ADVISORY COMMITTEE ON DANGEROUS PATHOGENS

The 120th meeting of the ACDP held on Thursday 13th February 2020

Private Room 5, Radisson Blu Edwardian, Hampshire, 31 – 36 Leicester Square, London, Greater London, United Kingdom, WC2H 7LH

MEETING MINUTES

Attendees

Members: NR Chair)
Neil Ferguson
Tiffany Hemming
NR
Michael Kidd
NR
Dilys Morgan
Gee Yen Shin
NR

Invitees:

Four HSE Representatives
Four PHE Representatives (Two via teleconference)
One FSA Representative
One University of Oxford Representative (via teleconference)
Two DEFRA Representatives (One via teleconference)

Observers/Assessors were present from Public Health England (PHE), Health and Safety Executive (HSE), Scottish Government Health directorates (via teleconference), Food Standards Agency (FSA), Ministry of Defence (MoD).

1.0. **Chairman's opening remarks, welcomes and apologies**

The Chair welcomed all attendees to the 120th ACDP meeting.

Apologies were received from members NR Richard Holliman; Observers/Assessors from: PHE, Department of Health and Social Care (DHSC), Department for Environment, Food and Rural Affairs (DEFRA), Department of Health for Northern Ireland.

2.0. **Minutes of the previous ACDP meeting held on November 11th 2019.**

The minutes of the 119th ACDP meeting were registered as approved with no amendments to be made.

The Chair noted that changes to the ACDP website (Gov.uk) are in process, and this will include updating publicly available minutes from previous meetings as well as the updated list of ACDP members.

3.0. **Secretariat report including matters not arising covered on the agenda**

Matters arising from the minutes of the 119th meeting on 11th November 2019

- **To convene a working subgroup, of which Dr Simon Mead will be chair, with the aim of revisiting and updating the current ACDP/ HSE guidance**

The Chair noted that good progress has been made with formulating the TSE working subgroup with the first meeting to be held 25th March 2020. Simon provided an update on the development of the subgroup which includes member acceptance from a range of leading experts from PHE, neurology and pathology. This subgroup has been created as a number of issues with the guidance have arisen predominantly as it was first drafted during a period of widespread concern for an outbreak, of which only one has been seen in the last five years. As a result, PHE has recently received several queries relating to the interpretation of the guidance and several apparent contradictions in the guidance. Thus, there is a need for a simplified version of the guidance to allow diagnostic laboratories to work safely.

The ACDP Chair thanked Simon for his invaluable contribution of expert members from leading research institutions and noted that this group is to be a short-lived with the intention to update the guidelines only. Once the guidance has been revised the final version will be tabled for the ACDP to review and approval.

- **HSE to write to the Gastrointestinal division (reference unit) PHE, asking them to provide information on what differences in practice will be adopted following the potential reclassification of Salmonella Java to HG2, including a description of the potential impact, if any, on other diagnostic laboratories. Additionally, it was suggested that the reference unit in Scotland is to also be consulted on the issue.**

HSE representative wrote to the gastrointestinal unit in December 2019 and is awaiting a response. This matter is to be discussed at the June 2020 ACDP meeting.

- **To develop interim VHF guidance in conjunction with PHE**

Due to the recent COVID-19 response, progress with the interim guidance for VHFs has stalled. There are several issues regarding the new evidence-based PPE ensemble, as the optimal hood is not yet available for the NHS supply chain. During conversations with Deputy Chief Medical Officer (DCMO) it was advised that more input is needed, and evidence-based guidance should be made available as soon as possible. This has proven to be particularly difficult not only due to the current COVID-19 situation but also as there has been an on-going issue with the supply chain for approximately 18-months.

HSE representatives commented that at present the PPE guidance used for MERS -CoV is known to be effective and if adaptations to these procedures are to be modified during the current incident, widespread confusion may result. In addition to this, a change in the PPE ensemble at this stage would require extensive training. It is to be noted that the COVID-19 outbreak in China has incurred some PPE breaches, leading to infection in Health Care Workers (HCW). However, evidence from SARS has suggested that the more complex the PPE ensemble is, the more likely breaches are to occur.

It was concluded that, at present the current PPE ensemble used in High Consequence Infectious Disease (HCID) Units should remain as the recommended PPE.

