

# Investigation Report into the NHS Care provided to the late Daniel Benfield in June 2016

## Commissioned by:

NHS England South East, Kent Surrey and Sussex (KSS) into the circumstances of the death of a 31 year old man who suffered from a sub-arachnoid haemorrhage which, despite contact with six different health providers, was correctly diagnosed only after a period of significant delay and which resulted in his death. NHS England agreed to co-ordinate the investigation into this serious incident due to the number of organisations involved and the complexity that entails.

## Terms of Reference:

- To establish why a differential diagnosis was not reached sooner and prompt treatment commenced.

The investigation will aim to:

- Establish the facts of what happened, to whom, how and why
- Establish whether failings occurred in care or treatment
- Establish a root cause
- Look for improvements rather than to apportion blame
- Establish how recurrence may be reduced or eliminated
- Formulate recommendations and an action plan
- Provide a report and recording of the investigation process and outcome
- Ensure that any deficiencies and/or failings are recognised
- Ensure that areas of good practice are noted and recognised.

## Investigation undertaken by: Dr Peter Devlin MB BS MRCP DRCOG FRCGP

Summary of Investigator Qualifications: I have been practising as a doctor since 1980, with postgraduate qualifications of MRCP 1984, MRCGP 2004, and awarded FRCGP in 2010. I have 30 years of experience working as a GP partner, locum GP and salaried GP. I have been a member of the NCAS GP clinical assessor panel since 2004 and have undertaken over 10 full GP assessments. I have been a member of the NCAS Assessor Trainer Team since 2009, which involves me in providing training to existing and applicant clinical assessors for NCAS. I have been part of the NCAS Clinical Case Investigator trainer team, working initially in partnership with the National Revalidation Support Team, and latterly NHS England. I have led the training of over one hundred Case Investigators. I have been an NHS GP Appraiser since 2004 and have conducted over 240 appraisals. I am currently the Chief Executive of Here, Care Unbound Ltd, and take overall clinical governance responsibility for over eighty clinicians who work within Here's MSK ICATS, Memory Assessment and Primary Care Mental Health clinical services. I am also a Partner in the Benfield Valley Health Hub primary care practice.

## Method

This investigation was carried out over a period from May 2017 to December 2018.

The investigator reviewed an extensive portfolio of documents provided to him by NHS England, which included clinical records from five NHS provider organisations, and critical incident reports and investigations carried out by two NHS organisations, which themselves contained a number of witness statements. Donna Benfield (Daniel's mother) submitted a document detailing her concerns and this report aims to answer those questions.

A Coronial Inquest was heard over three days in August and October 2018, at which the Investigator was present for the last two days, and for which HM Coroner took the unusual step of producing a transcription of proceedings for Day 1 and Day 2. Evidence from the Court transcripts and from the Inquest Proceedings is also incorporated into this report.

Technical knowledge of Sub Arachnoid Haemorrhage (SAH) was gained through a literature review, and through a one-to-one interview with an independent Consultant Neurosurgeon.

## Executive Summary

Daniel Benfield was a previously fit and healthy young man who became acutely unwell during the night of the 16<sup>th</sup> / 17<sup>th</sup> June 2016, suffering from a headache, vomiting and difficulty in breathing. Over the course of the next four days, he made six contacts with different parts of the NHS acute care system in which he was offered a number of different diagnoses of acute minor illness, and given treatment for gastroenteritis, sinusitis and muscular pain / headache. His seventh contact with acute care, on day five of his illness led to hospital admission and a CT scan diagnosis of sub arachnoid haemorrhage. He was commenced in hospital on appropriate treatment designed to reduce the risk of progression of SAH related complications, but nevertheless went on to develop progressive irreversible cerebral ischaemia and was declared brain dead on the 24<sup>th</sup> June. Daniel's organs were subsequently donated for transplantation.

In every contact with the NHS there were missed opportunities to suspect and take appropriate steps to make the correct diagnosis; although it could not be reasonably expected of any one clinician to have made a definitive diagnosis of a serious cerebral illness. The reasons for the incorrect diagnoses are:

- The relative rareness of SAH as an acute presentation
- The difficulty in making a diagnosis in the context of Daniel's atypical presentation, and in the absence of a clear history of "thunderclap" sudden onset of headache
- Multiple cognitive biases displayed by clinicians
- A variety of potentially remedial system deficiencies, including lack of information sharing, and difficulties in being able to take an overview in the context of multiple system contacts.

Overall, there were significant cumulative delays in reaching the correct diagnosis and starting the optimal treatment. However, there is relatively poor evidence for the effectiveness of any treatments in SAH. It is a condition with a high probability of death or a poor outcome, and there has been little change in the effectiveness of treatment in the past fifty years. It is not possible to say with certainty that the outcome would have been any different if the diagnosis had been made earlier in the course of the illness, and the expert witness evidence presented at the Inquest was clear that the delay in diagnosis did not contribute to Daniel's death.

There were privacy and dignity issues with the end of life and organ donation care provided by Trust 4 which caused avoidable further distress to Daniel's family.

## Section 1: Sub Arachnoid Haemorrhage: what is it, why does it happen, how is it diagnosed, what are its consequences?

An understanding of the circumstances that led to the death of Daniel Benfield can only be reached by an understanding of the nature of sub-arachnoid haemorrhage (SAH), and its complications.

The underlying cause of sub-arachnoid haemorrhage is an aneurysm in 85% of cases. Aneurysms, an enlarged weakened outpouching of an arterial wall, are acquired and some are generally caused by the same risk factors as a stroke: smoking, raised blood pressure, high cholesterol, family history and recreational cocaine use. We do not know whether Daniel suffered any known predisposing conditions. His past history of asthma is not a risk factor. In Daniel's case therefore, the aneurysm he had was probably a random unpredictable one, and likely to be a congenital defect. Haemorrhage occurs if and when the aneurysm bursts or ruptures. The risk of rupture is proportional to the size of the aneurysm. Aneurysms within the arteries at the base of the brain, within an anatomical structure called the Circle of Willis, generally do not cause any symptoms until a rupture occurs, so can be considered a hidden risk "like a ticking time bomb". This was later found to be the site of Daniel's aneurysm.

When an aneurysm ruptures, blood is pumped at high (arterial) pressure into the space surrounding the brain and the spinal cord. This blood may cause direct damage to the tissues with which it comes into contact, and causes irritation to the meninges, the delicate membrane like tissue that surrounds the brain and spinal cord.

Typically, rupture causes the person to experience an unusually severe headache that starts suddenly. In about half of all patients this is also accompanied, at the same time or very shortly afterwards, by a period of loss of consciousness lasting more than one hour.

