treatments.

Some of the patients turned back to the emergency department again, but very less of. And we had another issue, you know, that if there is no specimens for the PCR test, if or if, if it takes four hours, more than six hours, the doctors try to take the city scan because they thought that if I can see

something on the city scan, it is easy for me to find the virus, you know, money. But unfortunately, there are some travels on that because yeah, you can get vital for pneumonia, but it doesn't mean that this patient has COVID 19.

Because of that, we created a city request form and we are looking for the respiratory rates and oxygen saturation and dyspnea, especially. We are looking for the people who need city that we can diagnosed with the right algorithms.

And you'll see that after the algorithm. Sorry, all the non-kosher contracts goes lowish, and they can understand that we need to take the CT scans for appropriate patients. And you know that there are so many restrictions that those days, for example, because three days, four days, the restrictions, curfews at home, so we can see we can see

that after the restrictions in the emergency departments has to be ready in force for much more patients than before because especially on Mondays, you can see that so many patients coming to the emergency department. Now we change our hospital.

This is our new hospital. The Red Zone is you'll see that the emergency departments. Here is the entrance of the ambulance. Here is the COVID 19 interest from outside. This is the COVID 19 polyclinics. We have entry. We can get a PCR test here and this is the entrance for the streaming room.

Yes, the new hospital is we have isolators for earthquake, this is an earthquake resistant hospital. And you see these. This is my emergency department. You see that area. The red zones. This is resuscitation room with the ambulance and all the people who are working today are using personal protective equipment.

This is COVID 19. This area is COVID 19 pneumonia patients isolated from the otherwords. This is our green zone. This is the streaming room entrance and this site is the PCR test area and COVID 19 protocols. You see that these are the last graphics I adding in the March, you'll see that we have two at at the

end of October. We had first wave at the second phase and into March. At the end of the march. We have the third wave in Turkey. You see that in the waves. We also used the infectious diseases more.

And at the end they had. The Directorate of Istanbul explained that in the second wave, for the inpatients we had, we lost so much time. But in the third wave, we were much better prepared than before. Because of that, it's cut off is earlier than the second wave.

And thank you very much. Thank you very much. That's very good presentation and a lot of information there and very much appreciated. Now can I just remind the audience that they can write their questions through the chat box and then we'll take them, you know, when we stop the question and answer session?

Now I'd like to introduce our next speaker, Charlotte Williams. Charlotte is the director of Strategy in Wilmington, Essex NHS Foundation Trust. And Charlotte would be talking to us about COVID 19 and selfless commitment and collaboration. Charlotte, thank you very much indeed for being with us.

And the floor is yours, so please stop it. Thank you. Thank you. Thank you, Bill. Hello, everybody. I'm very pleased to be here. And Bill said, I'm Charlotte Williams. I'm the director of Strategy the Mid and South Essex NHS Foundation Trust.

And for those who don't know about our organization, we formed on the first of April 2020. So in the middle of the pandemic and prior to that were formed of three hospital trusts Basildon and Thurrock University Hospitals, Southend University Hospitals and the Middlesex Hospital Services.

And the trust has around 16 hundred inpatient beds and a staff of around 15 nearly 16,000 professional staff and is situated just along the Thames to the east of London. And I'm just going to talk to you about the experience from a strategic perspective.

And I was one of the gold commanders during the COVID pandemic. Over the last year or so, I will be presenting some of the experience of how we managed two major waves of the pandemic through collaboration across our system in the bill.

Are you able to share the slides for me? Thank you very much. Great. Thank you. So I'll just get the slides up in one second, but I'm going to talk to you a little bit about the systems and processes that we put together across the trust to respond to the pandemic and an example in particular of critical

care, which we call five critical care units across all three hospital sites. And obviously, how we responded to the challenge of patients requiring additional intensive care and assisted respiratory support during the pandemic. And so hopefully, I'll be able to move down through the slides.

Have you go so and so some of the things I'll highlight in this talk include how our critical care and respiratory teams develop new or new, never never seen in the NHS before, in some cases, processes to increase the resilience of all quite under-resourced in relation to the rest of England critical care system and also relatively fragmented

number of smaller sites and put in operational response to that involving daily huddles and situation reports. Also going to talk a bit about how we develop virtual wards within the community. But like you've heard about caring for patients at home, but less about triage at the front door, more about how we supported patients as they improved with

their respiratory symptoms. And we were also able to create new facilities that we never had before, such as acute respiratory care units and working across our systems to transfer patients and have a community wide response to that. So I'd like to talk to you about and admit in South Essex really did suffer quite badly during the pandemic

as a proportion of this population. So in the left hand side of the slide, you can see between sort of between the two waves in the summer levels were suppressed very effectively by the lockdown measures. However, we by January of 2021.

So within a few months, we were at very, very high levels of COVID in the population, largely due to what you will probably know is the Kent variant, which tracked along the Thames estuary and affected Kent and Essex particularly badly.

And in fact, mid and South Essex coped with about 2022 23% of all the COVID admissions in our region of England and the east of England region, which stretches all the way around to Bedfordshire and up as far as Norfolk and Cambridgeshire.

So pro-rata, we were coping with many more patients every day and than would be anticipated in reducing our bed availability significantly. So the team let's talk about the two waves of COVID 19 demand that we saw in the trust.

So as you can see here, that the national lockdown measures began in March of 2020, and over this time we did have a significant increase in admissions of patients with COVID symptoms. We did see those presentations, but really the main event for us was that second second wave or potentially third wave nationally in the winter of 20

2021, with around three and a half times the level of admissions that we had seen in 2020. So this was really a sort of tale of two halves for us in terms of the challenge of COVID 19. And the building that of the next left to me, thank you very much.

There was some respite in terms of our emergency resilience because the lockdown measures and the public messaging and also potentially unmet demand resulted in a drop in other emergency attendances quite significantly, particularly in relation to pediatrics, but also to trauma.

I think around a 70% reduction in trauma admissions. And this meant that we were able to keep the occupancy of our sites very low for patients from other non planned care groups, often dropping down to below 30% occupancy during the first wave and really helps us to get through and release staff for retraining to cope with the

incoming sort of pandemic patient load. Onto the next slide, please. So who did we see in our hospitals? So we've got these three hospitals across about 1.2 million population. As you may have heard in the media, a high proportion of males are affected, but also in the second way.

