Faster and earlier diagnosis of cancer

Innovate Stage

Monday 11th September 2017

16.00 – 17.00

Speakers:

- Jenny Kleeman, stage host
- Professor Chris Harrison, National Clinical Director for Cancer, NHS England
- Amanda Lyons, Delivery and Improvement Director (South Central), NHS Improvement
- Nigel Acheson, Regional Medical Director (South), NHS England
- Professor Hashim Ahmed, Chair of Urology, Imperial College Healthcare NHS Trust
- Dr Phil Crosbie, Consultant in Respiratory Medicine, University Hospital of South Manchester NHS Foundation Trust
- Mike Thorpe, Patient representative

Jenny:

Hello everyone, and welcome to this session on faster and early diagnosis of cancer, more people are surviving NHS treatment than 3 years ago, that is great, how to continue this progress, faster and earlier diagnosis helps the NHS as an organisation, use of resources and makes a difference to the individual. We will focus on how we change pathways to achieve this and how the alliances are driving the transformation of how we deliver cancer care, show casing some of the ways they are doing this.

Chris:

Thank you, welcome; it is a rather long room. I will look around from side to side, I will be like I am at Wimbledon. Welcome to the session. The introductions have been done. But I just want to make a few comments by way of introduction.

I am here as National Clinical Director for cancer, as you will be able to tell by the way I am speaking, also from the northwest, Manchester actually and also here as Medical Director of the Christie hospital in Manchester.

I am involved in the national cancer programme because we have a national cancer plan which is a fantastic opportunity to improve cancer care in England. We do have some fantastic and excellent services already, but with the plan that we have, by 2020 we are in a position I think to be able to, to improve what we do and to catch up with many other places in the world. I think we will be doing the right things and as you will see, if you listen to some of the other presentations on other stages today, there is some radical proposals in what is going to happen.

What we have in place now is the return of local coordination and leadership for cancer at a level that used to be provided I think by many of the cancer networks we have 16 cancer alliances, 3 vanguard partnership areas, so 19 areas altogether across England that are the, the engine rooms the drivers for improvements in cancer care locally.

I think you know, these have been put this place over the last 12 months and are going to be an essential building block for the future. A lot of what we are going to talk about this afternoon revolves around early and faster diagnosis of cancer, on this slide you see the 4 areas that through the national transformation fund £200 million over 2 years we are seeking to, to promote and drive forward I won't talk through the details of all of these, we will talk as the session goes on, what we are trying to do is to ensure there is a consistency in the way that the cancer alliances implement approaches to early and faster diagnosis and I use those two words

deliberately and draw that distinction between early which is getting people into our cancer system at an earlier stage in their disease, their condition. Faster which is once people are in the system, that we make, we do the things we need to do to both diagnose and treat people. The national transformation funding is £200 million, it is linked very much to early diagnosis of cancer and also to achieving important national targets. It is also linked very much to the objective of improving cancer care for people who are living with and beyond cancer. You will recall that the national strategy puts this on a par with survival.

So, we are going to hear now from our speakers, we are going to hear something about achievements of national targets and then we are going to go on to hear about prostate cancer and hear about lung cancer and innovative approaches that are going to be taken particular to the earlier and faster diagnosis, first of all to introduce Amanda and Nigel, I should say that we will have slots for some questions towards the end of the session. So, please be thinking of questions as we go along. We will have a few minutes right at the end for those questions to be taken.

So, Amanda and Nigel are going to start. I will hand over to them.

Nigel: Thank you.

Amanda:
So as Chris said I am Amanda Lyons, one of the Directors of delivery and improvement for NHS improvement. I am also the SRO for the south regions recovery of the 62-day cancer standard. This is a joint programme working closely with my colleague Nigel but I am a, unusually a Chartered Accountant by background but have worked with the NHS for many years and enjoying the opportunity to work in this more clinical field. I think Nigel is going to introduce himself and then we will carry on telling you about our journey.

Nigel:
I am Regional Director for the south England, I am a gynae-oncologist; I am also the

son of somebody who has gone through a breast cancer pathway and beyond the first year of follow up.

The question of 62 days, why is it important to patients? It is pertinent to me at the moment. As somebody who has had a close family member go through the worry of finding something that is wrong and going to have investigation for that and wanting to understand exactly what will then follow.