Complications of subarachnoid haemorrhage are multiple. The top three are

- Hydrocephalus (a build-up of fluid under pressure around the brain)
- Re-bleeding
- Delayed cerebral ischaemia (oxygen starvation and death of brain tissue).

**Re-bleeding** occurs in about 20% of patients in the first two weeks, and surgical intervention by putting a clip on the aneurysm is routinely now used to reduce the risk of rebleeding. Although this is now generally done within the first three days post initial bleed, there is in fact little evidence that this leads to any better outcomes than the previous practice of clipping at around day 10 to day 12.

**Delayed cerebral ischaemia** is a little more difficult to explain, and indeed the exact reason that this occurs is not yet fully understood by experts. In simple terms, the arteries in and surrounding the brain go into spasm, narrowing markedly, and restrict blood flow to various parts of the brain. This may lead to disturbed brain function e.g. confusion, weakness, altered sensation, altered speech, and ultimately to death of the brain itself (and thus death of the patient). It is believed, but not proven, that this spasm of the blood vessels is caused by an agent within the blood clots formed by the subarachnoid haemorrhage itself.

Daniel Benfield – Final report March 2019.

Measures used to prevent the onset of delayed ischaemia are a liberal supply of fluids, avoidance of blood pressure lowering drugs, and administration of a drug called nimodipine. Once ischaemia has occurred treatment regimens include a combination of: induced raised blood pressure, increased fluid input (hypervolaemia), and angioplasty, but all are of unproven benefit.

Overall, about 50% of people who have a subarachnoid haemorrhage die as a result of the bleed, either immediately or within days or weeks. Of those who do survive, one third will remain significantly dependent and only about one third report no reduction in quality of life. There has been very little significant improvement in these survival and outcome figures over the past fifty years. In other words, unlike in so many other areas of medicine, this condition has remained peculiarly resistant to treatment advances.

From this, it can be seen that a subarachnoid haemorrhage is a catastrophic illness, with a high probability of death or severe enduring disability, for which medical treatment may have limited value.

In this case there was a significant period of time between the suspected initial event of aneurysm rupture on or around the 19<sup>th</sup> June and the diagnosis of SAH on 22<sup>nd</sup> June.

The Trust 5 report has covered in some detail, background information about the diagnostic challenge posed by SAH. It is also worth quoting at some length from Van Gijn's 2001 review paper:

“In patients in whom headache is the only symptom, it is often more difficult to recognize the seriousness of the underlying condition. Classically, the headache from aneurysmal rupture develops in seconds. Therefore, it is important to make specific enquiries about how quickly the headache developed; patients often complain only about the severity of the headache and do not know that the speed of onset is a pivotal piece of information. However, even an accurate history does not reliably distinguish between aneurysmal rupture and innocuous forms of headache, such as benign vascular headache or a muscle contraction headache. First, only half the patients with aneurysm rupture describe the onset as instantaneous, the other half describe it as coming on in seconds to even a few minutes (Linn *et al.*, 1998). Secondly, in the group of patients whose headache came on within a split second, innocuous forms of headache outnumber SAH by 10 to one (Linn *et al.*, 1994). Other features are equally unhelpful in making the distinction: the severity of headache is rated similar, vomiting occurs in 70% of patients with aneurysmal rupture, but also in 43% of patients with innocuous thunderclap headache. Also, preceding bouts of similar headaches are recalled in 20% of patients with aneurysmal rupture and 15% of patients with innocuous thunderclap headache (Linn *et al.*, 1998). Neck stiffness is a common sign in SAH of any cause but takes hours to develop and therefore cannot be used to exclude the diagnosis if a patient is seen soon after the sudden-onset headache. It does not occur if patients are in deep coma. Subhyaloid haemorrhages require experience with fundoscopy and occur in ~17% of patients, at least of those who reach hospital alive (Pfausler *et al.*, 1996; Frizzell *et al.*, 1997).

If explosive headache is the only symptom, the chance of SAH being the cause is only 10% (Linn *et al.*, 1994). Nevertheless, the lack of clinical features that

distinguish reliably and at an early stage between SAH and innocuous types of sudden headache necessitate a brief consultation in hospital for all patients with an episode of severe headache that comes on within minutes. Such an approach serves the patient's best interests and is also cost effective. The discomfort and cost of referring the 90% of patients with innocuous headache is outweighed by avoidance of the disaster in the other 10% so that a ruptured aneurysm is avoided (Tolias and Choksey, 1996)".

"It is even more difficult to suspect aneurysmal rupture if the patient does not report a history of sudden headache or if other symptoms seem to prevail over the headache".

## Section 2: Chronology and findings

### 2.1 Response by NHS 111 to call on Friday 17<sup>th</sup> June 2016

- 2.1.1 Daniel called NHS 111 at approx. 01.00. In this call Daniel reported that he was vomiting, that his head hurt, that the light hurt his eyes, that he was having difficulty in breathing and was sweating. Because Daniel reported difficulty in breathing, the NHS 111 adviser transferred the call to Trust 2 for an immediate ambulance response.
- 2.1.2 Call received by Trust 2 at 01.07, crew attended at 01.19. Daniel gave a history of an acute onset of feeling unwell from 21.00 the previous day, and that at around 00.30 he had started vomiting. The paramedic noted a history of alcohol consumption of 3 pints of beer, and a marijuana cigarette the previous evening, and that Daniel had not eaten since the previous lunchtime. He reported some abdominal pain, and some episodes of diarrhoea. Daniel's Glasgow Coma Scale score (GCS) was 15. The Glasgow Coma scale is used to assess the level of consciousness in patients using a number of observations. A score is assigned which will lie in the range of between 3 and 15, where 15 is fully alert and orientated, and 8 or less suggests a serious brain injury. The pulse, blood pressure, respiratory rate, temperature and oxygen saturation were measured twice, the second time at 01.50. All observations were unremarkable on both occasions. The clinical record does not record a history of chest pain or shortness of breath, and no evidence of photophobia.
- 2.1.3 In the letter from Trust 2 there is reference to an interview with the paramedic(s) involved. In this it is stated that Daniel denied having a headache or photophobia, that the main concern was vomiting and abdominal pain, and now some diarrhoea. Further investigation has been unable to reconcile the difference in their account with the initial symptoms presented to NHS 111, the record of account by Donna Benfield (Daniel's mother) and subsequent reports which all support headache as the prominent feature. Daniel's family also report that Daniel was unable to tolerate having the bathroom light on which would suggest that photophobia was also present.
- 2.1.4 The paramedic (Clinician A) made a diagnosis of gastroenteritis.