This more more transmissible variant saw a younger patient cohort coming to us in the second wave. Well, haven't got all validated mortality data with me today, but we have seen a significant improvement in the mortality of patients admitted to hospital between these two waves, as well as our knowledge of how to cope with their condition improved, but

also potentially to the nature of the different presentation of the disease and better containment in areas such as care homes gone to the next level. So where do we all patients come from across mid and south Essex? This is our geographical distribution of sort of admission rates.

We didn't transfer in many patients from out of our area, and we London had a sort of response plan within London largely, and the rest of the county was much less affected in general than than ourselves. And most of our patients came locally from our patch.

And there was a high, very high correlation with deprivation, perhaps as we might have anticipated. And also with outdoor deprivation, that's access to green space. This may reflect obviously the higher risk of respiratory disease, but also because of higher density of population.

But it's interesting for us to think about this in terms of how we remain resilient and responsive to long COVID or the complications of the COVID pandemic in these particular communities, particularly where inequalities already persist. So thinking about how the this is a story of collaboration as I feel that it is and how we use that collaboration

across our resources in our system to build resilience in our response for patients. So it's going to give you a couple of examples from pathways here. So this is a bed occupancy in critical care and obviously critical care has a different designation.

So what we've got here is level two, which is patients who are receiving organ support generally in this case, noninvasive ventilation and level three patients with those who are actively on actually ventilators. And you can see that we have around 40 or so critical level three beds available, and you can see the numbers that we were coping

with here were significantly much, much higher than that. So how on earth did we stand up this capacity? And the answer to that is really by adaptation retraining and the rapid reorientation of all critical care model. So higher patient to nursing ratios, more use of cross site advice and guidance, and training staff from related areas such as

theaters and anesthesia to support those patients on the wards and onto the next slide, please. So and we we really learned a huge amount about how to look after COVID patients in all hospitals between what I'm describing as waves one and two.

So we were picking up from London, which was that a sort of earlier phase of the pandemic that ourselves through daily daily calls that critical care doctors were holding out of London talking about what they were seeing in the departments, what they were hearing from Italy, which was ahead of us in terms of pandemic as well, that

saw patient management changing very, very frequent in line with better practice. We saw the introduction of various drug regimes and a change in respiratory management. We've also learned an awful lot about how to restore our planned care. So how can we reset the admissions for patients whose care is unfortunately delayed?

As you may know, the NHS ordered hospitals to stop planned care activity and in the early part of the first wave of the pandemic. So unfortunately, that accrued a backlog, and we all now still recovering from the lack of access for those patients.

But it has allowed us to expand our use of digital resources and flex our workforce more in ways that we perhaps hadn't done before. On the right hand side here, this is just one of the operational sort of approaches summarized in terms of how we managed ventilated patients on a day to day basis across our President Broomfield

Hospital and South and intensive care units load leveling and balancing patient transfers on a daily basis. And prior to COVID, we would rarely have transferred patients who were at level two because of that sort of fragility of the patient's optic.

Those who may be in respiratory distress. However, during the pandemic, we were able to innovate a new model of treating transfer and intensive respiratory support transfer model, which had not been used before. And safety transfer a number of patients out of our system and across our sites, as I say in novel ways.

And we are writing that up and evaluating that at present and here on the bottom left, you can just see this is about patients who have been discharged home. It's just an excerpt from a paper that one of our respiratory consultants wrote on sort of domiciliary, home based oxygen and oxygen monitoring still under the care of the

hospital and with the oversight of doctors from our trust. And this saved us. We think in just two months, over 15 hundred hospital bed days were released by sending patients home earlier than would have been anticipated previously to manage their oxygen at home.

And this was extremely successful and something we're building on to support more patients through a hospital at home model into the future. Next slide, please. And this distributed the volumes of patient transfers that went on. This is between November of 20 to March 21.

And so this requires consistent daily management. I think the time it takes to transfer ventilated patients from Southend Hospital to Cambridgeshire or Norfolk, it's sometimes up to seven hours. So we're talking about running a consistent hospital into into sight transfer team to cope with COVID patients, so constantly moving patients around, assessing patients stability and ultimately giving them

the best access to care where we were. We're not able to provide that at the immediate site where they were admitted and onto our workforce. So possibly one of the toughest stories that really shows the commitment of everybody in our system to COVID 19 is the impact that this has had on our workforce.

So I just wanted to draw your attention to this, and I think this will probably be the legacy of COVID that nobody wants for the NHS, which is that huge number of our staff set this up. Substandard workforce of 15,985.

A huge proportion of those staff had COVID related absence or a stress related absence or both. And in times of COVID related absence that could be through sickness from COVID or other reasons such as isolation or caring for children through the school closures and other restrictions as well.

So this is a large legacy for us, and if we go onto the next slide, please, this is stress related absence during COVID. So I mean, you can read the text there, but there's been a significant increase year on year on stress and mental health compared to before the pandemic.

And this is also coupled with the adaptation of having to take on new skills and responsibilities and not being able to take annual leave and time away from work due to the sort of relentless need to cover those sickness absences and to support patients at a higher level of care across the trust.

So this is something we're taking extremely seriously and have been working very much to provide psychological support and debriefing to our staff. I continue to think about the impacts of this into the future. So I think my final thoughts just to say thank you to everybody whose work I've just described and summarized, because most of that was

not my work, and I'm very proud to have helped him being able to provide a resilient response to the pandemic. Thank you very much. Thank you very much indeed. So it was really, really good, the presentation with a lot and a lot of food for thought, I suppose.

And I'm sure that many people perhaps aren't really, really enjoying kind of learning, but kind of is going through this pain, unfortunately. But at take time to think about the success of it seems so far, whether it's your experience or an event in Turkey and we have a at the moment, if you please share with us any

questions you might have from the audience. Can you hear me? Yes. So there are no questions from the audience, but everybody who is attending, if you have any questions for Charlotte or call us, you, please write it in the chart for we can relate to them and you can or listen to the answer.