Updates from other relevant Committees

i. Human and Animal Infections Risk Surveillance Group (HAIRS) update

The ACDP Chair welcomed DEFRA Representative (dial-in), the Chair of HAIRS to provide an update on the committee.

- The committee are currently updating the monkeypox guidance following the latest incident. On 3 December 2019, a patient was diagnosed with monkeypox in the UK, making it the fourth case since 2018.

- Leishmania risk assessment is now published following the reports of canine leishmaniosis in untraveled dogs. The animal samples were sent to the OIE reference lab at IZSSi in Palermo, Italy and they were unable to speciate the sample. Disease cannot be confirmed due to the poor history of the animal.

- Permission is still being awaited to publish the invasive mosquito/West Nile Virus plan.

- Defra/APHA have drafted risk assessments for COVID-19, in the case that there was sustained human to human transmission in the UK and the potential risk of reverse zoonosis. This has been conducted through assessment of illegal meat imports (FSA), based on the level of passenger luggage (POAO) from China, on companion animals, livestock and wildlife. These risk assessments are currently not being published due to the lack of uncertainty.

DEFRA Representative responded to the committee's queries about the potential reservoir of infection, and how this may be affected by the illegal entry of animals into the UK. Helen commented that similarities may be drawn from the SARS 2003 outbreak, where the disease is thought to have transferred to humans from a variety of small mammals local to the area of origin. However, there remains considerable uncertainty surrounding exposure and infectiousness of COVID-19 including a variety of problems when trying to identify whether certain animals are entering the UK. Nevertheless, investigations suggest we have a lower risk in the UK compared to China due a difference in the interactions we have with our local wildlife.

ii. Joint Committee on Vaccination and Immunisation (JCVI) update

The ACDP Secretariat provided a verbal update on the JCVI after she attended a meeting held on the 5th February 2020.

- The committee noted the updated PHE guidance on monkeypox following the second incident of the disease in the UK, imported from Nigeria.

- The JCVI considered a policy document from DHSC on Ebola and agreed that it will require further review and updating in light of the recent licensure of the Merck vaccine and how to minimise risks for healthcare staff and those exposed as contacts.

- The committee noted a proposal that JCVI and ACDP form a working group with members and experts to proactively look at potential infectious disease threats. This group would review what vaccines are in development and think about similar issues that have been covered with monkeypox and Ebola. The plan is to discuss this further with DHSC.

The Chair noted that he has been asked by JCVI to re-write the section of the green book regarding the use of the imvanex vaccine and how it should be used for laboratory staff working with pox viruses, as current guidance is outdated.

The Chair also noted that the recent licensure of the Merck Ebola Vaccine has been discussed with DHSC, ACDP and JCVI as it will change the landscape of policy regarding vaccination. There are currently issues surrounding the supply chain of the vaccine as it is currently diverted to West Africa. DHSC reported that the UK obtaining a supply of the vaccine will not occur for another year, therefore rapid policy change is not necessary. Discussions for laboratory workers and HCW policy is ongoing.

iii. New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) update

NERVTAG provided a situation update on the COVID-19 outbreak from their meeting held 13th January 2020. The meeting came as a request from DHSC to update the expert advisory group on the situation and request advice on port of entry screening.

Based on available data at the time of the meeting the committee endorsed the PHE risk assessment and supported the decision that port of entry screening is **not** advised.

iv. Advisory Committee on Safety of Blood, Tissues and Organs (SaBTO) update

Currently no relevant updates for ACDP.

v. UK Advisory Panel for Healthcare Workers Infected with Blood Borne Viruses (UKAP)

Currently no relevant updates for ACDP.

vi. Advisory Committee on the Microbiological Safety of Food (ACMSF)

Updates on topics to be discussed by ACMSF working sub-groups were provided for ACDP information.

The Chair asked the members to note the updates received from the above listed expert advisory groups.

4.0. **Seoul Hantavirus**

The Chair introduced a PHE representative and invited her to present the emerging issue of Seoul hantavirus to the Committee (Papers ACDP_120_P02, ACDP_120_P03, ACDP_120_P04). This issue has been raised for the Committee for determine whether hantavirus poses a significant public health risk to the UK population.