Certainly, in my own clinical practice I must confess we saw the 62 days as something of a backstop rather than a standard. What I think we are trying to achieve together are a number of things. As Chris has mentioned, there are 4 key planks to what we are trying to do together around the pathway redesign, we will talk about that, about improved diagnostics for people who have got worrying symptoms but actually what we want to try and do, bundle the investigations up into a shorter time frame, in order to make a decision, a diagnosis and then a decision about what treatment is right for patients.

As far as our approach has gone, we have tried to do technical things and then tried to do clinical engagement with as Chris said the colleagues who work as part of our cancer alliances. So, we will pick up the elements of our strategy as we go on.

Amanda:
Yes, no worries, I am legendary with technology, let's go back to the slide -- hang on -- with the alliances in the centre.

When we were poised with the, posed with the question as to how in the south are you going to recover the 62-day standard which has been you know, at our fingertips but not quite there for a long time. We looked at the fact that what had we got available to us to do that? We also considered that really this is a team effort. Hearing what Chris said with the alliances being very much a new area something which is important to the transformation of the standard, of cancer across the country, it was for us that actually the cancer alliances were to be the centre of how

we were going to work.

Over the last few months this has become a collaboration. We see the benefits for us both NHS improvement and NHS England working around the same table as the alliances and the providers and the commissioners to achieve a single aim has actually already borne fruits in terms of actually the establishment and the importance of the cancer alliances locally through this process is become very apparent to us. We see this as a way to facilitate the ongoing success not just for the next few months, while everybody is putting their backs into it, but actually for the future. That's why we choose to do what we choose to do.

So being someone from NHS Improvement and NHS England we couldn't fail to share a few statistics. The 62 days cancer recovery is focused on four tumour pathhways lung, prostate, upper and lower GI. When I first joined the programme, and was asked to look at that, I wasn't certain I fully understood why that would be. Actually, the graphs that you will see in front of you very much demonstrated it in an instance to me why it was we chose to look at these four tumour pathways and why you'll hear later as to the work going on in that area. You will see that although there has been a gradual decline in the 62 days pathway standard overall, actually the decline has been far sharper and the performance overall in each of those individual pathways is far lower than we would all want to know and understand and for our family members, if that were the case, to experience.

This just shows it is quite detailed, but the deterioration is bigger in those four areas. I won't dwell on that one too long. Nigel referred to the three main elements that we have to the programme to recover our standard. As you'd expect, we've got to we call it getting your house in order. Effectively grip and control. Then we want to meet best practice where we can, then we want to transform our care. I'm going to talk a little bit about getting the house in order and Nigel will explain is some of the work we're doing in the best practice areas. For us the getting your house in order is very much focused at the providers, and then looking across between providers. Working with the providers we have some good practice that we've identified. So

virtual daily PTL huddles.

We have a trust that's done a cancer reboot. I don't think it's quite the same way, but across the board they've done a launch event in the same way you would, if you were in the urgent care world, do a perfect week. They have done this with cancer. One of the other trusts that had been through this already and gone from across the board suboptimal 62-day performance, has put in a whole phase of good governance and process controls and they have recovered the standard across all their tumour groups. So, The Royal Berkshire spoke at the NHS Improvement's conference back in July would be glad to share their experience. Nigel with his clinical background is going to talk about best practice pathways and transforming care.

Nigel:

What the Cancer Alliances have allowed us to do is reinvigorate some of the clinical networking arrangements that existed a number of years ago. You'll hear about some of the work that's pioneering later on. We have been trying to gather best practice from colleagues, such as those on the panel here. We have been trying to do our timed pathways for each of those four specialities across the region to give us a baseline. We identified leads in each of our six cancer alliances in the south, linked those up and each of them is taking a lead on one of those areas, although they are working on them all. We are hoping that people will begin to feel that they are responsible for patients across a population rather than just a bit of a patient pathway in their own institution. That's something we are actively trying to help our colleagues work on.