Alternatively, and I put the question to two questions, one for her to return to work for Charlotte, if I start with with with those quarters. How did you manage? I mean, what are you doing or just listening to some?

The challenge they went through and you were talking like you would have maintained the operation of your hospital? Norman, that's that's my understanding anyway. How did you manage to maintain the operation in those really difficult times? Yet the important thing is the isolation, for example, in the in the wave times when your and your patients getting higher

. You have to close some of the wards, for example, you couldn't you couldn't make your surgery, you couldn't use some of your ordinary stuff doing things. But in my region, we are working as a centers. We are working as a stroke center and we have to work on that too.

And we separated that areas. We we took some specimens or stop this swab test, you know, from the patient and then we sent them to the divorce. But we also we also separated the clinics. The clinic works. And for example, we opened now in the talks may be open, opened more than 200 best just for COVID 19

patients. And, for example, intensive care unit more than 20 to any faith for COVID 19, like two and five for the other patients. And also, like Charlotte's mentioned, this is another important issue to the mental health of the staff is the most important thing.

For example, I have to undermine residents is 14 of my residents became COVID 19 these days. And I have 14 physicians and consultants in emergency departments. Half of them become COVID 19 cases, and they have to separate from the team.

We we established the the teams, for example, in all the shift with the same people, especially for the nurses and the doctors, is somebody infected from the team. We isolate at all the team and we

add some other teams in their place and we wait for the time if they become COVID 19 these days or not.

And this is all happened in all wards of the hospital. And yes, there are some issues the protective equipment in the first beginning of two days, everybody afraid of that, we couldn't get any personal protective equipment that will be finished.

And for example, in fact, two FFP type three masks are important. We couldn't get them. And then when the stuff so that we can reach that problems, we can solve that problems. They become they've come to trust the system.

And the coordination and collaboration between the hospitals are another essential issue. For example, in my region, in Asian side of Istanbul, we have two big pandemic hospitals. They are just for the pandemic funding for the poor pneumonia patients, COVID patients and now and we sent some more patients to their airports, to their intensive care units.

If we if we stuck, we didn't find anyplace. We can use that areas. And also we had another chance in the COVID 19 pandemic. It is help us to finish the unfinished hospitals like our hospital. They accelerate the building and now we have a very nice capacity for the building.

Capacity is one issue, but the human resources. The important thing here, especially if you use the human resources in your best way, you can reach whatever you want. But the last point I mentioned everybody getting very, very tired of that.

I mean, their health care stuff because the first wave, second wave, third wave, everybody thinking about that could be fourth wave 50 again. And the vaccination could be nice for hoping in the future for the people that some of these photos and I understand that we've got two questions from the audience.

But if they allow me, I would like to ask just follow up with that particular point that was made and then say, Move, move to Charlotte. Actually, Charlotte, you are talking about. And he's actually got approximately 44% of your staff at some stage to former digital child care due to so many other things.

How do you overcome that that challenge? And thanks to Bill. Well, to some extent, you haven't got a lot of flexibility because, you know, they're all of the staff there. I think we're running a significant vacancy factor already.

So in in most cases, it was looking at what you could do as you would in an emergency situation. I think what we learned in the from the first wave was that a lot of the guidance coming down around risk assessment for the workforce was quite sporadic.

So I remember one day we were told that anybody who was 28 weeks pregnant should be shielding. And I think we had eleven midwives who were directly affected on that day, who were in that category who effectively needed to walk out.

So what do you what do you do in that situation? You spread your staff more thinly, largely, and you look at who else you can use to support. In some areas, we were able to use other triage mechanisms or ask for support from the community partners.

Now a lot of staff were redeployed. And you heard about sort of retire and return initiatives. And in the case of nursing, I think we were able to bring in around 90, I think nursing students out of university and on and other things like that.

But that patient to nursing ratios were obviously reduced. Unfortunately, and nationally, there were also amendments to the necessary procedures that had to be carried out to lighten the load on the available staff as much as possible. But in a way, it was fortunate that some of the plant care had been stood down.

So we were able to release staff and things like day surgery, theaters and other clinics to backfill on into some of those posts. But it meant that the staff who did have skills were supervising a number of staff who didn't necessarily have that expertize that put even more strain on on those staff who remained there.

A lot of it was improvised. And the second time around, I think it was it was better. But in a lot of cases you didn't really have much choice other than to rapidly train people. We had sort of hit squads going around, training people in support skills at the bedside, simulation training very rapid training of as many

staff as possible to make areas safe. So thank you very much indeed, sir. But I believe that you've got two questions. Is it not without a few questions or two? Questions are quite similar to I try to summarize them.

So the audience is asking can hospital staff cope with another wave of COVID? What will you do differently to protect staff and what we will be doing different in terms of process? What's the question for solid political football since then?

OK. I think just one or two minutes, please. OK. Briefly, thank you. I think I explained the shift system for protecting this stuff and personal protective equipment are essential to their shift must be essential. You have to organize them day by day.

This is this is very important and their relatives and their families. This is another important issue that you have to protect their relatives and families to for their mental health. And also, there are two groups of two patients.

We are forgetting about that. For example, we heard that nearly, for example, myocardial infarction have put some of the patients they are afraid of coming to the departments. And also the other issue is oncology patients with cancers. We didn't stop the surgery for them if they essential.

They can do it and we open some of the ICU and the operation rooms for them. And yes, the I think how can we protect the people, the people we can protect if you're if you vaccinated, the people?

This is the this is the important way for protect all the people now in Turkey. All the health care workers vaccinated. The second vaccination older established two months ago. But for the people, we need to meet the vaccine.

Vaccinations also. OK, thank you, sir. You mind if you give us your phones as well, please. Thank you. Yeah, thank you. I mean, I think it's going to be a real struggle for the NHS if we have significant further waves of COVID infection, largely because, I mean, probably more about the indirect consequences in all the patients waiting

for for treatment because the tragedy of, you know, a year extra in some cases is very severe. And I think a number of our professional staff who perhaps are not in your respiratory are very worried about their patients in those other areas as well.