Hantavirus disease was once uncommon in the UK. However, in recent years two variations of hantavirus have been isolated from UK rodents, namely Tatenale hantavirus and Seoul hantavirus. Seoul hantavirus is known to cause infection in humans and is carried by brown rats. The Humber strain of Seoul hantavirus is predominantly found in wild rats and the Cherwell strain currently restricted to pet rats.

At the beginning of 2012 the first UK case of hantavirus emerged from a farmer who had acquired the disease from wild rats and the same year another case of hantavirus associated acute renal failure also emerged. Since 2012, there has been an additional 13 cases associated with pet rats across the UK. A particularly high demonstration of virus has been recognised in 'fancy rats' owners who have obtained their rats from specialist breeders. Practices that pet rat owners also engage in such as rodentistry put this community at a greater risk of infection.

A sero-surveillance study conducted 2013 – 2014 found that fancy rat owners had a seroprevalence of 32.9%, compared to the veterinary group with 1.6%, waste control workers 2.8%, and the baseline UK population with a prevalence of 3%.

There are currently >100,000 pet rats in the UK, most bought from pet shops/suppliers which has led PHE to issue advice to pet rat owners about how to stay safe when in contact with urine and faeces dust/droplets from their pet rats.

Questions from the Committee:

1. Do laboratory rats pose a hantavirus risk?
2. Is there legislation for euthanising pet rats that have the ability to cause significant human disease?
3. How many rat breeders are there in the UK?
4. Is there evidence of human-to-human transmission of hantavirus?
5. What is known about the infection dynamics of hantavirus in the rat?
6. Is there evidence of the virus in any other rodents/animals in the UK or elsewhere?

7. The clinical condition of hantavirus is largely restricted to renal failure in the UK. Do patients ever show any haemorrhagic or pulmonary syndromes which are characteristic of other hantaviruses?
8. Is there much sequential variation in the virus?
9. As it is hard to get engagement from the pet rat industry, to what extent have the 13 UK cases previously infected with hantavirus become champions of raising awareness of the disease?

Answers:

1. All laboratory rats are tested for hantavirus alongside several other infections. They are then kept in hantavirus free colonies.
2. There is currently no UK legislation on the euthanasia of rats. It was noted that these laws would be difficult to impose as pet rats are often treasured family animals.
3. Many rat breeders are unregistered making it difficult to understand the true scale of the situation. This was exemplified when an investigation into rat breeding was recently undertaken and only two commercial rat breeders were identified. The majority of specialist rat breeding takes place in the breeder's houses, making this industry particularly hard to monitor and regulate.
4. There has been some limited evidence to suggest hantavirus can be transmitted human-to-human, however the primary source of infection is the rat.
5. From a study, it was found that the young rats were not infected when they were born but became infected soon after birth as a result of close contact with their infected parents. Once infected, the infection is lifelong, and the rat sheds intermittently without displaying active infection.
6. In the UK there is currently no evidence of hantavirus in other rodents other than rats and field voles. However, hantaviruses can have a range of vectors such as in Africa where hantavirus has been found in bats.
7. In the UK there has been some evidence of haemorrhagic disease in severe cases and there has also been evidence of neurological disease outside of the UK. Different rodents host different strains of hantavirus, and the UK is home to the milder infections exemplified by the 100% recovery rate of all those infected in the UK so far. However, the profile of the new world hantavirus tends to cause more severe illness often with cardio-pulmonary failure.
8. There appears to be little sequence variation in the virus. All the UK cases cluster very closely together. The virus isolated from the pet rats are all consistent with the Cherwell virus sequence meaning that the likelihood of the virus drifting to become more transmissible is reasonably low.
9. During the height of the hantavirus outbreak there was a lot of hantavirus attention on social media and within the pet rat community. However, little has been done since then. It may be useful to re-explore the effectiveness of social media when engaging with the community again.

It was noted that addressing hantavirus is particularly challenging in the UK due to the lack of engagement from the pet rat community and their belief that their rat's life is more important than their own. What can be viewed as irrational behavioural practices from people who do not own pet rats are not understood by the pet rat community as they have constructed their own understanding of the risks presented by their pet rat.

The Committee concluded that the magnitude of this problem is unknown and possibly underreported. Priorities of work moving forward should be to better understand the hantavirus risk to those outside of the fancy rat community. In addition, a clearer picture of the proportion of acute renal failure in the UK attributable to hantavirus would also be advantageous when clarifying the true scale of this health risk.