Then this transforming care is the idea about how can we do bits of the pathway differently. How can we bundle up some of our investigations, the one stop approach that some of you will be familiar with? How can we make some of our pathways nonlinear? If there are things that can be done in one place such as pathology or radiology reporting, say, let's see what we can do. What we don't want are days or weeks with nothing happening when, actually, we could be helping to try

and shorten the patients' pathway by expediting some of the investigation. So that work is ongoing. We're getting a lot of support from our clinical colleagues for that element in support of the work that Amanda suggested. Chris, that's an outline of the approach in the south

Chris:

What we have is a structure and delivery mechanism in the alliances and a great deal of enthusiasm and focus in the regional teams. Now we're going to people involved in transformation at a local level and some real examples of that. Professor Ahmed is going to go on now. He started healthcare before I actually left. We haven't met before, but we both have worked at Imperial Healthcare in London. Hashim is going to talk to us about work on the prostate cancer pathway. Then we have Mike Thorpe, one of the patients from Manchester, who will make some comments following Hashim's presentation. We're just sorting out the machine is sticky. It doesn't move on fast enough when you are speaking.

Hashim:

Thank you for asking me to talk today. I'm an academic urologist, I moved to Imperial in March 2017. Prior to that I was at University College London. I'm going to talk about a project that involves a huge number of people, I can't mention them all, but it is a team effort and a regional effort in London across the major and the other DGA centres as well. I'm going to talk about something we have received funding for from the transformation fund, delivered through our partners and Imperial.

Prostate cancer is a growing health burden. We think almost double the numbers by 2030 in terms of incidence because of increased awareness and testing in the community using a blood test called PSA.

If that blood test is elevated men are referred into hospital, and they undergo a biopsy. That biopsy is through the rectum. It is essentially a random biopsy that places needles into the prostate in the hope of hitting the cancer. What that means is that we find cancers that shouldn't be treated because they don't cause any harm.

We miss cancers that should be treated and might progress because they have been missed and we misclassify important as unimportant and potentially under treat.

Like in breast cancer we treat the majority of men, if they need and choose treatment, to the whole prostate, which can cause collateral tissue damage. This is going on across the world, not just the UK. About a million men in Europe and another million in the US undergo this biopsy test every year. We have now got robust data to show that imagining using MRI can identify most of the important cancers that are likely to progress. We have the technology that allows users, operators to place a needle in the right place. That means we find the important cancers, we tend to avoid the unimportant cancers that half the men in this audience have but don't know about and hopefully will never know about, and, going forward, we have the technology to do the equivalent of male lumpectomy. Which I won't talk about today.

This is an MRI scan, a man lying on his back. The prostate there's the prostate. That area you have to believe me is his tumour. When we biopsied that area it came back as tumour. When we biopsied the rest of the prostate there was nothing but low risk cancer that most of the population have. So, MRI finds the significant disease. We can take those MRI images and, using technology that has been worked up in academic centres across the world; we can create models of the prostate itself.

The prostate moves around, and we need to be able to mould it to when we do a biopsy. Very powerful software allows us to do that. So that when you have a biopsy, the biopsy probe, which is an ultrasound, not an MRI scanner, deforms the prostate. You need to be able to deform the MRI images in the same way. So, when you do your biopsy in the clinic or the procedure suite, you are using images that are less accurate, but you are able to fuse the MRI images live and deform it to the contours of the prostate. So big is this market that there are about 10 plus commercial companies developing software that does this. Then once you do this you are able to allow a surgeon like myself, who is not very bright and very clever, to

place a needle into the red blob. They don't need to think about where the tumour is, they're shown a red blob. You are able to increase the accuracy. By not taking random biopsies, you're not finding those tiny little bits of cancer which men get worried about and then have treatment which is harmful.

We did a big study called Promise supported by the NIHR, a pivotal study that has changed practice across the world, shows that MRI is almost twice as good as finding important cancers and when the MRI is clear, men can avoid an immediate biopsy, so critically about a quarter to a third of men can avoid a biopsy altogether. That is where the health economic benefits come from.

So, the new pathway and the challenges delivering this new pathway, not arguing about whether it is correct or not is this: So that men have an MRI, an imaging test like a mammogram then if you like and then a targeted biopsy, if it is negative, the men do not get a biopsy.

But there is problems around this and we are working with a stakeholder organisation Prostate Cancer UK as well as NHS England to try and bring in something similar to mammography screening, we don't have prostate cancer screening with this can't be government mandated like it is in breast cancer. We need assurance of quality of the scan, so that everybody does the same and reports the same.

