Notes of the meeting on 24th March, 2014 between patient advocates and Professor Michael Parker and Ms. Vivienne Parry of Genomics England, held at the Angel Building, Islington.

The following people were present at the meeting and briefly introduced themselves.

Elizabeth Benns, member of ICPV, chaired the meeting

Jane Lyons, CEO Cancer 52**,** membership of 76 small, predominantly patient support, charities, and is at meeting to understand and report back to her community.

Adrienne Morgan, Chair of Independent Cancer Patients Voice (ICPV)**,** and is a breast cancer patient with metastases, and also a scientist.

Professor Michael Parker, Chair of the Ethics Advisory Committee, Genomics England and a member of the board at Genomics England

Vivienne Parry, Chair of the Communications and Engagement Committee, Genomics England and executive member of the Genomics England Board, broadcaster and a journalist, who has worked

Richard Stephens, by invitation as a lay rep.of the Ethics Advisory Group for Genomics England , chair of the NCRI Consumer Liaison Group, member of ICPV

Hilary Stobart, is a breast cancer patient, lay member of NCRI Gynaecological CSG and CTRad , trained volunteer taking consent at Nottingham Health Science Biobank, member of ICPV.

John Symons, Director of Cancer Unknown Primary, director of Cancer 52, NCRI CSG subgroup

Lesley Turner, breast cancer patient, member of NCRI Palliative and Supportive Care CSG, member of ICPV, and is at meeting because particularly interested in informed consent

Maggie Wilcox, President of ICPV, lay rep. of UK Confederation Cancer Biobanks, Management Board of Breast Cancer Campaign Tissue Bank and HTA Stakeholder Group.

Helen Bulbeck *(Director of brainstrust and lay member of NCRI Head and Neck CSG and CTRad), and* ***Roger Wilson*** *(Honorary President of Sarcoma UK and of Sarcoma Patients Euronet, former chair of the NCRI Consumer Liaison Group, and lay member of NCRI Sarcoma CSG) were members of the group involved in the discussion, but were unable to attend on the day.*

Introduction:

MW noted that this group had grown gradually from disquiet that current developments may undermine efforts in raising public awareness of the need for tissue and data. She and JS had been invited by Prof Sir Mike Richards to an early meeting about Genomics England in March/April 13 at Academy of Medical Science, and then, at short notice due to poor publicity, had attended the autumn Town Hall event at Barts. Apart from concern over the unnecessary separation of public/ patients and professionals, the meeting raised other worries. MW raised this at the NCRI Hub consumer meeting and the present group grew from this. We are all very supportive of tissue collection in health research and in particular, in cancer research.

The meeting then went on to discuss the pre-tabled questions, but first had a brief introduction from VP and MP about their roles.

Information from VP and MP about Genomics England and Roles:

VP was initially a non-executive board member, but in Feb 2014 she became an executive board member with a particular brief for communications and engagement. She is an employee of the company working 10 days a month.

MP and VP said that they were happy to answer questions where they could, and to say something about Genomics England as a whole. VP was coming from a communications point of view, and MP from an ethics point of view and both were better placed to answer questions in their respective areas. MP said that an advisory group reporting to the Chief Medical Officer, had led on to the development of the ethics advisory group committee within Genomics England. The ethics programme has two phases. The first phase is to begin get the project off the ground and to learn as much as possible. The second phase is to make recommendations to the board in the summer about what is good practice around a whole range of areas. These will hopefully be implemented by the Board, although there will need to be ongoing review. VP said that for Genomics England this meeting is very much an opportunity to learn and hear our views and feed them into the process.

The whole of 2014 is a pilot phase, with nothing set in stone at all, either scientifically or ethically . It is an area which is moving so fast that it will be impossible to get everything right at first. Things will need to be tried and mistakes learnt from with humility. Genomics is a very lean organisation on ground level. In fact it was seriously under-resourced at the beginning, but this is now beginning to change.

Consideration of Tabled Questions:

A number of questions were tabled before the meeting and are fully listed in the appendix to this document. Not all questions were covered in this meeting, but the following notes refer to the questions that were being discussed at the time.

Question 1: *There seems to be very little informed public/patient involvement (as opposed to engagement) in this project, other than one rare diseases and one cancer rep. on the ethics group. Why is this, given the good examples available from other NHS bodies (e.g HRA) ? Is there a public/ patient involvement strategy, and if so why is it not published? If not is the ethics advisory group advising that a strategy should be formulated for informed public/patient involvement across the organization not just within the ethics group.*

Response: VP said that there will be a strategy of public involvement. It is being developed with the Department of Health. There are larger societal issues. For example, when the project finishes in 2017, do people want whole genome sequencing? What are the ethical issues? There are other groups doing work in this area, including The Wellcome Trust, Cancer Research UK, Department of Health, NHS. These types of questions cannot be asked yet by Genomics England, as this sort of engagement takes a lot of time and answers won't be available until well after the pilot phase has finished. The work Genomics England wants to do in the early phases is around consent, involving patients in the development of literature, consent processes. Specific pieces of work have been commissioned from the Progress Educational Trust, from the Genetic Alliance and the PHG Foundation, and others.