- 2.1.5 The crew made a decision not to convey Daniel to hospital, and agreed a management plan with him, about fluid intake, and in particular “safety netting” that Daniel should contact his GP if his symptoms did not settle “over the next 24 hours”.
- 2.1.6 The Trust 2 investigating manager (IM) found a number of deficiencies in the record of this consultation. It is stated that “no non-conveyance form had been completed” but there is a non-conveyance form related to this attendance in the evidence provided to the investigator. The IM reported that no pupil examination was documented but did not comment why this was not done. Daniel’s family later suggested that he could not have tolerated having a light shone into his eyes. The IM says that “all observations were within the normal range, but Mr Benfield’s blood pressure was actually high”. The PCR records a BP of 150/90. No comment is made about the decision not to convey to hospital on 17<sup>th</sup> June 2016.
- 2.2 Contact with NHS 111 on Sunday 19<sup>th</sup> June**
- 2.2.1 Daniel called at approx. 10.00 and spoke to an NHS 111 clinical adviser giving a history of 3 days of “headache and night sweats” and feeling that he had a temperature. The standard NHS 111 screening questions for headache were asked and it was noted that “there was no headache of sudden onset”. The triage decision was “disposition of contact primary care service within 24 hours” and the call was forwarded therefore to Trust 5 as the local Primary care Out of Hours Service provider.
- 2.2.2 Daniel was assessed in a face-to-face consultation by Clinician B at the Trust 5 base at 11.59. Clinician B is a Primary Care Nurse Practitioner, who notes that the patient had a three-day history of headache. He had called an ambulance on 17<sup>th</sup> June, because he woke with a headache, accompanied by vomiting, diarrhoea, sweating and shaking. All observations made by the ambulance crew were normal. He reported sensitivity to light and some noise. He was normally fit and well and did physical work with heavy lifting. She also recorded a history of “muscular pain in the back of the neck radiating down to both shoulder blades with tenderness to touch”. Clinician B carried out standard observations of temperature, blood pressure, respiratory rate, and oxygen saturation, all found to be normal. She reported that she had carried out a neurological examination, and an examination of the neck. She documented findings of “normal pupils, normal visual acuity, no confusion, no altered sensation or muscle weakness. There was no rash or neck stiffness”. She also recorded a finding of no abnormality of movements of the neck. She made a diagnosis of “headache and muscular pain” and prescribed a non-steroidal anti-inflammatory pain killer drug, naproxen. She gave advice about fluid intake and rest, and that Daniel should make an appointment to “see his own GP the following week”. The inquest transcript records that she also advised “he always can call us back which is obviously NHS 111 call, and we could have seen him again.”
- 2.2.3 Clinician B has provided a statement dated 3<sup>rd</sup> August 2016. The statement is brief and contains two factual errors concerning times and dates. It confirms the details of the examination carried out and confirms that the history was “presented with a complain (sic) of a headache which

has started 3 days ago”. It contains the statement “I have provided right information and advise (sic) at that time”

2.2.4 Donna Benfield says that when Dan went to Trust 5 base on 19th June he was “diagnosed with gastrinitis (sic) which they said was tummy ulcers that was caused by stress and heavy lifting”. He says that Daniel was prescribed naproxen and co-dydramol.

2.2.5 Clinician B in her later evidence given to the Coroner, agreed that her clinical records were not as comprehensive as they might be. She described to the coroner the detailed examination that she carried out, including an examination of cranial nerves although this detail had not been recorded contemporaneously.

## **2.3 Contact with NHS 111 and Trust 5 on Monday 20th June**

2.3.1 Daniel called NHS 111 at 04.48 in the early hours of the next day complaining of headache. Once again this was triaged on the headache pathway reaching a disposition of “speak to a primary care service within two hours”. This disposition is generated by the NHS Pathways computerised decision-making software when the symptoms are considered to require urgent advice from a GP. The call was passed to Trust 5 at 04.56.

2.3.2 Donna says that NHS 111 advised Daniel to go to A&E.

2.3.3 Trust 2’s IM has found evidence of unsatisfactory practice on the part of the individual NHS 111 Health Adviser (HA), stating that there were issues “due to selecting the incorrect answer on key questions and not probing sufficiently into others.” She describes the HA probing the “severely ill” question with a question about getting to the toilet himself, whereas the HA’s have been specifically advised not to use this question because of its poor sensitivity.

2.3.4 Clinician C, a Trust 5 GP, attempted to call Daniel at 05.04, but Daniel’s phone was not answered. Clinician C made a second attempt to contact Daniel at 07.10, and this time the phone was answered, and a third party advised Clinician C that Daniel had already made his own way to A&E at Trust 3. Clinician C therefore closed the case.

## **2.4 Attendance at Trust 3 A&E, on Monday 20<sup>th</sup> June**

2.4.1 Daniel, as stated in 2.3.4, had made a decision of his own to go to A&E at Trust 3, at some time between 05.00 and 07.00. His attendance is recorded as taking place at 07.59. His time of assessment is not recorded on the A&E discharge information or record, and he was seen by Clinician D, a Consultant in Accident & Emergency Medicine. Clinician D recorded a history of 4 days of “frontal headache after URTI/gastro bug. No red flags, nil neuro”. There is no documentation of any more detailed history and in particular of onset of headache or of any detail of the previous contact with other health professionals for the same episode. Clinician D has noted the reported diagnosis of gastroenteritis, but not the subsequent one of “headache and muscular pain”. Clinician D made a diagnosis of sinusitis.

2.4.2 Donna Benfield says that Daniel told Clinician D about other symptoms of aching in his neck, lower back and legs. He says that Daniel was given a naproxen tablet, and two co-dydramol, and left in a dark room for