The Committee does feel that hantavirus poses a sufficient health risk to the UK population and endorses future work to investigate the above-mentioned issues. The committee believe that this will increase the public awareness of hantavirus as a health risk.

The Chair thanked the PHE representative for her thought-provoking presentation and noted that he hoped the ACDP could help support future work the representative is to undertake.

ACTION: The Chair to inform PHE that the ACDP endorses future work to investigate Seoul hantavirus and its risk to the UK population.

5.0. **COVID-19 and update on the effectiveness of masks for protection against aerosolised viruses**

The Chair welcomed two PHE representatives and the NERVTAG Chair (University of Oxford) who have dialled in to the meeting to discuss Coronavirus Disease (COVID-19).

COVID -19, virus SARS-CoV-2, was first identified in Wuhan, Hubei Province, China, after several cases of pneumonia of unknown aetiology emerged. The pathogen can transmit person – to – person which has led to a rapid increase in the number of cases reported from China and other countries across the world.

Hazard Group

The Chair invited two HSE representatives to present their paper (ACDP_120_P05) on SARS-CoV-2 proposed hazard grouping.

Coronaviruses are a large family of viruses that cause disease ranging from mild symptoms caused by the common cold to severe disease caused by Severe Acute Respiratory Syndrome – related coronavirus (SARS-CoV) and Middle East Respiratory Syndrome – related coronavirus (MERS-CoV). While this is a novel coronavirus it has been anticipated that the existing safe systems of work for similar Hazard Group (HG) 3 coronaviruses such as MERS-CoV and SARS-CoV can be used to effectively manage the risks of COVID-19 for HCW. Knowledge about the pathogenic potential and transmission risks for COVID-19 are currently very limited. Laboratory acquired infections have not been reported for COVID-19 to date, however laboratory acquired infections for SARS-CoV had previously reported.

The ACDP has been asked to make the relevant classification of this biological agent into a specific hazard group having considered evidence as to:

- The likelihood that it will cause disease by infection of toxicity to humans;
- How likely it is that the infection would spread to the community;
- The availability of prophylaxis or treatment

A few centres across the UK have notified HSE requesting permission to work with SARS-CoV-2 at a laboratory Containment Level (CL) 3 and locally classifying it as a HG3 due to its similarity with MERS-CoV and SARS-CoV.

The Committee discussed the current COVID-19 outbreak and noted the number of cases numbers is rapidly rising with a relatively stable case fatality rate outside of Wuhan, Hubei Province, at around 2% (between 1-3%). The NERVTAG Chair noted that details about the case fatality rate are becoming clearer, however it must be noted that there may be biases in Chinas reporting systems due to under ascertainment of the milder cases as well as many of the currently hospitalised patients not having reached an endpoint (recovered or died).

The ACDP Chair also noted that from data that emerged from China on the first 100 deaths suggested that comorbidities and other health related factors appeared to increase the risk of severe disease and/or death. The Chair asked the Committee whether they felt any laboratory worker exclusions should be applied when working on SARS-CoV-2 for those of increased risk such as the immunosuppressed or pregnant. The Committee and guest speakers noted that at this stage it may not be necessary to exclude more vulnerable groups of laboratory workers working at Containment Level (CL) 3, but rather ensure local individualised risk

assessments are conducted by occupational health and laboratory managers. In addition, it was noted that a paper investigating foetal outcomes in 13 pregnant women found that all outcomes were not severe.

At present, based on the current information, the committee felt that the proposed HG3 was proportionate.

ACTION: ACDP to endorse the provisional HSE classification of SARS-CoV-2 as a Hazard Group 3

Laboratory Handling of samples and virology update

The Chair invited a PHE representative to provide an update on the virology of the disease and answer some questions put forward by the Chair.

PHE representative stated that data is very limited and the only sources of data to answer questions is drawn from literature reports and/or the 9 UK cases. Consequently, the most effective framework to base an understanding of COVID-19 on is SARS-CoV as despite different phenotypes, they are genetically related diseases and have very similar receptors, allowing for basic inferences can be made.