If there are outlying radiologists or urologists, we can support them to improve or eventually stop them doing things and look at rates of unnecessary treatment because that is a big issue as well

So, the RM partners Imperial rapid programme is going the look at 3 pilot sites in west London, where we are going the do all of this within one day. So, they are all going to come in, have an MRI in the morning takes about 30 minutes. It is all going to be reported that same morning with a pictorial diagram and if they have a lesion, they will be seen in clinic, shown a diagram of their MRI and told that they need a

biopsy. If they don't need a biopsy, they will be discharged immediately with advice to the GP on follow up testing.

This is taking multiple steps that were taking between 4 and 8 weeks to deliver, a great pathway but multiple steps is condensed into one day.

Because Trusts which were trying to adopt MRI pre-biopsy, were starting to breach as a result of this test, we needed to identify a way to help them, the only way to do this is condense it all as much as possible into one day. We had resistance because people said we can't do this. But they were doing the MRI's, they were always going to do, they just needed to front load the system. The radiologists were always going to do the same work that they have been asked to do but they just need to do it on the day that the MRI scan is being done. The urologists always need to see the patients and do the biopsy; they just needed to do it on the same day as the MRI.

So, it didn't take much convincing because ultimately people still doing the same work they were doing. But the improvements were massive. In fact, in clinical practice we saw 40% of men being able to avoid an immediate biopsy. We do approximately about 120,000 to 150,000 prostate biopsies every year in the UK.

So, in conclusion, the standard approach to diagnosing prostate cancer is currently blind to location of the cancer. The standard approach to diagnosing prostate cancer leads to unnecessary harms across the world, the new pathway has to include prostrate MRI this can allow up to a third of men to avoid an unnecessary biopsy safely. If they need one it is much more accurate than the traditional one. There is a considerable amount in terms of challenges with delivery, capacity, and transformation of our pathways to allow dissemination across the NHS, so that every man and every year we go on where we don't deliver this pathway that is tens of thousands of men that don't have access to the highest quality diagnostics. So, there is a challenge in dissemination, we hope by the pilot we will be able to demonstrate to the colleagues across the country, this is doable, deliverable and actually will massively improve the pathway and the cancer waiting time targets

thank you.

Chris: Thank you, Mike over to you.

Mike:

From a patient perspective, all I can say is wow. That was unbelievable, it is the first time today I had heard the details of this. Bizarrely working on it for the vanguard, for the urology pathway boards of London and Manchester, to get the MRI and the biopsy done in a day is fantastic.

My journey, I went through it in one day with ultrasound biopsies, the full hit. I had a CT scan eventually, which wasn't clear. So, I ended up with an MRI scan which I actually blame for having the situation that got me through treatment at radiotherapy as well as it did do.

I am down as a former patient. I asked for that slide to actually be former Christie patient because I got discharged from there on the 28 July this year.

You are put into after care, doesn't mean you are cured but put that down to the way things being radiotherapy being more accurate down to the fact of a MRI scan. But the biopsy is, as a patient, I think I can see some of the men in here and the looks on the faces. They have an idea of what it is, you didn't get a real clear view of how it is taken. It is barbaric and it really isn't a pleasant experience but it gets results, if we are going to change that, the sooner the better from a patient point of view, we need this.

Onwards with it, like I said with the vanguard, the way it has worked out, tomorrow morning we have got a meeting about Hash's system trying to put a vanguard programme together about that, I will be late tomorrow. But we are working on it and hopefully, we can justify the cost and we can resource it. We know about radiographers about scanners, it isn't cheap. But the most important thing to look for is patient outcomes, save 30% on biopsies, that is 30% of the men who vote for this

straight away. Thanks a lot.

Chris:

Thank you very much. So that is, so we have heard both the patient perspective and also the professional perspective on that particular innovation, I will move us on now before we have questions to, to Phil? Who will introduce himself but Phil is slightly more local and will tell us about developments in lung cancer Phil?

Dr Phil:

So I am a local chest physician, I would like to tell you about a pilot we have done, a pilot in lung cancer screening. We looked into the causes of premature death in Manchester, and you can see there we have heart disease, lung disease and cancers but actually if you look at the leading course of premature death, lung cancer is the single leading cause of premature death, and premature death is any cause of death under the age of 75 which was a real surprise.