- approximately four hours. When he was reassessed after this time, he advised the reviewing doctor that the treatment had made no difference.
- 2.4.3 Clinician D discharged Daniel from A&E, informing him of the diagnosis of sinusitis, and with advice to continue taking the prescribed analgesia (co-dydramol and the previously prescribed naproxen). He also gave safety net advice about returning to A&E “if symptoms worsen”.
- 2.4.4 Donna Benfield has asked the following specific questions about this consultation:
- Why was a CT scan not done at this stage?
  - Would the doctors have had access to Daniel’s medical history i.e. clinical records?
  - What did the clinicians do to exclude meningitis as a diagnosis? Why no blood tests were done? What else could have been done to exclude meningitis?
  - What is the “procedure” for when someone has a four day history of constant headache not eased by usual treatments?
  - Why did the clinician discharge Daniel after 4 hours when the treatment had failed to help him?
- 2.4.5 In his evidence to the Coroner, Clinician D has demonstrated extensive reflection on the care he provided to Daniel including discussion with colleagues and a departmental case review. He has also demonstrated advanced knowledge of the principles of cognitive bias in clinical practice.
- 2.4.6 His clinical records of his consultation are by his own admission to the Coroner, “sparse”, and he has provided evidence that he has reflected on this as a learning point. There is no record that I could see of the pre-discharge review.
- 2.4.7 He has provided evidence to the Coroner that although his diagnostic conclusion was of a simple viral infection and sinusitis, there were features of Daniel’s presentation that were unusual. He goes on to say that “meant that I was more concerned than usual to rule out a sinister cause”. For this reason, he conducted a mental test score to assess Daniel’s orientation to time and place. He also decided to keep Daniel in the department for an extended period of observation.
- 2.4.8 Clinician D explained that he used a period of extended observation in the department and the subsequent follow up review to “look for absence of deterioration”, and in the context of no deterioration, to discharge.
- 2.5 Consultation in GP surgery on Tuesday 21<sup>st</sup> June**
- 2.5.1 Daniel contacted his GP surgery the following morning and was given a face to face appointment with Clinician E, a Primary Care Nurse Practitioner, who has recorded a history of “been ill since Friday with headache and pain in sinuses. Been to A&E and rung 999. co-dydramol and naproxen makes him feel worse”. She has recorded examination findings of blood pressure, pulse, oxygen saturation, temperature, pupils, auroscopy, and nasoscopy. All these examination findings are recorded as normal, except that “nasal passages look red and angry”. She made a diagnosis of viral sinusitis and advised treatment with paracetamol and ibuprofen. She prescribed a high strength steroid nasal spray, fluticasone, and advised “maybe try Sudafed along with steam/menthol inhalation”.

- 2.5.2 Donna Benfield says that Daniel told Clinician E that he was unhappy about the care that he had received and in particular about being given two different diagnoses. DB reported that Clinician E said, “there is not much that you can do unless you have had a headache for three weeks or more”, and that “gastronitis (sic) and sinisitus (sic) are two different things but very similar symptoms”. The family have questioned why you have to wait three weeks with a bad headache before anything can be done? At inquest an explanation was provided that 3 weeks referred to the time allowed to let sinus congestion resolve i.e referred to the diagnosis of sinusitis not to the investigation of acute headache.
- 2.5.3 In her evidence to the Coroner, Clinician E has described the factors that led her to make a diagnosis of sinusitis. She said that Daniel gave a history of “sinus congestion”. The evidence that she presents for sinus congestion is the unrecorded history of the headache being made worse by leaning forward. Clinician E also indicated to the court the site of Daniel’s headache and said, “automatically you think of sinus headache”. She referred again to the finding of red nasal passages as a sign of an upper respiratory viral infection. She also said that the finding of no wax in Daniel’s ears indicated the presence of inflammation. There is no reference to this as an abnormal finding in her clinical records.
- 2.5.4 Evidence was presented in Court of another event taking place at the GP surgery immediately after Daniel’s consultation with Clinician E, and this event was not recorded in any of the records and information previously available to me. The reception team messaged Clinician E advising that he “did not look at all well” on his way out of the consultation. Clinician E gave evidence that she acted on the alarm raised by the reception team and went out to find Daniel after she had completed her next consultation, even going out into the car park and down the drive. She said that at that point that she “assumed that he managed”.
- 2.6 NHS 111 consultations on Tuesday 21<sup>st</sup> June**
- 2.6.1 Daniel contacted NHS 111 again at 19.20 on that Tuesday evening. He spoke initially to a Health Adviser who recorded “sinusitis, constant headache, legs feel heavy, dizzy” further going on to note symptoms relating to the legs and back. At this point the NHS Pathways software algorithm prompted an “early exit” intervention, which usually occurs when the HA is having difficulty applying standard pathways and indicates that the HA should seek the assistance of a Clinical Adviser (CA).
- 2.6.2 The CA, Clinician F, took over the call at 19.32. The CA noted the HA findings and further noted “has been seen by both OOH (out of hours service) and local hospital in last few days, diagnosed firstly with tension headaches and sinusitis – given a nasal spray and analgesia. Latter made him feel sick, and the (sic) doesn’t have much in way of sinusitis symptoms. New symptoms of heaviness on both legs, with ongoing dizziness secondary to headaches. Was well in himself a week ago but feels like he’s getting worse rather than better.” In the Trust 2 investigation report it is noted that “the CA states that despite all other diagnoses, the one constant has been the headache and that the symptoms are not ticking the boxes of sinusitis or showing the classic signs”. The CA advised Daniel that because of these symptoms the system algorithms

had recommended a “Red 2 ambulance” (to arrive within 30 minutes) on the basis that “he was having a stroke, but that he did not think that this was the case and the patient agrees”.

- 2.6.3 The CA advised that the correct outcome is that Daniel receive a primary care contact within next two hours and included “worsening advice” to attend A&E or call 999 “if anything at all worsens”.
- 2.6.4 In his statement provided to the Coroner, Clinician F stated that “I could have referred him for a ‘Speak to Primary care Service’ within the next one hour, but I felt that due to the ongoing symptoms and complexities of his case, that a face to face assessment was most appropriate.
- 2.6.5 A statement provided by the Senior Manager for Clinical Governance and Quality for NHS 111 has provided evidence that a review of Clinician F’s consultation with Daniel carried out by two independent auditors (who were blinded to the eventual outcome) concluded that “given the same information, the same decision would have been reached had the call been managed by any Clinical Advisor”.

## **2.7 Trust 5 contacts Tuesday 21<sup>st</sup> June**

- 2.7.1 Daniel’s call to NHS 111 was forwarded to Trust 5 as the local Primary Care OOH Provider at 19.47. The receptionist called Daniel at 19.54 to invite him to a face to face consultation at the OOH base with a duty clinician. Daniel explained that he did not feel able to get to the OOH base, and he and the receptionist agreed that the GP would telephone Daniel.
- 2.7.2 Clinician G, Trust 5 doctor telephoned Daniel at 20.10. A detailed description of this consultation, and a virtual transcription taken from the audio recording of it is included in Trust 5’s Clinical Governance investigation.
- 2.7.3 Trust 5 has a “Three Strikes” rule which has the purpose of setting out the requirement for there to be “a face to face clinical review in the context of continuing concern or deterioration”. The written policy states that: “if a patient ..... makes three or more contacts by telephone with a health care professional..... during an acute episode of an illness without a clear diagnosis and treatment plan being made, then that patient must be offered to be seen face to face. This can be at a Primary Care Centre or as a home visit.” However, the Trust 5 report presents a different version of the policy .... “that is, if a patient is presenting for the third time in a short period of time with the same complaint, is strongly recommended that a robust face to face re-assessment must be undertaken and the original diagnosis and/or treatment plan be reconsidered. This includes presentations to other providers in other settings”.
- 2.7.4 Clinician G has written a statement including personal reflection concerning this consultation. His statement is based on a review of his written notes, a review of the consultation audio recording, and a shared review with “a senior and trusted colleague, herself a GP trainer”. Clinician G made no reference in this statement to the “Three Strikes” rule, but only “I made note of his previous contacts with the OOH service”. He also said that he is “almost, though not absolutely, certain from memory that I referred to” the previous OOH consultation notes, and that “it is my usual ....practice to review previous OOH consultation notes”. He does not