The ethics advisory group has a number of roles including the development of policies, around what counts as good practice, but also the development of involvement. The membership of the ethics group will develop over time. At the moment Richard Stephens is a member, along with Alastair Kent from Genetic Alliance.

Research has been started to collect evidence of people's experiences, as this is important alongside involvement. There is a question as to whether the pilot is representative of the main programme, but, as it is important to get work under way, Nina Hallowell (at the PHG foundation) has been commissioned to do some

work during pilot phase. MP is also keen to learn from the engagement activities and get people involved in meetings around key policy areas (the policies.?)

MW challenged whether the lay input that is already in place is truly lay as both representatives are from larger groups. She suggested that it was unfortunate that the invitation to join the EAG was not extended to people already involved in biobanking and already trying to raise public awareness and adding the patient viewpoint in this area. She also noted that lay people have expressed concern after hearing biobanking professionals' comments at national conferences about the Genomics England program. 'Running before walking' and 'waste of money' have both been heard.

MP said that he welcomes involvement and encourages suggestions about the best ways to involve patient advocates . MW said that a panel of advocates had been suggested as a good way forward. This would allow a range of lay interest and expertise to be accessed depending on the particular project/policy that was being discussed. The main ethics committee lay representatives would then have the panel behind them to refer to. MP thought that this was a good idea.

HS suggested that it was unfortunate that the 'cart before horse' approach had been taken by the project. Ideally suitable mechanisms for lay involvement should have been in place before serious work started on the programme. VP agreed that we might sensibly have spent two years planning these areas, but a pragmatic approach has had to be taken as political time scales have been so short.

VP confirmed that the funding was £100m from the Department of Health over 4 years for the programme. MP and VP noted that it is so important that this programme should be seen to deliver both practically and ethically. She asked how we as advocates help them to do this.

EB said that the major concern from this group was not so much the scientific and technological issues, as making sure that we do not undermine the work done to date to raise awareness amongst patients and public about participation in biobanking and research . It was noted that some of the issues and lessons that have come out of the care.data program are relevant to the Genomics England program. VP recognised the importance of moving on further to look at involvement and engagement strategically. This has not been possible up till now because of the necessity of concentrating the limited resources on sequencing technology issues. HS felt that it was a pity that it had not been possible to consider some of these areas sooner, given the importance of the patient and ethical voice in the programme.

MW said that, whilst the original project had included sequencing of Cancer of Unknown Primary, and rarer cancers, these had been dropped down the priority list. She had heard the term "low-lying fruit" being used at the Town Hall event. MW is concerned about where the tissue will come from, given the numbers of samples that are needed. She was not sure that sufficiently informed consent was in place if tissue samples were received from existing biobanks.

MP said that there were many factors affecting the selection of technologies and sites, and that he wasn't in a position to comment on from either a scientific or clinical point of view. There are also political pressures that need to be taken into account in the choices made. If we wish to see this technology, and access to treatments as a result of it, in the NHS in the longer term, in the short term we have to take account of these factors in our strategic decision making.

VP also said that there are a number of practical issues in obtaining enough tissue from a sample for this work in some cancers, and that while these issues are being resolved, sometimes the easier options have been taken in

order to get the project off the ground. JS asked if Genomics England were aware of the tissue stores across the country that are already in place. MP noted that the programme also involved prospective gathering of material.

JS asked if a contract was now in place for the sequencing. VP said that there had been a 'bake-off' for annotation and a 'bake-off' for sequencing to decide where to place contracts that produce the right results for the best price. JS said that he thought there was a capacity issue in the UK. VP clarified that the project was to sequence 100,000 genomes (not people) and that the size of the Genomics England commissioning should allow the expansion of that capacity at a reduced cost that will be affordable long-term in the NHS.

RS was pleased to see that the project was moving forward, but he drew the meeting back to the need for patient engagement and involvement as the project proceeds. He asked when the strategies for this area will be published. VP talked about a workshop which has been held at the DOH. The Wellcome Trust (with much experience in this field, including Sanger), and other groups like NHS England, Health Education England, Public Health England, CRUK were involved.

EB asked if the evolving strategy included only engagement, or also involvement. VP said that there would be involvement of patients particularly in the development of the consent process, but also an involvement in the engagement. HS asked if there had been patient involvement in the development of the strategy, for example, were there lay people at the workshop? EB wondered if the workshop was actually stakeholder engagement, and HS pointed out that patients were also stakeholders. VP reminded us that there are many players. This workshop was about finding out what area each player owned. She said that this was not a suitable point for patient involvement. It was about finding out what each player needed to do to progress the project.

MP said that he thought the political statements and publicity around Genomics England has given the impression that more of the programme is underway than actually is. He felt that Genomics England needs to sort out the ways of doing the sort of engagement and involvement that the advocates group are talking about. This is a chance to develop a way forward that both patients and Genomics would like to see. He completely agrees that before the programme starts to happen, proper patient involvement needs to be in place and that this included involvement in decision-making and policy-setting. There is a clear interplay between engagement and involvement, and whilst engagement can lead to involvement these are separate activities. There are no policies in place yet, so there is a good opportunity to make this happen.