And we are pushing very hard to catch up as much as possible, which is also quite exhausting if you're a staff member, such as an anesthetist or someone has to care on both sides. I think in terms of some of the things we learned about supporting staff, but it was that in the first wave, we we obviously

had our red areas that's described, you know, our high intensity covered areas and we deployed staff at talking to them as we needed to as we increased our surge. And what we learned is the second time around. You need to plan the surge better and actually plan to flip entire areas of your hospital over Typekit.

And as a result, teams don't get split up. So if you're used to working on a ward area with a particular team in the first area, we would take, you know, two or three volunteers out to put in the covered area.

What we've learned was flipped the whole area to COVID and then the team stays together and the team resilience and psychological support that the team gave one another was much more positive and gave us greater resilience. So we saw lower absences and better morale from teams who stayed together in the pandemic.

So that's one of the things that we would probably build on in future in terms of preparing people as teams, and we need to debrief better than we have been able to do. So if we're going into another way, if we think about how much preparation we can put into that psychologically and how we can support staff

through that, what we are seeing increasing unfortunately retirements and a lack of commitment to working additional hours and working, for example, on a temporary staffing bank. And it's understandable because people need that time to recover. At some point the government decided, OK, I think about five minutes late now, I think it's time to actually go to the

second session now, and I've got my colleague here with me, Dr. Dippenaar Enrico is a senior lecturer at Sydney University, and he will be talking to us about mercy care not on the front line during the COVID 19 pandemic.

And recall these things is also to be great and start. Share with us your presentation screen case. Thank you. Thank you very much, Nabeel. You can see my screen. So bottom is indicator. Yes, I teach at Anglia Ruskin University.

Predominantly, my background is from power medicine. So a lot of what I'm going to talk about relates to what ambulance services have been facing during the COVID pandemic. Although I will also be mentioning a few things that's happened within emergency departments and the relationship essentially between the ambulance service and the emergency department.

Now I'm going to speak about things that we have learned, also things that we might not have learned or unlearn since the pandemic, because we are certainly seeing things, especially in the UK returning to some form of normality.

And it's sometimes like the lessons we learned, we just going back and not putting them into action. So for me, the emergency care system, what I want to talk about is the four components is the setting where we all provide emergency care, the patient themselves, the patient's family, the impact on the patient's family and then the clinicians

. Now I'm going to do so using only pictures that I've kind of gathered from newspaper articles in the UK to just give you a kind of understanding of what type of news and pictures have been brought out into the community that people read and people see and interact with.

So first, if we look at the setting, there's been many pictures in newspapers of ambulances standing row upon row upon at emergency departments, and they appear to be a concern that we are not getting enough patients into our emergency departments.

Now, initially, when the COVID pandemic struck, this was very much the case. A lot more people want to go to hospital due to infections, so we had very, very long lines. But it's quite interesting that as the pandemic kind of went ramped up, that we had less patients wanting to have contact with the ambulance services and wanted

to have contact with an A&E because the understanding was, you know, the virus travels within the health care environment. And if I'm going to call for an ambulance, like we said earlier, if I have a hot, if I call an ambulance, there might be a high risk that I could get infected because a previous patient that was

COVID was in that ambulance. Similarly, with A&E, people were scared to go to an E for certain things, and they didn't want to contract the virus at any. So these are some of the pictures. Initially, yes, there was a major spike in ambulance transfer transfers to hospital that has died down.

And I think we are returning currently back to normal pressures. We know that these normal seasonal infections happening over the Christmas period or those things that these surges and we are expecting these, especially the winter surges, to come up.

The next thing I want to talk about is the patient and we are all within emergency care, but this is something completely new to people. This is a completely new environment to patients. Patients do not know necessarily how to interact with the health care system at this point.

Like I said earlier, a lot of patients maybe did not want to contact an ambulance because they were afraid that they will catch COVID, and that this led to a lot of individuals, first of all, not seeking appropriate care.

However, from an emergency care perspective, it's actually had an opposite effect and has empowered people to deal with minor emergencies, maybe cut surprises, small types of things at home or use alternative pathways. Connections with the GP surgeries, minor injury units, 111 services.

So we were able to provide, you know, care in the home much more effectively because people wanted to stay at home. They didn't necessarily want to go into hospital. Now, if we look at the picture, this is almost the worst case scenario.

We have multiple patients in hospital that are on ventilators, and it is extremely scary for patients going into hospital, especially now that they can only go alone without family members. It's a completely movie, unrealistic environment that they. That they're walking into something that they're just not used to.

And for a lot of patients, this can be extremely scary, especially patients that maybe do not require a ventilator initially. However, they do see other patients that require ventilation and other patients perhaps passing away. And you know, it's an absolute fear that people live in.

So we shouldn't forget how patients react to this and to the change within our hospital systems, especially when they see health care workers all of a sudden fully suited up that look like some biohazard. This, you know, movie that that that's happened.

It's extremely scary for them. And the way that they interact with the health care system also then changes. So what we have learned is that the way the relationship between patients and the healthcare system is has changed. People are a lot more wary of going to hospital, afraid to catch illnesses.

However, on the flip side, we've also had patients now being able to manage their conditions at home. That being said, as well as the restrictions are slowly lifting, we are seeing in the ambulance service a return to calls.

So we are seeing a much more increase call number for the things that we usually would not have responded to during the the peak areas of the COVID pandemic family. Now, for me, this is a very important, but because we all have support structures, whether we are patients or clinicians, it's the family, it's the people around us

. And I think it has been extremely traumatic to family members when ambulances arrive and want to take a patient to the hospital to be told, sorry, you cannot go with the patient or at an A&E being told, sorry, you cannot go with your loved one.

I think it's had a massive impact on individuals, especially those that have been tested positive with COVID because we don't know what the outcome is going to be. That's unfortunate. But is that any patient that in the emergency department, it's very difficult still for us to know what the ultimate outcome can be because similar patients with similar

presentations could have wildly different outcomes. So when family members leave their patients or leave their family members at hospital, it can be extremely traumatizing to them. And what I have seen is that there is support being given to family members and they see the importance of supporting not just the patient and the immediate medical emergency condition, but

understanding that this is also an emergency for the pay for the family and perhaps you know their livelihood going forward. So a lot more emphasis has been given on supporting families as part of the emergency care plan. Then lastly, the nation's.