- **Is there evidence for the passage of COVID-19 in urine/stool?**

When looking at SARS-CoV outbreak in 2003, the peak of virus shedding took place soon after illness onset from every bodily compartment, this shedding was not necessarily simultaneous, with virus detection in the blood the first indicator at around 2-3 days, followed by respiratory virus detection occurring around 5+ days after illness onset. The longest detectable virus shedding for SARS-CoV occurred from urine/stool which began 2-3 days post illness onset and lasted up to 10 days or more. Such a comprehensive overview of shedding patterns of SARS-CoV-2 is not yet available.

There are currently nine UK cases, containing two clusters and one sporadic case:

- Cluster one is comprised of a mother (index case) and son (secondary case), who came to light soon after illness onset. Samples from these cases showed no virus detection in blood but did in respiratory material. No urine or faeces samples from the index case in cluster one was obtained, however virus RNA in faecal material was detected in the secondary case, potentially due to the very early detection of the illness in this patient. From the secondary case, it was also noted that early into the illness the patients viral load was high, with a CT value of 25, and this declined as the disease progressed.
- Cluster two included five individuals, most of which were identified towards the end of their illness period, all of which were also mild. Only respiratory material contained detectable SARS-CoV-2, with blood, urine and faecal matter all testing negative.

It is clear that to understand COVID-19 better, cases need to be captured early into illness onset with daily sampling. Provisionally, it can be noted that if there is a viremic phase it is most probably short in duration and low in viremia.

A member of the Committee who attended the WHO R&D meeting in February 2020, noted that a leading virologist working on the disease suggested that the virus was most easily isolated from the upper respiratory tract. So far, virus has never been isolated from urine and isolating the virus in stool is difficult either due to a lack of live virus in stool, or the general complexities of isolating virus in stool.

- **Is there any evidence of viral sequence diversity that might contribute to 'super spreading' events and is the emergence of diversity likely to affect present diagnostic testing?**

Overall analysis of the 90 internationally deposited genomes suggests there is low genetic diversity and no significant evidence of adaptation. However, given the number of international cases we should be mindful that the number of genomes available for analysis is proportionately low. Nevertheless, coronaviruses are large viruses that have the capability for insertion and deletion of probes, giving them an ability to successfully adapt to different hosts.

Genetic diversity does not necessarily affect diagnostic capabilities as the diagnosis is based on aspects of the viral genome that are reasonably specific and well conserved. This will continue to be monitored closely as more genomic material becomes available.

- **How long are infected patients proving to be infectious?**

From an analysis of the 9 UK cases it appears that the respiratory tract contains the highest amount of virus and is where shedding occurs for the longest time. With the 9 UK patients, day 10 post illness onset appeared to be the most common time in which virus detection tests would become negative. However, it must be noted that this is based off extremely limited data and drawing meaningful conclusion is somewhat challenging.

- **What are the virus levels in various samples?**

Based on the nine UK cases, upper respiratory tract samples seem to be the most successful in detecting virus. When there are more UK cases determining the most effective samples to detect virus in will become more apparent. There is an international emphasis on throat swabs as oppose to nasal swabs.

The Committee asked PHE representative whether pooling the throat and nose swabs was a workable option. PHE representative noted in regard to laboratories under immense pressure from SARS-CoV-2 sampling, pooling samples can ease operational load. As diagnostic sampling is expanded across various regions across the UK, often to limited capacity laboratories, pooled samples would be the most practical solution for suspected cases. When handling samples from confirmed cases, individual samples are the most appropriate approach.

A question was raised regarding arterial blood gas analysis of suspected COVID-19 cases. The Chair reiterated the ACDP decision that was made regarding the use of blood gas analysers at the urgent meeting held January 31st, 2020. Here the Committee concluded point of care analysis (including blood gas analysis) should be avoided unless a local risk assessment has been completed and shows it can be undertaken safely. In addition, Jake Dunning commented that both WHO and the CDC, who normally take a more relaxed approach to the handling of coronaviruses such as MERS-CoV are also recommending tighter regulations on COVID-19, similarly to PHE guidance.

Questions for the ACDP regarding SARS-CoV-2 from remote and rural microbiologists in Scotland

The Chair presented an example of a selection of questions that have been received from laboratories regarding the handling of SARS-CoV-2 (ACDP_120_P07).

After some review of the queries, it was broadly felt that answering specific questions relating to the handling of a defined HG3 pathogen is problematic as not all eventualities can be covered. The laboratories need to ensure they have suitable workflows in place to handle a pathogen of this hazard group (HG3), local risk assessments need to be conducted and published PHE/HSE guidance consulted.