VP noted that the engagement 'Town Hall' events could be changed in character. MW pointed out that,when she noticed the new dates for the events, she mentioned them to RS. Although he was a member of the ethics advisory group at Genomics England, he had not been informed that further meetings were taking place

LT asked if the workshop looked at current practice, but VP said it was rather about who should be responsible for each area, and it was more a scoping exercise. VP has commissioned a piece of work to look at some of the results of patient engagement that have already been done, e.g the public's attitude to genomics . This report will be published on the Genomics England web-site. MP clarified by saying that if a coherent policy of patient and public involvement is to be formulated, one first needs to know all the points at which this activity needs to take place.

HS raised whether the Genomics Programme Board was involved in running this workshop. The Genomics Programme Board was announced in NHS England papers in June 2013 as a body to be set up shortly to have oversight of the genomics programme in the UK , and to make sure that the various bodies involved are coordinating their work. She noted that there seemed to be no public documentation about this body and its arrangements. VP and MP did not have information about this particular body, and felt that there was a whole

range of issues about how genomics is set up which he and VP could not cover. He suggested that another meeting would be appropriate to cover these areas.

EB reiterated our commitment to research of this type, but that we were aware that public confidence was so important, and could be easily lost.

AM commented that she was hearing that Genomics England would like to hear how the patient advocates thought that patient involvement could move forward. MP agreed that there have been no decisions on consent policy etc., and he would like to see these policies formed with proper involvement and engagement. He feels that a panel of patients is an excellent idea to progress this. He also said that interviews have been planned with patients who are donating tissue in the pilots, and whilst not engagement or involvement, was extremely important. HS said that in order for lay people to comment effectively we need to look closely in detail. We can only do this if we are involved in the processes leading up to decision-making. She noted that in practice public/patient involvement is often able to help 'join up the dots' and bring new ideas. MP said that any suggestions/ideas about how to implement this involvement would be very welcome. AM commented that there are various models of involvement.

LT asked to see the structure of Genomics, and VP/MP said that a diagram showing this was being prepared. She would make it available to us. Both VP and MP also noted that we should bear in mind that the organisation is evolving rapidly, and so structures develop over time.

AM reminded that patient/public involvement needs to be funded, and that budgets for this should be put in place.

Question 2: *What is the relationship between the ethics advisory group (EAG) and the Genomics Board?*
Question 3: *What are the terms of reference of both the EAG and the Communications and Engagement Committee and when will they be published?*

Response: MP had assumed that the terms of reference were already published, but that he would now ensure that they were. Essentially decisions are made by the Board and there is an active and responsive element to the relation of the EAG with the Board. The active role is to identify issues and to ensure that they are raised and discussed at the Board. There is also the oversight role of paying attention that key documents and policies produced by the initiative are reviewed with appropriate discussion. The Board may also request the EAG to respond with resources and reports e.g some work around issues in consent. This may involve commissioning work and research to ensure that policies are evidence-based.

Discussion:

HS was interested to know why this model had been adopted rather than the UK Biobank model, where the ethics advisory council is an independent external group funded separately. MP said that having an ethics advisory group presence on the Board meant that ethical issues and problems with policies could be easily raised and considered at Board level. MP said that he had substantial experience of being involved in the ethics of this type of project. His experience has taught him that in order to be able to consider the ethics, one also needs to have enough of a grasp of the science, to identify the ethics issues. If one is outside an organisation looking in, it can be much harder to keep up-to-date with what is happening. MP also acknowledged that this did not necessarily mean that a more independent ethics function was not needed in addition.

LT asked how the EAG would deal with conflict between EAG advice and the Board decisions. He noted that whether the group was external or internal, the options if conflict arises, are to either speak publicly, or resign.

MW chaired part of a day meeting at Wellcome last year including UK Biobank, NCIN, The Wellcome Trust and had raised questions about the ethics and governance of UK Biobank, particularly in the area of patient involvement. There seemed to be continual reference in papers on their ethics and governance web-site to the need for lay involvement within UK Biobank. However whilst the audience discussed her points, UK Biobank did not respond then and also did not respond to later enquiries on this subject. She pointed out that it is not so much whether lay involvement is included, but whether it is included appropriately and effectively. With hindsight she also questioned whether UK Biobank consent was properly informed.

EB asked if the minutes of the EAG will be published. MP said that transparency was one of the principles, and this should take place. RS, as current lay representative on the EAG, strongly agreed that this should be done as soon as possible, as he was currently prevented from discussing any issues within them due to commercial-in-confidence.

***Question 4**: What is the remit of the Communications and Engagement Committee and should it be widened to include involvement?*

Response: VP agreed that it should. There has only been one meeting so far, which took place with professionals to discuss issues relating to care.data. VP noted that there was much to sort out at Genomics England, there are very few staff, no proper offices etc.