Of course, that maybe specific to Manchester, because of levels of deprivation and smoking but if you look across the UK, there is also lung cancer is the second leading cause of premature death. Not just in Manchester but it is a UK wide issue, and a worldwide issue. Lung cancer is a leading cause of cancer death.

Lung cancer is staged from stage one to stage four. Stage one is early stage disease, small localised tumour, stage four is advanced diseased with spreading to organs. So, currently in Greater Manchester, this is a staged distribution of patients when they first walked through the clinic door. So, 75% have advanced disease, stage four is unfortunately pretty much incurable, stage one has a very good cure rate and especially the early stage ones.

When a patient walks into my clinic room, half will die on average within 250 days because they present with very advanced disease. Critical to outcome is early detection. So, we set up a lung cancer screening pilot ,now evidence for lung cancer screening comes from the national lung screening trial which showed a 20%

reduction in lung cancer specific mortality. We have the evidence that it works. We needed to show whether we can implement it. Macmillan were fantastic and provided funding for the pilot.

The service design we picked out four or five key features of the design that we thought would make it successful. So that was community based it needed to be where people were. It needed to be in deprived areas, that is where most lung cancer is and with patient groups it needed to be to a lung health check, not lung cancer screening, because it felt it would put people off if we called it lung cancer screening.

We know it reduces harm if you target those most at risk, there is a validated risk order you use to choose those smokers most at risk. We also wanted it to be accessible and convenient. So, we had it in a supermarket car park and next door was a mobile scanner.

So, when a person turned up to the lung health check they had a few questions about symptoms, questions about lung cancer risk, smoking and a few other bits and pieces.

There was a very detailed engagement approach that Macmillan did up for the whole of the service from design to delivery. That was very, very valuable.

So, the lung health check there is just a few pictures there, this is in Harpurhey in north Manchester, the support truck and the CT scanner in the car park, we had two and a half thousand people attend. The very surprising thing, because when we were doing this, we were told it is a waste of money, we shouldn't do this because people won't turn up. Is that actually when we sent out the invites to the call centre could not cope with the demand, there were thousands of phone calls they could not answer because demand was so high. In the health check, they looked at symptoms, spirometry and lung cancer risk and, if you were high risk, you went immediately to have a CT scan and 1,300 people had a scan.

This is I suppose the naysayers said don't bother, people won't turn up and then labelled people in deprived areas as hard to reach but actually the deprivation because we went into local communities, we set the service up appropriately then we had a huge amount of demand from those communities. So, it basically says reaching the hard to reach is not the right wording. You actually have to design your service appropriately.

So, when you do screening, you do a low dose CT scan to reduce the radiation exposure to a minimum. From clinical perspective you get three outcomes, either a negative scan, you don't have to do anything and they just come back for the next screening round. You have an indeterminate scan, where you have a nodule that needs a follow up and those individuals have to have a three month sacn, or a positive scan and those people are at risk, you are worried about lung cancer they have to come into the cancer clinic.

So, we had about 6% of people we were worried about cancer and about half of those did have cancer. Eighty-one people came to the clinic, 42 had lung cancer, 39 did not.

The people who came into the cancer clinic but did not have cancer are classified as a false positive. What we have done here is put a table where you can compare our false positive with the leading international studies that lung cancer screening, the reason we did that, we were a NHS service. We didn't have additional funding for the service in the hospital but our results are comparable to the leading international studies, so our false positive rate was low. The number of investigations we had to do was low and the complication rate was virtually zero. So again, comparing with other international groups, the prevalence of lung cancer in our screening study was 3%. So that is a cancer detected for every 33 scans that is 3 times higher than the other international studies, and that is because we went into the right place and right communities.

The important thing I said at the beginning is the stage of lung cancer at diagnosis, when the patient is in the clinic room, their survival depends on stage. When you compare screen detected lung cancer with standard detected lung cancer there is a massive difference and essentially you turn everything on its head. Symptomatic lung cancer comes through the normal pathways is almost always advanced disease, screen detected cancer is early stage disease, that transforms outcomes and we hope saves a lot of lives.

Treatment is complicated but the bottom line is, the surgery, early stage disease is the gold standard and our surgical rate was 64%. That is 4-fold higher than the national average of 16%, nine out of ten people offered curative treatment that is higher than normal. It looks to be a clinically effective intervention, and we had independent analysis to look as to whether it was cost effective and the conclusion was that it was based on an incremental cost effective ratio of £10,000 per quali which is well below the NICE threshold.