To conclude, those with specific questions regarding sample handling will be referred to the relevant guidance. SARS-CoV-2 is a HG3 pathogen and should be handled with the provisions that a HG3 pathogen necessitates.

Modelling update

The Chair invited Member Professor Neil Ferguson (Imperial College London) to provide an update on COVID-19 modelling Neil and his team have recently undertaken.

Hubei province, China, altered their case definition on the 12th February to include individuals clinically diagnosed with COVID-19, as well as PCR positive cases. This resulted in a large increase in the number of cases and fatalities reported from China. Reports that have been published by China indicate that 95% of reported cases have pneumonia, with 20-30% of cases reported outside of China, able to match the Chinese case definition. China is also reporting a crude fatality rate of between 10-20% in Wuhan, China. This contrasts with mild to moderate influenza illnesses which have pneumonia rates of 5-15% and case fatality rates of 0.5-1.5%. Data on age distribution and mortality has been published and suggests that COVID-19 related pneumonia deaths significantly increase in the 60-70-year-old age group and pre-existing health conditions pose as a risk factor for more severe disease and/or death. COVID-19 appears to have a R_0 (basic reproduction number) of 2-3, and a doubling time of 4-5 days. The case definition currently being used in China may have led to under-ascertainment of cases and a potential 4-5-fold under-estimation of the cumulative number of cases.

In addition, British repatriation flights from Wuhan, China, displayed a point prevalence test positivity of 1.5%, this allows us to decipher the number of cases that may have been missed in people travelling from China to other countries. Modelling estimates that 5-8% of cases are missing from China's official case numbers, with many of these cases disseminated into other countries before capture or diagnosis.

Note: all numbers quoted have some degree of uncertainty

Mask Safety

The Chair introduced the issue of mask safety, mentioning that there is clear guidance from HSE regarding the efficacy of various masks against live bioaerosols based on a study conducted in 2008. As there is currently a limited supply of Filtering Facepiece (FFP) 3 respirators, the Chair wanted to explore the relative safety of FFP1, FFP2 and FFP3 respirators to surgical masks. The Chair introduced two HSE representatives to discuss this further.

It was discovered that surgical masks provide adequate protection against large droplets, splashes and contact transmission, however they are not regarded as respiratory protective devices. Thus, it is not certain whether they sufficiently reduce the likelihood of transmission and subsequently minimise the risk of infection. This is in comparison to a FFP respirator that have a minimum filtration rate of 80% for an FFP1, 94% for an FFP2 and 99% for an FFP3 if fitted correctly.

The UK doesn't have work place exposure limits for biological agents, so the highest level of protection is recommended, however in many other countries an FFP2/N95 is advised. In the UK, HSE recommends the use of FFP3 respirators when conducting aerosol generating procedures or when near COVID-19 patients. Surgical masks are not recommended as they do not provide optimal protection, however, if FFP masks are in short supply, they should be reserved for the above-mentioned scenarios.

The committee raised an issue surrounding fit testing of the FFP3 masks, and the emerging issue of reluctance by some HCW to shave beards to ensure masks fit properly. It was concluded that if people fail fit testing they should be excluded from any procedures that would generate aerosols, or alternatively provide alternative PPE such as powered hoods. The committee also queried the duration an FFP respirator could offer protection and it was noted that FFP respirators will protect for eight to ten hours, however HSE recommends that FFP respirators are worn for no longer than one hour due to the physical strains of wearing them.

To conclude, ACDP does not recommend changing the guidance for patients who are coming to health care facilities for COVID-19 testing and current recommendations for these individuals to wear surgical masks is sufficient.

ACTION: ACDP to endorse current guidance for suspected patients undergoing COVID-19 testing.

The Chair thanked all speakers for their comprehensive contributions and updates on the ongoing COVID-19 outbreak.

6.0. **Hepatitis E**

The Chair welcomed representatives from DEFRA and FSA to present their paper (ACDP_120_P06) and discuss the risk of hepatitis E in pork products. At the previous ACDP Meeting in November 2019, the Committee were informed about the virology and epidemiology of hepatitis E in people by PHE. The chair requested the Committee consider the risk of hepatitis E to the UK population, especially in those who are immunosuppressed and susceptible to rapid disease progression.