Discussion: LT asked how many staff were employed. VP said 3 or 4, although 4 more are starting this week. She reiterated that the project has only concentrated on sequencing so far, and that all other areas were being addressed now. She agreed again that this was 'cart before horse' but had been dictated by the circumstances of the set up.

HS noted that one of the problems in public perception was the poor approach to information provision on the web-site. VP whole-heartedly agreed that the web-site was poor, and she was taking immediate steps to address this. She particularly noted that the web-site should say that Genomics will not necessarily get everything right, that it is a learning organisation, with flexibility to change its plans in the light of experience. She will be tackling the web-site as a first priority.

VP mentioned that Touchcast would be a useful addition to the site. This is because you can embed a great deal of further information in a video, which is accessible by touching the screen in different places on the video. HS pointed out that this seems like an ideal project which needs patient involvement. VP responded that she welcomed our ideas on what was needed.

JL asked if we could know the size of the budget for comms. and ethics, as this enables understanding of the scope of the work and its importance to the programme as a whole. VP said that there is a budget, but she is not aware of its size at present.

LT asked about membership of the Communication and Engagement Committee. VP reported that it is at present Carolan Davidge, Head of Comms for CR-UK, Mark Henderson, Head of Comms for the Welcome Trust, Lisa Jamieson, Head of Engaging Science at the Wellcome Trust, Adam Rutherford, geneticist and BBC presenter, and Fiona ????. VP said there has been no patient involvement because this has been a professional committee dealing with press interaction, particularly over issues like care.data.

LT asked if there was a function of the committee that dealt with how the programme will be communicated to patients. VP agreed that there was and that much more needed to be done. LT asked whether patient involvement would fit within the Communications and Engagement Committee, and VP agreed that it should be

part of it. LT pointed out that the programme's success hinges on its ability to get tissue, and so it would be wise to embed patient involvement and review in at an early stage.

HS asked about the work to redesign the web-site, as this has been identified as a priority. She asked if part of the work of a patient involvement panel could be to help with this re-implementation. VP said that she would be delighted to have a panel to help.

Question 5. *How will* ***Genomics England*** *select the cancer types to be included on the main programme (i.e. post the trial phase which we now know to be: lung, breast, colorectal, prostate and ovarian). My understanding is that they are setting up a 'cancer committee' to look at this. What are the details of this? And what is the process of selection and the associated ethics? I'm obviously keen to get CUP re-instated but also with a Cancer 52 hat on, I'm keen that there is a valid and transparent process that allows input from stakeholders representing less common cancers to advance their case. I worry that Genomics England , taking CRUK's judgment, merely seek to get an 'easy' result (their 'low-hanging fruit'). I think Genomics England, and this cancer sub-committee, face an ethical dilemma in making choices but I worry that DH requirements/ personal agendas/ commercial imperatives etc. may take precedence.*

Response: VP felt that Mark Caulfield would be best placed to answer this question.

Discussion: JS responded that he had tried hard to engage over this issue, but had had very unsatisfactory answers. He is interested in how the decisions will be made and the associated ethics. MP said that he is happy to get an answer to JS in writing. MP noted that there were many matters for consideration here. JS recognised that choices need to be taken. He asked if the ethics advisory group had discussed the ethics of the Genomics approach i.e. would they take a utilitarian approach, for example.

JS reminded us of the history that CUP was selected by the Chief Medical Officer as one of the targets for this programme, and this was promulgated. It is now known that CUP will not be in the pilot programme, and there is no information about whether it will be included in the main programme, or information on the rationale behind how the decisions will be made, despite the Chief Medical Officer being a member of the Board. This has caused huge frustration.

MP reiterated that he would ask the relevant parties at Genomics England to send JS a written response on the mechanisms and means of decision-making. He also said, though this might take longer, he would hope that the Ethics Advisory Group would be able to give justified answers to why their decisions are made, as this is as important in ethics as it is in science. He is happy to engage in that discussion. JS asked for confirmation on when he would get a written reply. MP agreed that he would help with getting the reply as soon as possible, and pointed out that a partnership approach was important.

JS left the meeting.

6. How and who are ensuring that the consent that these patients have given is sufficient for the whole genome sequencing of Genomics England? Where can patients/public find out which biobanks/projects are/will contribute to this research?

Response: MP said that this is important and understood that any consent for this project needs to be valid. Valid consent can be ensured in various ways, through policy, consent forms, patient information, through relationships face-to-face, training etc. MP said that there is a huge task in education of health professionals over the issues involved in consent. Also there is an important role here for patient involvement.

Discussion: LT asked if the reconsent process was complicated. MP replied that in the case of the rare disease pilot it was a minor addition to the process already in place, as patients were already being consented to exome sequencing.

HS asked if other projects and biobanks are being asked to provide tissue to the program, and, if so, is previously given consent considered sufficient. MP said that, unless there were projects which already had consent for whole genome sequencing (he was unaware that there were any of these), a re-consent process needed to take place to ensure that participants understood about whole-genome sequencing. MP noted that we can go wrong with consent in two different directions:

- we can say that no one can consent for this type of project because research and clinical treatment are combined. MP thinks we should respect participants' ability to decide for themselves if they wish to participate, otherwise we could be seen to be patronising.
- alternatively we can take insufficient care in informing people and taking consent

A balance needs to be struck between the two. MP thinks that it is good that the consent is at least taking place in the clinical setting with health professionals.