This has been an absolute knock on emergency care throughout all of a sudden practitioners had to put on all of the suits that they normally would not have. Patients might not recognize who the clinician is. So I know some clinicians have put photos of themselves on their garments.

All of a sudden, it just changes the dynamic between the patient and the clinician. Where is it feels like this distance between the clinician and the patient, and especially when you are dealing with incidents out in the community having to wear these suits most of the time, it creates some communication barriers.

There's fear among patients seeing clinicians come in. And to be honest, as a clinician, it is extremely stressful to be in such PPE conditions, not knowing, you know, all you secure. Are you safe? You will have enough PPE going forward and.

It really gives a quite a different approach to how we do emergency care, for example, in the ambulance service we moved from, a complete assessment may be in the home with the patient and the family to a very succinct assessment, very quickly determining what are the key issues that need to be dealt with and making that quick

decision. Do we need to go to hospital or not? And then making that transfer as quick as possible, if we if we go back to the last slide looking at the setting, the patient, the family and the clinician, ultimately, emergency care is not just one thing.

It's not just giving a medication for immediate concern, it's about dealing with the system as a whole. Triage has been affected by this. The way patients see the health care system has been affected. The way that we are assisting family members in the emergency care of the loved ones has been affected and clinicians have been extremely affected

by this. I mean, from a wellbeing perspective, I know Charlotte has spoken about that from a wellbeing perspective. We have seen in the ambulance service very similar figures of absenteeism. Ambulance services are almost first out on that community service scene.

Unfortunately, some of our ambulance colleagues are passing away due to COVID, which creates even more stress when responding to incidents. However, I think that the response from organizations has been absolutely wonderful, especially in the region that I work in.

Charlotte, what would my benefit that also work in the mid and south area? And I think from a hospital perspective and from an ambulance services perspective from the east of England, there's been quite a good response to the well-being of the clinicians, making sure patients are still safe and ensuring that family members are kept in contact.

So something that we learned is that, you know, having good contact information or family members and making sure in the emergency department when we hand over patients that they are contacted as soon as possible and that messages are relayed as soon as possible.

Those are the things that hopefully I want to see go forward and be kept into practice. Thank you very much. I've kept it short so that we can remain on time. Thank you very much for the presentation, thank you so much indeed.

And also, thank you both for taking the time as well, right? OK. I think it's time to go to our full speaking now with Dr. Richard Lammermoor, who joins us from Italy. So Rosella is a research fellow. She's a University of Santo, Colorado, and she's going to talk to us about the arrangement of health care facilities due

to the pandemic. Now I'd have to to to say that perhaps you have noted so far that our first speaker is very much kind of a medical doctor. Our second speaker is is a manager, our third speaker is an academic.

And of course, all of them are some half of the management aren't from the clinical background. However, our next speakers starting tomorrow, Elena, is they're going to be engineers. So we'll see, which is a great addition here that we are going to have.

So hopefully we're going to have some solutions now. Okay. The thing is, though, for sure, that's also thank you. Thank you. Can you see my screen? Yes. All right. So thank you for inviting me to be, as you have said.

I'm going to talk about the arrangement of good facilities due to the COVID 19 pandemic. So basically, I will review some main legislative measures to cope with the pandemic. So so as you probably remember, Italy is being one of the first restaurants county to be affected by the virus.

We had three major peaks. If we do phase two, the daily reported the new cases one in March 2020, a huge one in November 2020 and the last one in March 2021. So that today barely counts for more than 4 million cases and more than 100,000 deaths.

Now connecting Italy started really early. The first patient was identified in the north of Italy on February 21. And since then, the installation of the containment measures was necessary to mitigate the spread of the virus. As I've said before, and we will talk about the national health system and legislative legislative measures, so it is important to understand

how the Italian National Health Service works, but very quickly. So then Typekit system in Italy is a regionally based supervision, while at the national level and some fundamental principles are set like, for example, the so-called essential level of care.

The regions are actually responsible for delivering the healthcare services they can rely on them. Local health authorities are in hospital, and outdoor use of these means that the facilities can vary can vary from one region to another in terms of both the organizational aspects and also quantitative data like, for example, the number of beds.

The first important legislative decrease, or the first important central response to do announced health service is this legislative decree of March nine. Here in the central government is trying to increase the human resources, but above all, to enhance the health care system by introducing the so-called special unit, some of continuing assistance.

These units are made by doctors and nurses who are in charge of managing the COVID 19 patients at home. Also, in order to put more staff on the epidemic management, I mean, her idealistic visions can temporarily suspend unnecessary activities, such as outpatient activities, which are where needed on the open reactivated.

Another important center in the response is this legislative decree of May 2020. The central government declares that we don't have to to adopt and also do to provide for some specific plans for the reorganization of the territorial assistance and hospital care.

So in the sense that these plans have to to to lease them to to state how to identify, trace and manage COVID 19 cases, for example, through a different operation of the Department of Prevention and General Practitioners, and also the previous previously mentioned the special units of continued assistance.

They can also make agreements to manage asymptomatic patients at the facilities. They should then enhance the home assistance, and they have to activate some regional and territorial operation and hubs to better coordinate their tasks. In the mental hospitals care, these plans are aimed to be organized in hospitals.

This is, of course, the main goal of the of the central government is to increase the bed numbers within the ICU, so intensive care units and semi intensive care units to do so. How how would we see this around?

Getting these presentations regions can act differently so they can they can put example, set up temporary infrastructures for the restructuring of the facilities, but also here in a legislative decree, and he's declared dedicated pathways in areas within existing Typekit facilities, as well as prevention must be identified for COVID 19 patients and also regions that can increase the

means of transport patients, for example, ambulances dedicated to the COVID 19 patients. So according to these report of the ministerial handbook, then the first her, which was published at the end of May 2020. So the first response to improving hospital care included the identification of COVID 19 or inside infrastructures inside hospitals that made it to that or

partial renovation of existing assets and hospitals, for example, to identify a specific area and also a region set up field hospital, except for the reactivated the unused units to better understand the operation of that response. I also I also review with the regional command of six regions so I the not have a preference from the center in

the coverage from this weekend. The results show that all of them identified some COVID 19 dedicated hospitals, and all of them have increased bed numbers of both the ICU and some intensive care units. Some of them gave details on how to treat emergency department.