Hepatitis E (HEV) infections in the UK have been increasing since 2010, similarly to a pattern observed in many European countries, with a rising number of locally acquired cases, although infection in humans is not notifiable in all European states. Studies over the last 15 years have associated consumption of processed pork products with cases of hepatitis E infection and suggest pigs to be significant reservoir for infections in humans.

Although outbreaks linked to specific foods are rarely observed, studies conducted at the time of retail on a range of pork products in several countries have found evidence of HEV in a range of food items including pork livers, meat, sausages, figatelli sausages (made with liver and pork meat) and pâte. Investigations based on dietary and shopping habits of HEV-positive patients from England undertaken by PHE have indicated an association of Hepatitis E with the consumption of sausages and ham, either domestically sourced or imported.

As a result, Defra, FSA, The Animal and Plant Health Agency (APHA) and PHE are working together to identify evidence-based interventions for reducing the risk of hepatitis E transmission via pork products.

The priorities of this group are to address evidence gaps for the effective prevention and control of HEV through the following studies:

FS301062: HEV thermal Inactivation Modelling Study ("HEVTIMeS") – A literature review to supplement key gaps in the literature. Output will be a validated flexible model for thermal stability of HEV that can be updated as more literature becomes available. Model development and validation expected August 2020.

FS307033: Optimising extraction and detection of HEV in pork and pork products – to produce optimised and validated extraction and detection methods of HEV from pork products, enabling follow up of future HEV surveys in pork. Draft SOP expected December 2022.

FS301043: Examining the transmission of HEV in pigs and into the pork food chain – experimental infection to understand the transmission of HEV from food producing animals (swine) into the pork food chain, consequentially the distribution of the virus in edible tissues and relevant meat preparations. Final report expected 2021.

The committee asked the following questions:

1. Is the risk of HEV transmission restricted to raw pork only?
2. There appears to be a link between the importation of pork from the Netherlands and HEV transmission. Is this acknowledged and higher than normal?
3. Do we know how HEV is transmitted from humans to pigs and can we interrupt the chain of transmission?
4. African Swine Fever (ASF) is spreading from Asia across Europe. Will this alter the nature of pork products imported to the UK?
5. Do we know why HEV is hard to inactive regarding its virology? And is current cooking advice sufficient to inactivate hepatitis E?
6. A 2012 study on blood screening for hepatitis E was conducted. Do we have a more up to date study available to understand the percentage of blood donations that are infected? And how many clinical cases do we have per year in the UK?

Answers:

1. The risk of hep E transmission is associated with a range of pork products, including frozen.
2. There is a link with the subtype found in the Netherlands, but this subtype is also found in other places in Europe, so it is difficult to draw any conclusions. The Netherlands also shared verbally information suggesting they had discovered a subtype specific to the UK in some of their findings.
3. There is an association with uncooked pork products, however abattoir studies showed very few pigs were viremic at the time of slaughter.
4. There are already several restrictions in place for the importation of pork due to ASF. Dependent on Brexit trade negotiations, this may be subject to change. Health will be a consideration in future trade deals.
5. A better understanding on the position of thermal inactivation is needed. Guidance for cooking is available, but there might be a variation in the compliance between different consumers.
6. It is variable year on year, but rates are around 1 in 5,000 people and there are notable peaks and troughs of cases within one year. The incidence of clinical cases of hepatitis E in the UK is around 100 per annum. However, clinical cases only provide a partial estimate of the true number of hepatitis E cases due to a high percentage of asymptomatic patients.

The committee felt it wasn't necessary to provide evidence-based advice to vulnerable populations as there is already generic guidance issued to immunosuppressed groups on foods to avoid. Hepatitis E is a notable issue in the UK and the committee would like to endorse studies that the FSA and Defra Group are carrying out to gain further knowledge of the disease.

The Chair thanked speakers for their informative presentation.

ACTION: The ACDP to endorse ongoing Hepatitis E studies.

7.0. **Congenital CMV**

The Chair welcomed and thanked a PHE representative for attending the meeting to present the issue of Congenital Cytomegalovirus (CMV) to the ACDP. The Chair would like the Committee to contemplate the effects of the virus on the unborn child and consider any factors that may mitigate against the risk of infection in terms of advice for pre-pregnancy counselling and when pregnancy would be advised again after an infection.