MP confirmed that patients who have already been approached to give tissue by another project, might be re-approached, but new consent for Genomics England will be required.

MW noted that when UK Biobank was launched a great variety of people volunteered, even though recruitment was slower than originally anticipated. However, since then, there have been a variety of press releases and public debates which have led people to be less sure of their general belief that the NHS always works for good etc. MP said that the care.data introduction has been a shambles for a whole range of reasons, but he also pointed out that Genomics England is different type of programme. Firstly explicit consent is being sought, secondly it involves people with diseases or risk of disease, thirdly consent will be done in the clinical setting.

LT asked if Genomics had Crown indemnity against being sued for insufficient consent. Was Genomics or the Department of Health liable? MP/VP said that they had indemnity as individuals but could not answer for the company.

MW noted that in Nottingham lay people take consent for donation of tissue. VP said that she was very keen to involve patients at the minimum in checking their data, for accuracy.

LT asked if the group could see the consent form. MP agreed but said that there were a number of different types of consents. There is also a list of key criteria for consent forms, which Laura, is working on, that we could provide feedback on.

Question 7: *If Genomics England develops its own consent forms and procedures, how is it envisaged that these will get embedded practically in a typical new cancer patient pathway when the main collection starts? Dame Sally Davies states in her blog (https://quarterly.blog.gov.uk/2014/01/30/100000-genomes) that patients will be referred by their clinicians. It now seems (Genomics briefing 5th Feb 2014) that five rather than three common cancers will be investigated, along with rare cancers. Even so this amounts to about 1 in 6 of these cancer patients each year for the next three years, if Genomics England is to achieve its targets. Who will ensure that quality is introduced and maintained in the consent process?*

Discussion: First we noted that much less than the 1 in 6 cancer patients mentioned in the question would be needed, since it is now clear that the programme is to sequence 100,000 genomes, rather than patients. MP acknowledges that the way consent is managed will be an issue, but it is important. It clearly needs to be low

maintenance from an administrative point of view, but it also needs to be sufficient. Judgements will need to be made.

AM said that at Nottingham, the consent process was rethought to include volunteers taking consent, as the burden on clinicians' time meant that patients were not being asked. At Barts, there is a research worker who spends a high proportion of her week talking only about consent to patients.

MP said that we need to strike a balance between the practicality of getting consent, and the need to do the job properly. There is a lot of work to do in this area. AM reminded that there was experience of biobanking and consent amongst this advocate group.

MP said that he had published with Nina Hallowell on women's understanding of the difference between research and consent in clinical practice. He said that we need to institute the best policies we can now, and build in constant opportunities for revision and refinement.

HS wondered if there would be clinical benefit to some patients, particularly in the early stages of this project. If not, how can we justify it being in their clinical pathway, except as research? VP thought that in theory we would be able to spot mutations and then change treatment. MP thought that the conversation with patients would have to cover areas beyond clinical benefit, like building infrastructure in the NHS so that others benefit, and research. These are difficult conversations to have as we all tend to focus on one area more than another. MP and VP said that they have been told that there will be clinical benefit for quite a substantial number of people in the program (i.e in rare diseases diagnosis may be increased by 25%).

RS thinks there need to be a synergy between this programme, and the money being put by the NIHR into new clinical networks and the new staff being trained to consent people to clinical trials etc. RS also would like to record that the programme will show mutations in patients where there isn't an active treatment agent. MP agreed that we need to look at the ethical issues surrounding these patients. There are also strong views on what should be done with the genomics information when it has been found, ranging from telling people everything to telling people nothing, other than information related to their particular current disease. At least principles, if not policy, need to be developed to manage this. RS pointed out that this is the kind of discussion where a panel of patient advocates would be useful.

MP said that American guidelines say that if patients have genes assessed they will receive all the information found. European guidelines say that the information should be available if patients want it.

MP confirmed that patients who have already been approached to give tissue for another project, might be re-approached, but new consent for Genomics England will be required.

Question 10: *Genomics England says that it is intending to set up a data store probably near to its sequencing centres. Will this be managed under HSCIC governance or separately? Will this data store also contain health record data at individual health record level? That is, Genomics England states that it will be the owner of the sequenced genome data, so will it also own the health data that will go with it? A patient may have withdrawn consent for secondary uses of health data by the HSCIC before being diagnosed with cancer. Will the sending of pseudo-anonymised health data from the HSCIC to go with the sequenced genome data count as a secondary use? Will a new consent for Genomics England override the original withdrawal of consent, and will be care be taken to see that the patient understands this?*

Response: VP said that there will be a specific physical data store (data services), with separate governance (not HSCIC) . It will contain phenotypic data and clinical data, but it will not contain HES style data, which will be pulled down on demand via links. A patient can request to have their data withdrawn at any time, but it is

Genomics England owns the data with regard to protection and security. Genomics England are responsible for deciding the access policy. Genomics England's understanding is that a new consent for Genomics England overrides any earlier withdrawal of general consent for the HSCIC to share data. However Genomics England is aware that there is an issue here which needs to be included in the consent. Patients also have the right to ask for their annotated data so that they can arrange to get it re-interpreted.