Also, some of them founded additional means of transportation, not a bed or temporary field. Hospitals are also private hospitals where gauge or even private facilities admitted in hospitals such as hotels and care homes to assist and manage asymptomatic and discharged COVID 19 patients.

These are some examples from these plants, for example, the Chongqing Banditos plant is a region in the north. We can see that the region here suggest using this containment model to quickly adapt a general word in in a word that can be dedicated to COVID 19 patients.

So to manage and control and prevent infections more quickly and also here are needing funding, right? We have an example of the so-called C, the emergency department. This is an example of some drama. The most important thing that we can outline here is that the is a name transfer patients is the ambulance for me, and I did

one on the opposite side of the facility. This is a block. So this particular case study AIDS is a hospital made up of different blocks, and so one of these blocks was dedicated to an emergency department dedicated to COVID 19 suspected patients.

So on one side, we have the ambulance phase with patients and drugs on the added line. We have been transferred, the staff we done, they've done vaccinating the area, actually. And here we have some short observation on the wards in a waiting room.

Also important, very important is the area which is dedicated to COVID 19 patients to perform. Imagine the entrances. In terms of the territorial service user, it was a little bit more difficult to find more, let's say, similarities and differences because of the regional services can be sent from one region to another.

But anyway, it is possible to outline that all the six regions, i.e. I choose as a field of study, improve the surveillance, testing and tracing systems, for example, toward the collaboration of the Department of Prevention, regional observatories and measurement platforms.

And also all of them identified the network of private and public to perform some COVID 19 tests. For example, the PCR test, all of them introduced the so-called special units of continued assistance for home assistance. These units basically manage COVID.

Patients told me the sense in the sense that they actually go there to check. first of all, if if they are positive, but not in the sense they go that responding to PCR test and then they they were once in a while.

All of them try to improve performance systems that are basically increasing the work and dedicated to that and also region to try to coordinate better the activities by means of this territory. And Thompson and also primary care was improved, for example, by using telemedicine and conservation, and some regions also provided for additional measures.

For example, the ASEAN region listed the activities, which can be carried out remotely. So to sum up, in Italy, hospital care, we don't have services have been advanced by adopting specific regional plans. Regions have been instructed existing assets or be tempered.

Everything must be done and restored unused portion of these facilities. The necessity to reduce the risk of transmission led to COVID 19 dedicated transport. At least they need. Either way, renovation interventions were required to control and prevent infections.

Both technological features spatial vision and requirements in the face of the pandemic so that it will close now. Reduce presentation. Thank you very much indeed. It's quite an interesting experience, I have to say it's completely different, obviously, from the depressive presentations.

And I think you did pretty well because they're just connecting straight to a commodity. Our next speaker, Marzia, is one of Unversed University's PhDs, and she is now a research fellow in University of Oxford, and she's going to talk to us about something completely different.

She's got a fantastic artificial intelligence, Marzia, and thank you very much indeed for being with us and the space resource. Thank you very much. Can you hear me? Can you hear me? Yes. I'm not sure can you hear me properly?

Yes. Oh, OK, great, because now from here it is showing that you cannot actually hear thank you for inviting me. I guess listening to our clinic, our clinical trial partners say it makes more and more important to us to do something.

I'm not saying that we are out there technology wise. Of course, we need to also move to provide support. But I thought to present some of the lighter works that is already out there to provide support. Currently, because I'm working as a post-doc in Oxford, so I thought to put a nice Oxford picture in the background to

start with. So I know is now a buzzword. Everybody knows what it is. But because we have a mixed audience, I thought to start with a little bit of some of the timing and logic and background before going into some of the examples that is already out there.

So I thought to start with the cute robots picture, this is actually in my hometown, although this is not me. So if if we want to imagine that a robot is doing our domestic force every day, our life will be very easy, isn't it?

Actually, you can order domestic robots. I think it starts like £5,000 you can order on Alibaba Dot. I hope so. Now the question is, yes, these are the product of easy. But how what is it in the first place?

And are these machines are incorporated with human like intelligence to perform these tasks as we do? That's why we say that these are. And on the background, they are complex algorithms. They are mathematical functions and AI nowadays are blended in our life in a way that we cannot differentiate, whether or not like if we use our form

. Of course, we are using AI every day. So suppose we want to send our robot for our field work because we have colleagues from the civil engineering department as well. And the robot needs to perform some, some tasks that we want the robot to perform.

And no matter what is the lighting condition, how the landscape looks like and what is the dimension of the field, it needs to react appropriately, whatever the situation is. And this is something we call generalized learning. And this is one of the very important aspects that separates the AI from traditional computer science because it's not about some

equations you have to be you have to learn, you have to generalize your learning as well. And suppose I'm giving just a few scenarios. Suppose in another situation, the robot needs to go from one place, from A to B, and one part is full of potholes.

But it is water. The other one is smoother, but it takes maybe five minutes additional time. Then the robot needs to decide which path to take. And this is something we call a reasoning ability. And this is the last task for our robot.

We want to make it work any more today, so we want to send a robot to our village to perform some task. And as you can see in this first figure, the road is broken and a robot. We have it cannot fly and it cannot swim.

But in its input, we provided with some tools that it can use those tools from its input and make a room and then go to that village and perform the task so it can solve a problem using its given input.

So to summarize, it can generalize, it can reason it has a problem solving ability, so we tell this robot to be artificially intelligent. So I approached the machine with an ability to adapt to reason and to provide solutions.

But not all her robot can do everything right. Like, if we think of Elixir, of course it has its limitation. So I thought to give to example one using out from the gaming world because I, of course, became very popular from the gaming world for us.

We had a wee wee. Most of us probably played or had heard of AlphaGo, and this is an example where ICA is a master of a single task and we call this narrow AI or weak A.I.. On the other hand, when we see movies, we see these self-aware.