Congenital CMV is a herpes virus that causes lifelong infection and can cause latency and reactivation. It is distributed among age groups globally with the immunocompetent host mainly asymptomatic. It is the most common viral infection developed by the foetus and is the leading non -genetic cause of neurosensory hearing loss, with 25% of all congenital hearing loss caused by CMV. Other manifestations of the disease can result in microcephaly, retinitis and cognitive disorders. In the UK 1 in every 150 babies will be born with congenital CMV and of the 10% presenting with symptoms at birth, 50% of these will suffer permanent sequalae. The children asymptomatic at birth, can also develop disabilities resulting from CMV, with 15% of this cohort emerging with lifelong sequalae. Transmission of CMV occurs via close contact with individuals shedding the virus in their bodily fluids, with breast milk from seropositive mothers accounting for 50% of transmitted infections.

A model created to estimate the cost of congenital CMV in the UK proposed the total cost per annum was £732 million, with around forty-percent of this directly impacting the NHS. However, a few interventions can reduce this health impact and economic burden of this disease. The universal new-born hearing screening successfully detects many neonates with congenital hearing impairments at birth and these neonates with an early diagnosis of hearing loss develop better receptive and expressive language with improved cognitive function than infants with a later diagnosis. It was also found that the provision of hygiene information to pregnant women at risk of CMV was effective.

Due to many uncertainties the National Screening Programme (NSC) did not recommend screening for CMV in pregnancy or within the new-born period as there is a need to better understand how to refine the risks of adverse outcomes dependent on the type of maternal infection present. In addition, there are currently no UK wide figures available, a lack of a sensitive screening test and little-to-no evidence that new-born treatment is effective. As a result, the future direction for CMV research is targeted towards exemplifying that universal practices to screen new-borns can be cost effective and achievable using CMV detection in saliva, as without this, most children with CMV will be missed.

The Chair thanked the PHE representative for her presentation and for highlighting the many complexities and uncertainties that come with tackling congenital CMV. It was noted that there is sufficient evidence to show that screening and several other interventions would be beneficial whilst we wait to produce a vaccine. Softer interventions are also beneficial, with services and support to the child and family improving the overall outcome for the child.

The Committtee also noted the major resource implications from late diagnosed cases of Congenital CMV and its lack of appropriate funding. If a more effective system where in place it could prove extremely cost effective and help to tackle the most common vertically transmitted viral infection to cause hearing impairment.

To conclude, there is a strong argument that the early detection of transmitted congenital CMV could improve the outcome of children who develop sensory neural hearing and the committee would like to endorse this whilst also acknowledging that CMV is **not** a negligible problem in the UK.

ACTION: ACDP to support neonatal screening for Congenital CMV as an effective intervention.

8.0. **Any other Business**

The Committee noted that it was highly likely the ACDP will be queried on emerging health and safety issues as well as practical advice for HCW regarding COVID-19. A small expert working sub-group (WSG) comprised of ACDP members may be beneficial to deal with these queries.

The Committee confirmed that there was ACDP representation on the NERVTAG committee and the Scientific Advisory Group for Emergencies (SAGE), with member Professor Neil Ferguson a member of both.

ACTION: The Chair to propose a COVID-19 ACDP WSG to DHSC and DCMO.

9.0. **Close**

The Chair thanked the Committee for their contribution to the meeting and everyone for their time.

10. Date of the ACDP Summer 2020 meeting

18th June 2020.

ADVISORY COMMITTEE ON DANGEROUS PATHOGENS

The 119th meeting of the ACDP was held on Thursday 13th February 2020.

Action Grid

Item	Action	Progress
4.0	The Chair to inform PHE that the ACDP endorses future work to investigate Seoul hantavirus and its risk to the UK population.	Completed 13-02-2020
5.0	ACDP to endorse the provisional HSE classification of SARS-CoV-2 as a Hazard Group 3.	Completed 13-02-2020
5.0	ACDP to endorse current guidance for suspected patients undergoing COVID-19 testing.	Completed 13-02-2020
6.0	The ACDP to endorse ongoing Hepatitis E studies.	Completed 13-02-2020
7.0	ACDP to support neonatal screening for Congenital CMV as an effective intervention.	Completed 13-02-2020
8.0	The Chair to propose a COVID-19 ACDP WSG to DHSC and DCMO	Not actioned