VP reiterated that she thinks that patients should be much more involved in checking the own data, and that methods for doing this need to be developed. AM said that this must be outside the remit of Genomics England, although VP added that there might be a chance of developing such good practice in the pilots, that the good practice can become the norm.

JL had to leave the meeting at this point. She suggested that the Cancer 52 quarterly all-member meetings would be an excellent arena to discuss issues and to present as the programme is rolled out.

Question 11: *It is not clear from the Genomics England web-site for what purposes the resulting genomic and health data will be released, although the core aim is to "deliver benefit to the community at large, both in terms of health and future wealth". Is the Ethics Advisory Group any wiser on this issue, and if not is it seeking to clarify? NHS England and HSCIC say that "discussions are currently underway about the potential involvement of an independent review panel to scrutinize disclosure of amber data by the NSCIC". Is a similar or the same panel envisaged to scrutinize disclosures of genome data along with amber (potentially-identifiable date from Genomics England? What will be the patient and public involvement in this review panel?*

Response: The role of the Ethics Advisory Committee is to advise on access and how it will be managed. This work will involve developing policy on data access screening and governance and also reviewing applications.

Data from Genomics England will not be shared but will need to be interrogated. The data cannot be taken away. Researchers will have to come into the Genomics England data space to do their research. Everything will be trackable, and it will be possible to see , for example, who and for how long a researcher has been looking at the data. There is public interest in getting this right and it will be good for researchers also. Policies will be developed around this. There will be "penetration testing," which will be carried out on a regular basis. Genomics England are not promising that it will be impossible to identify people, but they are putting as many safeguards in as possible to prevent this, and they also will make sure that firewalls are effective to prevent hacking of the data.

It was accepted that there are a range of risks involved in collecting this data, but also that there are risks involved in not collecting the data e.g. in terms of not developing new treatments. Genomics England will do their best to manage the risks properly, but it is up to the patient and society to decide whether particular risks are acceptable or not.

It was confirmed that Genomics England will not have an interface with patients – the contact will always be through clinicians.

An eTool is being developed for use in the NHS for phenotyping.

Question 12: *We can expect Genomics England to conform to all established good practice in the NHS, clinical research etc but it is a private company created to do new things in new ways, and it is not accountable publically. This is an area where there are huge sensitivities about personal data security. Where is the risk assessment, on an ongoing basis, which backs up all the assurances that have been given?*
Question13: Genomics England is a private company owned by the Secretary of State/If he wants to sell it (which he is legally able to do) what will be your position? However if this is not the intention, why was it necessary for Genomics England to be created as a private company. If the intention was to avoid public sector procurement rules, this must carry risk, which could be personal in the event of legal action against the directors by Europe. Has that risk been evaluated? How would you handle that situation?

Response: Genomics England was set up as a private Company because an Arms Length Body would have required legislation. They did think of setting it up as a charity but the question of tax avoidance was an issue.

From the IP point of view, a Company would be recognised worldwide which was advantageous. The Company is wholly owned by the Department of Health, and is fully covered by the FOI Act. The Secretary of State is the sole shareholder, and the sole shareholder's interests are represented by Dame Sally Davies on the Board.

Genomics England is non-profit making and they are developing a range of commercial models for outputs for the use of the data. Any deals that are done will either return money to Genomics England, or to the taxpayer. There will be a range of commercial models. The ethics advisory group view is that the Company has to benefit NHS patients in terms of better health care, but it may also generate money which will also benefit the British public. MP would be worried if the technology got spun off and resulted in people making personal wealth.

Discussion: There was some suggestion from VP that Genomics England should be compared to the railway in Victorian times sparking off an economic boom. It was suggested that any spin offs would be not just for the Pharma companies but also for the public. This analogy was hotly contested by the patient advocates who thought it ridiculous.

An earlier analogy had been used between Nokia and the Finnish government, where the Finnish government funded some of the basic research used in Nokia phones and Nokia then had to pay a royalty for each phone sold.

It was pointed out that the Prime Minister has talked about the initiative being good for the public and the British economy. VP therefore felt it important that effort was made to explain the economic benefits by Genomics England itself, otherwise other parties would run with this in different directions. It was hoped to have a reliable, low cost service set up after Genomics England finishes in 2017 and to have "kick-started" this as an NHS Service.

Question 15: *How will you (and the other Directors) reconcile the input from and duty you have to patients with your legal duties as a company director if the two should come into conflict?*

Response: MP and VP said that they can only respond as follows
1. –argue the case.
2. –resign, walk out and leave the Company.
3. –go public with the issues if not resolved.

Question 17: *How will Genomics England respond to a Freedom of Information request from a newspaper, a private individual, a patient group? As a private company it is under no obligation to respond but it could be seen as an agency of the Department of Health and as such it would be required to respond.*

Response: VP confirmed that the Company is definitely FOIable.