- make any reference to the content of NHS 111 handover notes, or to Clinician F's findings.
- 2.7.5 In his written statement Clinician G noted that during the consultation he told Daniel that "I didn't think I was going to be able to give him an exact diagnosis. When Daniel went on to ask about the cause of the altered sensation in his legs and back (they "don't feel right") Clinician G said, "I can't honestly tell you is the truth". Further on in his statement Clinician G having concluded that "there was no obvious need for a further face to face assessment or change in management .... at that time", went on to state that "I felt the most likely cause was an ongoing mild systemic viral illness".
- 2.7.6 In his written statement Clinician G noted that he concluded his consultation with Daniel saying, "we would have to see how things went, but that he may need to speak to his own GP the following day if things progressed or weren't any better". In his reflection he noted that both his colleague mentor and he feel that this safety netting "could/should have been better including specific symptoms that might herald acute deterioration and fell short of my usual fastidious approach".
- 2.7.7 In his reflection Clinician G made reference to some of the cognitive biases described in the Trust 5 report, in particular of placing undue reliance on the outcome of the consultation by another clinician earlier that same day. He also recognised that his assessment of Daniel was "tainted" by his previous experience of other patients using OOH consultations to seek a second opinion. He noted that Daniel was "yawning a lot during our conversation and possibly I mistook this for indifference".
- 2.7.8 He noted that he should have explored Daniel's expectations of the service further.
- 2.7.9 Clinician G discussed the case with a colleague mentor who commented that she "would not have thought of the eventual diagnosis in listening to the history".
- 2.7.10 In his evidence to the Coroner, Clinician G talked about the clinical information handover from NHS 111 referring to it as "generally not very useful" and admitting that "I don't generally look at...(its content).. too much". This evidence further reinforces the conclusion in my report that the communication between NHS 111 and Trust 5 at a meaningful inter-clinician level is sub-optimal.
- 2.7.11 Clinician G said that his working diagnosis was a "mild systemic viral illness .... perhaps not quite the same" as sinusitis.
- 2.7.12 Clinician G has indicated that he recognises the limitations of a telephone assessment compared to a face to face consultation when referring to his interpretation of Daniel's yawning.
- 2.7.13 Clinician G's evidence to the Coroner indicates that he is aware of and has reflected on some of the cognitive biases that may have been at play.
- 2.8 Call to NHS 111 Wednesday 22<sup>nd</sup> June**
- 2.8.1 Daniel's condition continued to deteriorate throughout the course of the next day, and his behaviour was noted by his family to be strange. Daniel's brother Daryl visited Daniel late that afternoon and his girl-friend phoned NHS 111 at 17.40. She described to the Health Adviser (HA) that

he was “half unresponsive, just lying on his back”. The HA used the NHS Pathway “Behaviour Change” and arrived at a disposition of contact a primary care service within 12 hours. The caller replied that she really felt that an ambulance should be sent, and it is now clear that this was absolutely the right thing to do.

- 2.8.2 The HA made a decision to pass the call over to a clinical adviser (CA). The outcome of the CA assessment was that an ambulance should be despatched to arrive within 30 minutes.
- 2.8.3 The CA passed on the ambulance request at 18.07. A paramedic crew arrived 13 minutes later at 18.20. The crew found Daniel to have a reduced level of consciousness, GCS 11 – 13, with a slow heart rate and slight weakness on his left side. They transferred Daniel to A&E at Trust 3 under emergency conditions with a pre-alert to the receiving hospital.
- 2.8.4 The Trust 2 Investigation Report acknowledges the mistakes made in the events described above.

## **2.9 Attendance at Trust 3 Wednesday 22<sup>nd</sup> June**

- 2.9.1 Daniel arrived at Trust 3 A&E at 19.19. He was assessed by, Clinician H, at approximately 19.30. His clinical record was not written until approximately 21.50. He noted the 6-day history of headache, the previous diagnoses and assessments at A&E and the GP surgery, the history of onset today of strange behaviour, and shaking and twitching of Daniel’s arm. He recorded a GCS of 14 and found him to have bilateral up-going plantar reflexes. He made a working diagnosis of encephalitis / meningitis, prescribed intravenous antibiotic and antiviral, and ordered acute investigations including a CT brain scan. At some point, time not specified, Clinician H looked at the CT scan images and reported “looks grossly normal”. It is clear that he told Daniel’s relatives that he “couldn’t find anything on the CT scan”.
- 2.9.2 The CT (Scan 1) was reported by Clinician J, radiologist at 20.59 as “there is acute haemorrhage within the anterior interhemispheric fissure... suspicious for a ruptured anterior communicating artery aneurysm. No intra parenchymal or ventricular extension noted. No hydrocephalus. Hypodensities suggestive of oedema seen in the adjacent frontal lobes..... recommend urgent neurosurgical review.” I have not been able to establish when or how these findings were communicated to the admitting team looking after Daniel.
- 2.9.3 Daniel’s clinical condition further deteriorated immediately after the CT scan. At 21.30, Clinician K was called to the resuscitation area by the nursing staff. Daniel’s GCS had been noted to have dropped from 13 to 9 over the previous 15 – 20 mins. Clinician K noted that no notes were available from Clinician H’s earlier consultation. Clinician K reviewed the CT scan report and noted the diagnosis of likely SAH. They set a second intravenous line, repeated blood tests, called the anaesthetic registrar to undertake intubation and ventilation, and called the medical registrar for advice on next steps.
- 2.9.4 The medical registrar, Clinician M, telephoned the on call medical consultant who advised that Daniel be referred to the on-call neurosurgery team at Trust 4. Clinician M spoke to the neurosurgery registrar, Clinician N, who accepted transfer of Daniel to the neurosurgery unit, and advised