I took this photo from Avengers. I add these self-aware robots. These are fictional at this moment, but one day maybe we will go achieve that, which is an example of strong at. But when we come to the present situation, not in the gaming world, the harsh reality where disasters happen, then what is out there right now?

one example that is mostly used and it has regained some success. It is in surveillance. There are many surveillance robots. We see drones to be sent out to Syria to do some surveys or existing scenes, even if it is a disastrous scene.

But it was a landslide happened. And to inspect nuclear power plants, these are real life examples than we have seen our robots to be used for mounting drones, although technologically we are where we are already there. But there are some legislative issues, so that's why it has not been permitted to all reach to its full capacity.

Yet another very positive example we have seen during the Notre-Dame cathedral a fire big fire that that was dead and the robot extinguishing the fire extinguishing robot that was used and it can blast hundreds of gallons of water per minute.

And this is one of the good examples. But why do we have to send a firefighter in the first place? Can't we send a robot not just to see the scenes like from very far above, or just to just to throw water from a distance to save a human being?

Why do we have to risk another human life? And why do we? Why can't we send these robots so the robots we see in drones, it can fly. We saw robots, which can our role, which can crawl. But walking?

What about walking, crawling, climbing, rolling, flying blind? But one of the things that we often see the robots to struggle with is to keep the balance while walking. And one of the example is Sophia, the famous robot, which the only robot which received which has a citizenship of a country.

And when did you see it? The citizenship at the time? It could not work. Now recently learned to walk, you can walk now a little bit. So this is still one of the challenges that we have. Of course, there are many other challenges that we need to overcome, including the ability to reason when when it comes to

saving someone's life or being exposed to a high temperature of fire of fire hazard and still be able to withstand that. So coming to the COVID 19 pandemic of what what robots has been used for within the context, we have seen one of the gaining a very good example, which is why are we using drones?

Robots has been using drones, has been used to send out medical humans not only in the UK, but the first photo, for an example, is in Scotland, but also different parts of the world, including us and different parts of Europe and Asia, and also in many countries in Africa.

And the other example, the last photo at the bottom of that is that is one of the most out of this robot became very popular in different countries that use UV light technology to clean and inspect areas and and other repurposed robots that I have.

Oh, I saw in many countries to use these to spray disinfectants. These were originally designed for agriculture to spray pesticides, but they were quickly repurposed for COVID 19 purposes. Also, there are temperature and robots for temperature checking that disinfectant robots that I was talking about social distancing, measuring robots.

There is also one good example in India, which used a robot called Mitra, which which can connect patients with their loved ones, and also to make sure that decontamination with the doctors are as large as possible. Some of these initiatives.

There is a book chapter we wrote in the Article V Days at Please Feel Free to browse and one of the other. A very good example that I like is our four day COVID 19 swab test. So the picture on the left are robot machine.

The robotic arm is OK, it can. It can put that swab sample to a tube to be tested and on the right side. The example we are seeing it can actually not only to take this one at first it can locate and right from where it needs to take these swab from.

For human, it may be, it may come very naturally. But visual knowledge is not something that comes very naturally to robots, those so the other computer related technology are being used. And this robot can locate from where it needs to take the slot and also then take this off and bag it without any contamination.

But of course, the robotic technologies have. These are expensive. It can be very, very expensive. If we talk about accessible technologies and a quick roll out to all parts of the world, we need to make them affordable even if we think of the examples of a COVID 19 test.

And then this is the future of the big figure in here. This is of a colorimetric test for COVID 19, which was developed here, actually developed by one of our senior professors in the department. And this is very cheap that can be done very quickly now.

It has been noted that it has been reached and in different parts of the world as well. And these are the techniques that that can also leverage artificial intelligence to make it mobile enabled to make the visual knowledge transfer.

All that on to the mobile platform and app to disseminate and quickly communicate the result with the authorities or whoever it needs to be communicated with. And actually, that is my field of research as well. Although I have not worked with COVID 19 samples before, but I have worked on other infectious disease samples that you can please

feel free to explore. And I read recommend the Google Scholar and making ad technologies on health care technologies to be affordable and rapid and robust. That is one of the research interests that I carry in the early Adobe days.

I also we have worked on our paper for comorbid patients because this is one of the things that our colleagues were also talking about that are not the patients who are having a heart attack, but the patients who has a chronic conditions managing them.

It seems to be some sort of it. It is becoming more and more of a pressing issue that how technology can support in providing personalized care. And I, before I conclude, I want to quickly touch on and just one last example are you who are pandemic robots that being used at the figure?

The photo you are seeing this is this these cops are now actually super cops because these helmets that they are wearing, it is connected to a virtual reality so it can do the temperature check. And also it can connect that person to the database and know all the information about the person to match.

It can pull up out the corpse, which could be very useful if you want to make sure that new variant or or of any disease is not entering into your country. But at the same time, OK, this this this is a pandemic situation we are talking about.

So maybe this is something for greater good we can accept. But at the same time, there could be some ethical issues. I mean, not could be there are many ethical ethical issues within the context that needs to be considered.

one thing for sure we can see that is and is here to stay. So if we if we accept that it will stay and eventually it will touch every aspect of our health care system, then the question, then there are some.

Some of the questions that we continually need to continuously ask is what is are we? Are we ready for this kind of technology to be integrated into our health care system? And how much integration are we talking about?

Especially when it comes to the multimorbidity patients there. There are ongoing discussions about this is going to be connected with social and community settings, then how much prepared RV. We are not talking only about the access and practice from the authorities perspective or if there is any breach.

Also, it has some issues around. It is already predicted that by 2045, our robots will be as smart as humans, which we call. You know what? Tom's point of singularity, which is a separate branch of AI itself, but it is also the outcome of the point of singularity is also linked to add to this health care sector

, which again again comes back to me to my first question that yes, we need to support our healthcare system, but are we actually ready for it? On that note, I would like to conclude thank you very much. Thank you very much indeed.