Question 18: *From figures thus far released, it would seem that Genomics England is significantly underfunded, at approximately £1000 per patient/volunteer. Whilst it may be possible for sequencing costs to reduce to somewhere near this level, there will be many other costs associated with each whole genome sequenced.*

- *counselling/consent before and after testing*
- *administration overheads and staff costs associated with these at Genomics England and across the NHS*
- *substantial power requirements to run sequencing and store data long-term*
- *follow-on tests/investigations that a patient may need as a result of their sequencing results*
- *sequencing failure rate (many clinical trials are currently reporting this at 10% - 25%)*

How have these costs been evaluated in relation to the programme at Genomics England, but also in relation to the effect on costs and budgets in the wider NHS?

Response: VP said that this was the subject of intense discussion with NHS England. She also noted that significant genetic results that need to be reported back to patients will be repeated to ensure accuracy at least in the early stages of the programme. There will also be a bio-repository to store spare tissue for future testing if necessary.

Question 20: *How secure/anonymous would the data be? What would the future consequences be if my genome could be identified – both to myself and close family members e.g. if there were high chances of future health problems, would insurances premiums be affected?*

Response: The trust and public confidence issues are very important and there is a need to state clearly the rules and be as transparent as possible.

We do not want to undermine the trust by putting too much audit in place – there needs to be a balance but it is important to be as open as possible.

It is in the public interest to talk about the risks and benefits.

As this is a research project patients do not need to declare their involvement in this to insurers and insurers cannot use any information that they discover. Insurers cannot use any information given to them.

Any other business: It was agreed that Genomics England would send back responses to the scientific questions raised. It was thought that it would be good to set up an Advocate Panel and proposals on how this can be achieved were welcomed . It was suggested that ICPV and this advocates group could send Genomics England any further questions raised as a result of the meeting.

Appendix 1

Meeting on 24th March, 2014 between patient advocates and Professor Mike Parker, to be held at Angel Building, Islington.
A sample of questions that have been raised in advance.

Public/Patient Involvement in the Programme

1. There seems to be very little informed public/patient involvement (as opposed to engagement) in this project, other than one rare diseases and one cancer rep. on the ethics group. Why is this, given the good examples available from other NHS bodies (e.g HRA) ? Is there a public/ patient involvement strategy, and if so why is it not published? If not is the ethics advisory group advising that a strategy should be formulated for informed public/patient involvement across the organization not just within the ethics group.

2. What is the relationship between the Ethics Advisory Group and the Genomics Board?

3. What are the terms of reference of both the Ethics and Advisory Group and the Communications and Engagement Committee and when will they be published?

4. What is the remit of the Communications and Engagement Committee and should it be widened to include involvement?

Selecting the Scope of the Programme

5. How will GeL select the cancer types to be included on the main programme (i.e. post the trial phase which we now know to be: lung, breast, colorectal, prostate and ovarian). My understanding is that they are setting up a 'cancer committee' to look at this. What are the details of this? And what is the process of selection and the associated ethics? I'm obviously keen to get CUP re-instated but also with a Cancer 52 hat on, I'm keen that there is a valid and transparent process that allows input from stakeholders representing less common cancers to advance their case. I worry that GeL , taking CRUK's judgment, merely seek to get an 'easy' result (their 'low-hanging fruit'). I think GeL, and this cancer sub-committee, face an ethical dilemma in making choices but I worry that DH requirements/ personal agendas/ commercial imperatives etc. may take precedence.

Quality Concerns

6. The current pilot phases of the cancer part of the programme are relying on patients who are already recruited to research (https://quarterly.blog.gov.uk/2014/01/30/100000-genomes/) How and who are ensuring that the consent that these patients have given is sufficient for the whole genome sequencing of GeL? Where can patients/public find out which biobanks/projects are/will contribute to this research?

7. If GeL develops its own consent forms and procedures, how is it envisaged that these will get embedded practically in a typical new cancer patient pathway when the main collection starts? Dame Sally Davies states in her blog (https://quarterly.blog.gov.uk/2014/01/30/100000-genomes) that patients will be referred by their clinicians. It now seems (Genomics briefing 5th Feb 2014) that five rather than three

common cancers will be investigated, along with rare cancers. Even so this amounts to about 1 in 6 of these cancer patients each year for the next three years, if GeL is to achieve its targets. Who will ensure that quality is introduced and maintained in the consent process?

8. International Cancer Genome Consortium (ICGC) reported only a 15% concordance between different sites reading the same sample. Stephen Charnock at NCI has said that 85% is needed to be sure that we can make judgments based on the findings. How will we achieve suck a massive improvement in consistency and QA over the time scales of this project?