- Clinician M to instigate their “SAH protocol” – 30-degree bed rest, slow fluid, intubation and IV nimodipine. This notes entry was timed at 22.25.
- 2.9.5 Clinician P, an A&E Consultant and Chief of Medicine at Trust 3 gave evidence to the coroner. She had reviewed the clinical records but not discussed Daniel’s care with any colleagues and was not directly involved in his care. Her evidence was confined only to the attendance on Wednesday 22<sup>nd</sup> June.
- 2.9.6 Clinician P suggested in response to a question from the coroner that the CT scan finding of “acute haemorrhage” indicated that the haemorrhage was “recent” and “certainly within days”. She went on to state “that its more likely than not that the (aneurysm) rupture occurred earlier afternoon of the same day, the 22<sup>nd</sup>” she replied, “I think it is very possible”. She discussed with the coroner the possibility of “sentinel bleeds” accounting for Daniel’s history over the preceding days and suggested that his history could be “consistent to some extent” with this. (This was not supported by the expert neurologist evidence presented later in the Inquest proceedings).
- 2.9.7 Clinician P said that Daniel’s CT scan took place at 20.09, and was reported at 20.59, and explained that this is a normal reporting interval. The report was viewed by the A&E clinician at 21.30.
- 2.9.8 Clinician P confirmed that Clinician H did not make contemporaneous records, but took immediate steps, coming back into the hospital to write his notes. The Court heard that the delay in writing clinical records had no negative impact on Daniel’s care, however the department has taken this opportunity to remind staff of the importance of contemporaneous note keeping.
- 2.10 Care at Trust 4 Thursday 23<sup>rd</sup> June onwards**
- 2.10.1 Daniel arrived at Trust 4 just after midnight on 23<sup>rd</sup> June. The ambulance had been requested at 23.00. It is therefore assumed there was nothing to be gained in terms of time, by using the air ambulance on this occasion.
- 2.10.2 He had a further CT scan (Scan 2) and angiogram at 02.05. This scan was reported as “no significant change in the volume of SA haemorrhage. A single ACOM aneurysm with evidence of vasospasm. Evidence of generalised cerebral swelling, and some suggestion of early developing ischaemia within the right ACA distribution.” This means that the volume of bleeding had not changed but there was some swelling of the brain and suggestion of reduced oxygenated blood supply on the right-hand side.
- 2.10.3 At 09.30 approximately the clinical team entered him into a clinical trial of an experimental drug SFX-01 (Evgen Pharma). The consent form has been signed by a “Legal Representative”.
- 2.10.4 The team continued to treat Daniel according to the hospital SAH treatment protocol, but his condition deteriorated further, he became less responsive with a slow heart rate. The clinical team ordered a further CT scan at 14.05 (Scan 3) to investigate his deterioration. This scan showed no evidence of re-bleed but worsening of the other changes identified on Scan 2 meaning that his brain was continuing to undergo increasing irreversible damage.
- 2.10.5 Daniel’s clinical condition continued to deteriorate throughout the course of the next 24 hours. A Do Not Attempt Cardiopulmonary Resuscitation

(DNACPR) form was completed with his family's consent at 20.43 on 23<sup>rd</sup> June.

- 2.10.6 On Friday 24<sup>th</sup> June, at 17.04 Clinician Q concluded an assessment of brain stem function, and made a diagnosis of brain stem death, in other words, that the extent of irreversible damage to Daniel's brain was now such as to be incompatible with life.
- 2.10.7 I have asked the Clinical Director with responsibility at Trust 4 a number of questions about the care that Daniel received, and in particular I have put the questions raised in Donna's letter, to him. He has not responded to any of these questions but referred me instead to the Trusts responses to Coroner's questions.
- 2.10.8 Daniel was taken to the operating theatre on 25<sup>th</sup> June where a number of organs were removed for organ transplantation procedures.

## **2.11 Additional Evidence**

- 2.11.1 The independent neurology expert opinion presented in Court and supported by the neurosurgical evidence also presented in Court, is clear that Daniel suffered a single intracranial bleed, either right at the beginning or at some stage within the first few hours of symptoms. The delay in diagnosis and initiation of the SAH protocol treatment in his case is very unlikely to have made any difference to the subsequent late onset of his cerebral vasospasm and irreversible brain death.
- 2.11.2 The Summary of the Inquest findings is as follows:  
Medical cause of death:
  - 1a. Subarachnoid Haemorrhage
  - 1b. Rupture of Aneurysm of Anterior Communicating ArteryDaniel Benfield died at Trust 4 on 24<sup>th</sup> June 2016 at 17:04 having suffered a subarachnoid haemorrhage. He did not present with the typical thunderclap headache which is characteristic in the great majority of such cases. Despite being seen and spoken to on the phone by several different clinicians, an accurate diagnosis was not made until nearly 6 days after he first became unwell, by which time it was too late for any form of effective surgical intervention or treatment to be offered to him. It is, in any event, not possible to say with any degree of certainty that the outcome would have been significantly different even if he had been diagnosed sooner. The conclusion of the coroner as to the death was natural causes associated with a subarachnoid haemorrhage.

## **Section 3: Commentary on Individual Episodes of Care**

### **3.1 Response by Trust 2 to call on Friday 17<sup>th</sup> June**

- 3.1.1 The NHS 111 adviser made an appropriate decision to transfer to 999 dispatch. The dominant symptom was vomiting, accompanied by abdominal pain, diarrhoea, headache, photophobia and a variable history of difficulty with breathing. There is a history of alcohol and marijuana consumption within a few hours of the onset of symptoms.
- 3.1.2 There is an unexplained discrepancy in the reviewed evidence about the prominence of the headache symptom. The call handler at NHS 111, Daniel Benfield – Final report March 2019.

Donna Benfield and subsequent reports cite this as the most significant feature along with vomiting, but the paramedic's account suggests otherwise.

- 3.1.3 A blood pressure reading of 150/90 in the context of vomiting and being in pain does not in my opinion give cause for alarm. The omission of a record of pupil examination is a minor incidence of poor practice since it is highly unlikely that there would have been any pupil abnormality. The omission is more significant if the reason is intolerance of light. It would have been better practice for the paramedics to record whether the patient could tolerate the light of the pen torch.
- 3.1.4 A working diagnosis of acute gastroenteritis based on the paramedic's recording of history and findings is understandable, although examination of the Patient Care Record (PCR) does not reveal a clear description of Daniel's headache. Whilst it is noted that a headache can accompany gastroenteritis, in this case where the headache was identified as a major symptom one would expect a more detailed headache history and examination to be documented. An explanation has not been provided for the discrepancy in symptoms recorded by the paramedic against other reports which cited headache and photophobia as prominent.
- 3.1.5 The paramedic crew (Clinician A) gave self-management advice for gastroenteritis and safety netting to seek further help if symptoms did not resolve within 24 hours. Daniel sought help approximately 32 hours later.
- 3.1.6 A working diagnosis of acute gastroenteritis based on the paramedic's history and findings is understandable, although examination of the Patient Care Record (PCR) does not reveal a clear description of Daniel's headache. Whilst it is noted that a headache can accompany gastroenteritis, in this case where the headache was identified as a major symptom one would expect a more detailed headache history and examination to be documented.
- 3.1.7 The paramedic crew (Clinician A) gave self-management advice for gastroenteritis and safety netting to seek further help if symptoms did not resolve within 24 hours. Daniel sought help approximately 32 hours later.