That doesn't include… that's just based on cancer. It doesn't include additional benefits such as smoking cessation, detection of other diseases and cardio vascular disease. I won't go through this in detail, but because a scan is the scan of the thorax, you are not just looking for cancer so you pick up other illnesses. For instance, interstitial lung decease is a very serious condition, and we picked up a number of patients with that condition and they have been assessed in our interstitial lung disease MDT and we will find out whether that also introduces a stage shift.

There are additional things, additional cancers, aneurismsin almost 1%, also cardio vascular disease. I think this is a major benefit and a lot of people will benefit from preventative treatment which we will be able to advise the GP on. We asked people who took part in the service and the feedback was excellent. 97% said they would recommended the service to a friend or family member. That's just to give you a brief overview. We think we have a clinically effective intervention, it is cost effective. To deliver it took a big team and I'm presenting on behalf of the team and I would like to acknowledge everybody on that slide. Thank you very much.

Chris:

We started slightly late so I think we're going to have a few minutes for questions. Could I ask you to thank our speakers following those presentations? I have a few questions but I would prefer it if there were questions from the audience. Have I got any questions from the audience at all? A gentleman at the back and a gentleman at the front. Start at the front, because you got the microphone first.

Question:

It is great to see the kind of one stop shop solution in the early detection. But if we look at cancer reforms in the UK, how much of it is about resources and how much getting the process right? Could we use the same resources better in the way you have and just get massively better outcomes?

Chris:

We have that question. Would you like to ask your question at the back as well?

Question:

Peter Whittington from the Office of Life Sciences. Both about the prostate detector and the lung cancer one, whether both are scanner based approaches, is there a relevant biomarker you could assess or in relation to the lung cancer one there's a solid state breath sense one in the east of England, developed by Alston.

Chris:

Any questions from this end of the room at all? No? So perhaps we can first go to the question about resources and capacity. The question is, is it just about realigning what we currently have or is it capacity that's required.

Nigel:

I think there are a number of aspects to this. I think one of the things that Chris alluded to is we have a number of challenges. In addition to some of the wonderful diagnostic tests and so on we're doing, we now know what causes a number of

cancer so we can prevent ultimately, best case scenario, 4 out of 10. So, there's a massive effort on the prevention side and that has to be part of any conversation that we have. On the other side, because of some of the success of colleagues on the panel, we have about two and a half million people living with and beyond diagnosis of cancer. That's going up to 4.5 million. We need resources to deal with their health afterwards.

Can we use our resource smarter? I think the answer is yes. Some of the innovations that you heard about today are things we would very much like to introduce across the piece. One of the reasons why I'm doing what I'm doing is and I think we'd all agree is there's variation we can drive out. It is the theme through many of the talks here. Some of that is about I mentioned in the little piece that I talked about, trying to get colleagues to think in a slightly nonlinear way. If you see somebody and you are going to refer them on, they can have the pre-operative testing. Hopefully it will reduce the cancellations at the last minute. So, there's a huge amount of getting that bit of the pathway optimised I think we can do. I really do.

Chris:

I guess somebody has been trying to do it for 30 years or so, you know, you can see how the system could be changed but it's getting the momentum in the system, getting the space in the system, to achieve that change. For me it is a bit of both. I mean there are clearly areas where, you know, I think any rational shows we need to increase capacity you can do that by swapping around, but that is not easy, it is not straightforward. Which is why it is called the "transformation fund". That's the aim, to achieve that objective. Phil, do you want to answer the biomarker question? The question is in addition to the imaging are there some other forms, other biomarker forms that are useful.

Phil:

Nothing now, but there's a lot going into it. Blood borne and breath. Breath analyser we are trialling in our clinic for early detection. So, a huge amount of time and

funding into the research of it, but it is not at the clinical interface yet.

Chris:

From my perspective there seemed to be a large number of potential areas in this field, a large number of companies that have potential areas. You know, the issue now is getting them tested and getting them tested in the real world. That is something that the vanguards and some of the other alliances are beginning to test. I've got the "no" so I think we're going to have to come to an end. Thank you to the audience. Sorry there wasn't time for a few more questions. Thank you again to the panellists for their contributions.

Jenny:

Join me in a round of applause for our Panel and our chair, Chris.