9. As patients we understand the need for good quality clinical data so that we learn something that is accurate/true/relevant. As patients we also know that much NHS data is not fit for purpose, whether individual records or large-scale data sets such as staging information or lack of outcome data to inform the uses of the Cancer Drugs Fund. How is Gel planning on collecting this data? -
asking NIHR-NCRN/NCIN/CTU/registry staff to collect data? How will this be funded? If so what will be the effect on other clinical research in the networks? Can cancer staff be expected to switch to generic trials **and** to GeL data collection?
- by hooking in to data already collected by NIHR-NCRN/NCIN/CTU/registry staff. This will also have associated funding and resourcing costs to the NHS but moved elsewhere in the system
How will GeL ensure that sufficient data is collected with each sequencing to ensure that it is valuable for researchers?

10. GeL says that it is intending to set up a data store probably near to its sequencing centres. Will this be managed under HSCIC governance or separately? Will this data store also contain health record data at individual health record level? That is, Gel states that it will be the owner of the sequenced genome data, so will it also own the health data that will go with it? A patient may have withdrawn consent for secondary uses of health data by the HSCIC before being diagnosed with cancer. Will the sending of pseudo-anonymised health data from the HSCIC to go with the sequenced genome data count as a secondary use? Will a new consent for Genomics England override the original withdrawal of consent, and will be care be taken to see that the patient understands this?

11. It is not clear from the GeL web-site for what purposes the resulting genomic and health data will be released, although the core aim is to "deliver benefit to the community at large, both in terms of health and future wealth". Is the Ethics Advisory Group any wiser on this issue, and if not is it seeking to clarify? NHS England and HSCIC say that " Discussions are currently underway about the potential involvement of an independent review panel to scrutinize disclosures of amber data by the HSCIC" Is a similar or the same panel envisaged to scrutinize disclosures of genome data along with amber (potentially-identifiable data from GeL . What will be the patient and public involvement in this review panel?

Risk identification, Oversight and Evaluation

12. We can expect Genomics England to conform to all established good practice in the NHS, clinical research etc. But it is a private company created to do new things in new ways, and it is not accountable publicly. This is an area where there are huge sensitivities about personal data security. Where is the risk assessment, on an ongoing basis, which backs up all the assurances that have been given?

13. Genomics England is a private company owned by the Secretary of State. If he wants to sell it (which he is legally able to do) what will be your position? However if this is not the intention, why was it necessary for Genomics England to be created as a private company. If the intention was to avoid public

sector procurement rules, this must carry risk, which could be personal in the event of legal action against the directors by Europe. Has that risk been evaluated? How would you handle that situation?

14. How will the Department of Health provide oversight (as stated by Nick Maltby) for Genomics England? An NHS England Board meeting in July 2013 states that the Genomics Programme Board chaired by Dame Sally Davies and Richard Douglas will be tasked with establishing robust governance arrangements for the genomics programme of work, and coordinating communications strategies and stakeholder engagement on genomics. Is this in operation and does it have lay involvement?

Conflicts of Interest

15. How will you (and other directors) reconcile the input from and duty you have to patients with your legal duties as a company director if the two should come into conflict?

16. It has been stated by Nick Maltby that Genomics England is subject to oversight from the Department of Health through its usual agency monitoring procedures. If DH civil servants decide to modify decisions of the Genomics England board will you resign?

17. How will Genomics England respond to a Freedom of Information request from a newspaper, a private individual, a patient group? As a private company it is under no obligation to respond but it could be seen as an agency of the Department of Health and as such it would be required to respond.

Effect on NHS, Other Projects and Biobanks

18. From figures thus far released, it would seem that GeL is significantly underfunded, at approximately £1000 per patient/volunteer. Whilst it may be possible for sequencing costs to reduce to somewhere near this level, there will be many other costs associated with each whole genome sequenced.
    - counselling/consent before and after testing
    - administration overheads and staff costs associated with these at GeL and across the NHS
    - substantial power requirements to run sequencing and store data long-term
    - follow-on tests/investigations that a patient may need as a result of their sequencing results
    - sequencing failure rate (many clinical trials are currently reporting this at 10% - 25%)

    How have these costs been evaluated in relation to the programme at GeL, but also in relation to the effect on costs and budgets in the wider NHS?

19. How may the drive to achieve GeL's goals affect the other projects and biobanks up and down the country in terms of patient consent ? For example in breast, lung and gastroenterology clinics in Nottingham new patients are asked if they would be willing to donate tissue and blood samples to the local Trust-led biobank. Will these same cancer patients be asked again shortly afterwards to consent for genomic sequencing? Is the ethics group or GeL engaged in wider discussions with other bodies about these issues (e.g CCB)?

Engaging

20. A view from a non-cancer lay person on thinking about the issues raised in the media debate is

    "How secure/anonymous would the data be?What would the future consequences be if my genome could be identified - both to myself and close family members, e.g if there were high chances of future health problems, would insurances premiums be affected.

I think that worries about cloning and or the use of copies of DNA implicating people in a crime, as stated in the article, is possibly taking paranoia too far, but I can see that some people would be concerned about that.

I believe that if there were a possibility of guaranteeing 110% anonymity then I would feel happier to take part, but reading the article, I don't think that that is something that can be assured."

What in your (and the EAG's) opinion is needed to ensure that informed public debate of issues like these can take place? How can you ensure that the programmes take this debate into account?