### **3.2 Contact with NHS 111 on Sunday 19<sup>th</sup> June**

- 3.2.1 The NHS 111 clinical adviser has used the appropriate clinical pathway for headache and actioned the appropriate disposition to attend for a base face to face consultation in primary care. It is notable that the clinical adviser has recorded that Daniel's headache was not of sudden onset.
- 3.2.2 Clinician B has recorded a very limited history relating only to the site and radiation of pain. She has carried out an appropriate examination. Overall, although her record keeping is not of the highest quality, her assessment of Daniel's condition and her record keeping was satisfactory Her diagnostic conclusion was however incorrect. This may be because of various elements of cognitive bias.
- 3.2.3 Although Clinician B initially provided a very brief statement and reflection on her actions, containing some factual errors, she has subsequently provided evidence that she has reflected extensively on her involvement in Daniel's case, has taken steps to read up on and improve her understanding of sub arachnoid haemorrhage, and has discussed the case with her clinical mentor.



### **3.3 Contact with NHS 111 and Trust 5 on Monday 20th June**

- 3.3.1 Daniel's call was appropriately triaged to a disposition of urgent / within two hours primary care advice. No record has been found that he was advised to go to A&E at this time.
- 3.3.2 Notwithstanding the IM's findings, I am unsure what impact the issues identified would have had on altering the disposition outcome, and even if they had led to a disposition for conveyance to A&E, in the light of subsequent events it seems unlikely that this would have made a difference to the outcome.
- 3.3.3 Clinician C acted appropriately and in a timely fashion.

### **3.4 Attendance at Trust 3 A&E on Monday 20<sup>th</sup> June**

- 3.4.1 The documentation of this consultation is very brief. Clinician D's evidence to the Court reported that his history taking, and assessment of Daniel was satisfactory. He stated that he did consider more serious causes of headache but discounted these on the basis of the history and overall clinical findings; he has indicated that he nevertheless was holding some uncertainty about the diagnosis he had made.
- 3.4.2 The basis upon which the diagnosis of sinusitis was made is not clear from the account given. The symptoms and examination do not correspond with those commonly found in this clinical scenario. This could represent an example of wellness bias in operation: to make an atypical headache fit a benign diagnosis.
- 3.4.3 It remains indisputably the case that Clinician D made an incorrect diagnosis, but the assessment made at that time did not suggest that anything more serious was going on and therefore no further investigation was requested.
- 3.4.4 Clinician D has stated that as a result of Daniel's case he is likely to have a lower threshold in future for ordering a CT scan in patients presenting to him with headache.
- 3.4.5 He has provided appropriate treatment for a diagnosis of sinusitis, even though this proved to be an incorrect diagnosis.
- 3.4.6 Clinician D explained that he used the period of extended observation in the department and the subsequent follow up review to "look for absence of deterioration", and in the context of no deterioration, to discharge. It would be better practice to use that opportunity to consider whether an alternative diagnosis had been missed and if any further investigation is required.
- 3.4.7 Clinician D has not indicated that in telling Daniel that his diagnosis was a viral infection / sinusitis, he shared any of the doubt indicated in para 3.4.4. This is particularly significant given the lack of connectivity between clinical systems currently within the NHS.
- 3.4.8 Clinicians often do not have sight of another clinician's clinical reasoning processes and must rely on the patients' account of events up to that point of contact. It is therefore important that the clinician shares any uncertainty of the diagnosis with the patient in the form of clear and specific safety netting advice.

### **3.5 Consultation in GP surgery on Tuesday 21<sup>st</sup> June**

- 3.5.1 Clinician E recorded a limited history of Daniel's symptoms, and in particular there is no evidence that she took a history about the onset of his headache. She has not conducted any neurological examination apart from the pupils and has not examined him for evidence of meningism. She has used a subjective finding of nasal redness and implied inflammation, to reinforce the previous diagnostic assumption of sinusitis. Redness of the nasal passages is not recognised as a relevant examination finding in the context of sinusitis, nor is the finding of no wax in the ear canals indicative of any pathological process. I therefore do not understand the clinical reasoning that led Clinician E to make a diagnosis of sinusitis.
- 3.5.2 It seems clear that Clinician E did not include any serious cause of headache in her differential diagnosis and reached a poor diagnostic conclusion. She appears to have given inappropriately high credence to Clinician D's previous diagnosis of sinusitis.
- 3.5.3 Clinician E's treatment plan is appropriate and reasonable for a patient with sinusitis. However, her clinical reasoning to advise paracetamol and ibuprofen, having already noted that co-dydramol and naproxen (a paracetamol based drug and ibuprofen-like drug) were making him feel worse, is questionable.
- 3.5.4 Her reported comment about waiting three weeks (before any further investigation of headache) is simply not correct in the context of headache of acute onset. The inquest transcript suggests that she was referring to a diagnosis of sinusitis.
- 3.5.5 The raising of a screen message alarm by the practice receptionist is an example of notable good practice on the part of the GP surgery team, suggesting that the surgery values the involvement of whole practice team, although it is unexplained and unfortunate that Clinician E delayed coming out to find Daniel until the next consultation had finished.

### **3.6 NHS 111 & Trust 5 consultations on 21<sup>st</sup> June**

- 3.6.1 The NHS 111 system appears to have worked effectively in respect of this episode. The algorithms have picked up that something potentially serious is happening.
- 3.6.2 The Clinical Adviser (Clinician F) in this case has appropriately and correctly identified that Daniel's symptoms are not suggestive of a stroke, that the previous working diagnosis of sinusitis is incorrect and that the one constant feature is headache.
- 3.6.3 It seems to me that Clinician F is the first clinician to correctly spot that Daniel may have serious underlying pathology. Clinician F's careful history taking and thoughtful evaluation is an example of notable good practice.
- 3.6.4 It is good practice that Clinician G has written a detailed reflective personal statement as part of the investigation carried out by Trust 5. He has provided evidence of willingness to both participate in and learn from a serious clinical incident.