Marzia, such quite an interesting presentation, and I don't want to start with the questions, but perhaps I'll just throw the question now for for everyone and say, basically, how far are we OK of developing a robot that is able to learn that fast and can replace health care staff where there is a shortage because of of over

another? I'm sure that we find this kind of the fact is that for us, this kind of robot, I'm sure that Charlotte and Conteudos and many other colleagues, as we had around the globe, would be super happy. OK.

So again, so thank you so much for our three speakers. I would like to open the page for all the audience to ask questions. And so if you have any questions, please? Yes, maybe we have a question for Stella.

OK, little Stella. What was the reason for healthcare system in Italy to almost collapse at the beginning of the crisis? And what could Italy have done to reduce the effect of COVID 19 at the beginning of March 20?

That's a very difficult. Well, first of all, you have to understand that the epidemic you need that in March 2020 was just in two regions in Lombardy with Milan based and you managed to manage it splints. So that actually did the festive season, that the system was collapsing, I think, for 7% of the reason.

first of all, Italy was not prepared, prepared in terms of organizational features, for example. We did not have at that time a surveillance system which now we have. So we only tested the patients with fever, cough and who were required to go to hospital himself.

This is the first really important, he's insisted. Consistent daily and systemic tracing and contact tracing and testing was all these systems was the. Another important reason, in my opinion, of course, I don't know if I'm right, but I think so, and I have an important reason.

He's better off like somebody, not Lombardy. They have systems that so so-called separated in the sense that the local authorities manage only delivery of services, while hospital authorities manage only hospitals. This means that hospitals really do not know what is going on on the territory.

And I believe that another aspect to do outline is that in Italy, we don't have our youths work phones, and so we have a good number are a few few nurses and also doctors. This is to do the spending review of the last two decades.

So now they put example of all these needs a legislative decree. I previously recalled the idea calling in using your workflow so as autonomous items workers, so not as employees of problems, because we don't have enough doctors and nurses and in general, again, just to do somehow there is a problem.

We did coordination of the digital services and hospital services where the health care system is not integrated actually in Italy. Isn't that enough? You know, in few regions like Italy and are now getting the same sense that I need to run in the added line.

But we have these huge hospitals which actually make it on with identified this COVID 19 crisis and that this really spooks or little hospitals. So I didn't get any work done to her organization, no problems for the lab, and the other question was what has to be done?

What could he have done to reduce the traffic at the beginning of March? Well, actually, I think Eataly performed quite well in March 2020 because the prime minister in a couple of days closes a lot of the municipalities of the northern regions that we declared this locally called the lockdown mitzie.

All unnecessary activities when close to where they were, when they were better organization was still deciding if the economy was up on them. So I think the first response was quite cash and equities. The problem? We had more problem during the winter of 2020.

So for example, in November and December, we did not learn someday from the experience we open and everything schools, university, all the shops, all the travel and the travelers where when I go out and talk to a lot of people died in November and December.

Rosella, thank you very much. So we have a comment or question, and I think a previous question that you could answer to as well. So the comment, first of all, is a very interesting presentation, very curious to see the future of artificial intelligence.

Fingers crossed we can hear more from you soon. Thank you very much for your contribution. And the previous question is digital transformation has become something that we must adopt, use and deploy. Was it possible to use the latest technological adventures, such as the use of artificial intelligence in imaging for lungs to assist in diagnosis of COVID 19

? Thank you, Fredricka. I think Charlotte has already responded to that question. I can see that why this particular from where this question is coming from? Because there were many papers at the beginning. At the very beginning of COVID, the CD imaging was used not only in extreme weather.

Imaging was used to see whether we can detect COVID from the X-ray image or not. We have clinicians on board. I don't want to go to the clinical detail, but as far as the computer vision goes, I know that I personally am not satisfied with the results that we achieved using to use it as a primary and

confirmatory test for COVID 19. Like I said, our clinical experts can explain this better that why. I mean, of course, if there is a pneumonia, when by the time it develops pneumonia and also we have seen many, many people are to.

Before PCR test was confirmed, the CD imaging was also of CD image, which was showing interesting results that was indicating something strong. That was that was not being diagnosed in the early days of our PCR test was not where it is right now today.

I think one or two patients in Italy and China, there were four COVID PCR tests and there were four PCR tests. It came negative for all of them. But for me, from the very beginning, the imaging was saying that showing something interesting.

But whether that interesting thing, I mean, at the point of interest, the region of interest, whether it's COVID or not. Yeah, to confirm that using a computer vision that might be too premature. But we are in Qatar. Actually, they have they have the UAE.

They are using a huge database to train their system. Once that result is published, probably we can tell with more confidence or some reliability that whether whether we can trust this system or not. Thank you. So there are no more questions from the audience than Bill.

May I add something about artificial intelligence, especially for the X-rays and CTS as as a clinician? The first thing for us is clinical assessment. You know that the respiratory rate, the fever, the patients, because you need to find the product, know many signs on the CTS or X-rays, and especially we are reading CT is vital for pneumonia

or is it from the other infectious diseases? And if we find that the viral pneumonia we don't know, we are not sure about that. This is it from COVID 19 or other viruses. And these are the essential things.

Because of that, we need the systems that can read the variabilities, especially. We need to make them confirmation together about the clinical side and the X-ray or CT scan side. And these we have to make that decisions with the comparison to what?

OK, thank you. Thank you very much indeed, Cockroach and Marty, and of course, Rosella and Andre both be known for letting summer, and I think we are just that time wise. So it has been a great, great pleasure now to attend the presentations and to have that many attendees attending this this webinar.

And so I think there are plenty of lessons that we have. We have to take forward. And part of that perhaps is preparing our hospitals more professional health care staff more and preparing, you know, our health care system more enough or more, perhaps resources in the future, perhaps more pandemics, we don't know yet.

So far, the UK has been really good in leading vaccination of its population for over 1,000,000 people have already been vaccinated so far, which is great, and so far our numbers are going down. And I understand also the same time that there are some other challenges coming up as well.

So we hope that this is the end for the UK and therefore we're not going to have any more waves and same thing for the rest of the world as well. So we pray that everyone would be would be safe.

So again, a big thank you for all our audience and of course, to all the speakers and the thank you very much indeed. Thank you.