- 3.6.5 It is also notable good practice that Trust 5's "Three Strikes" rule has been created and implemented in order to address some of the risks associated with diagnosing and managing acute illness, noting however, that it was not used in this case.
- 3.6.6 Clinician G took a satisfactory history from Daniel and established a history of acute severe headache, and a number of non-specific neurological symptoms. Clinician G was unable to account for all of these symptoms within his working diagnosis of an "ongoing mild systemic viral illness" and it seems likely that he did not consider that Daniel may have a serious intracranial illness. He acknowledges that he allowed himself to be inappropriately reassured by the assessment that had been carried out earlier that day by Clinician E. Clinician G may have misinterpreted one of Daniel's neurological symptoms, excessive yawning, as what he describes as "indifference", perhaps mistaking this for apathy rather than lethargy. These factors contributed to this encounter being managed on the telephone rather than face to face.
- 3.6.7 It is unlikely that a face to face consultation would have resulted in a clear diagnosis of SAH however it would have raised the likelihood that Daniel would be referred on for hospital assessment.
- 3.6.8 It is noteworthy that Clinician G would have had no access to the in hours GP or A&E clinical records, and this represents a system failing and work is underway to address this.
- 3.7 Call to NHS 111 on Wednesday 22<sup>nd</sup> June**
- 3.7.1 It is fortunate that the caller expressed her concern that an ambulance should be called and good practice that the HA listened to the caller's concern, over-rode her Pathway disposition and escalated to a CA.
- 3.7.2 It is good that the CA's assessment led to an ambulance attendance; in this context is understandable that a 30-minute response was requested but wonder whether a more rapid response would have been more appropriate if stroke was suspected.
- 3.8 Acute admission To Trust 3 on Wednesday 22<sup>nd</sup> June**
- 3.8.1 Clinician H correctly recognised that Daniel was seriously ill, made a reasonable working differential diagnosis of encephalitis or meningitis, ordered appropriate investigations, and initiated appropriate treatment for his working diagnoses.
- 3.8.2 Clinician H, as an A&E consultant, might be expected to review CT scan images to exclude gross abnormalities. He incorrectly interpreted the CT scan as being normal, because the changes in this case were relatively subtle. He informed Daniel's family of his findings, thereby falsely reassuring them.
- 3.8.3 There appears to have been delay of 30 minutes in relaying the radiologist's findings of SAH to the clinical team caring for Daniel. This raises questions about the processes in place at Trust 3 for dealing with urgent/serious image findings.
- 3.8.4 Clinician H did not make contemporaneous notes. Clinician P is of an opinion that this had no negative impact, but I suggest that this could have had the adverse effect of making it harder for Clinician K to assess Daniel when they were called after Daniel had further deteriorated.

### **3.9 Care at Trust 4 Thursday 23<sup>rd</sup> June onwards**

- 3.9.1 Daniel's transfer to Trust 4 happened speedily and without incident. His CT angiogram scan, shortly after his arrival, confirmed the diagnosis of SAH due to rupture of a brain aneurysm. It further confirmed that there had been no re-bleed and showed clear signs of swelling of the brain and areas of inadequate oxygenated blood supply.
- 3.9.2 It seems reasonable that Daniel was considered for entry into the clinical trial of SFX-01, a novel agent thought to have properties which might prevent or reduce the spasm of cerebral blood vessels therefore improving the blood supply to the brain.
- 3.9.3 It is evident that Daniel was not competent to consent for this himself. I have reviewed the trial protocol. The trial protocol has been designed to allow for consent to be given by a third party "legal representative". I presume that this may be because it is appropriate to commence the agent at the earliest opportunity, and not to delay whilst consent is sought from next of kin. Over the course of the next twenty-four hours Daniel's brain ceased to be a viable organ and this was confirmed by brain death assessment on the afternoon of 24<sup>th</sup> June.
- 3.9.4 A decision was taken by the clinical team to discuss the issue of organ donation. There were issues of privacy, dignity and incomplete information-sharing in the conduct of this process that have left the family feeling more distressed than may have been necessary and we understand a complaint in this regard has been made direct to Trust 4 by Daniel's family.
- .

## Section 4: Contributory Factors

### 4.1 SAH is a relatively uncommon condition

The incidence of SAH in the UK is reported as 8 per 100000 population per year. This means that the average fulltime equivalent GP will be involved in the care of about one patient with SAH every six years and will be involved in making the diagnosis even less often, perhaps two or three in a professional lifetime. A GP or Nurse Practitioner working in an OOH environment may have a little more frequent exposure.

Daniel had an atypical presentation, and notably did not report a “thunderclap” acute headache. (Although he reported that the headache woke him and the rate of onset would therefore be unclear). Nevertheless, he was a young man, in previously very good health, with very little previous history of accessing health care, who had an acute illness which led him to make six contacts with different parts of the NHS urgent care system before the correct diagnosis was made. It is important to recognise that this represents several missed opportunities, if not actually to make a diagnosis of SAH, but at least to recognise that Daniel had a condition that warranted further investigation. There were a number of incidences of poor clinical practice, but no evidence that any of these were wilful or reckless.

#### Key learning for all clinicians working in a primary care or A&E setting

- SAH is a relatively rare diagnosis, and patients may present without the classic thunderclap headache.
- Frontline clinicians in primary care and A&E settings should have a high level of suspicion in any patient presenting with acute severe headache, especially if there is no previous history of headaches, and where headache is not responding to usual self-care.
- Clinicians will benefit from better education in the science of cognitive bias in the diagnostic process.
- Good record keeping is an essential requirement of Good Medical Practice as defined by the GMC (2013).
- Clinicians should share diagnostic uncertainty and give clear and specific safety netting advice.
- It would be helpful for all clinicians to have an understanding of the principles that sit behind the “three strikes” concept, and that this applies even when patients present to different parts of the urgent care system within the same acute episode.

### 4.2 Sharing of clinical information

There were many episodes of care undertaken by many health professionals from different provider organisations in which their clinical assessments were recorded. However due to the lack of interoperability between the different systems used by providers clinical information was not shared, and there was an over reliance on the patient and family to repeat the history. The urgent care system should explore ways to ensure that when patients present to different organisations, clinical information is more effectively shared. It may have been particularly beneficial for this to be improved between NHS 111 and Trust 5.

### **Key learning**

- The interface between NHS 111 and Trust 5 should be improved to ensure that clinical information is more effectively shared between the two organisations.
- The urgent care system should explore ways to ensure that when patients present to different organisations, information is more effectively shared.

### **4.3 Clinical IT systems**

The NHS pathways system did not pick up Daniel's condition due to the atypical presentation and neither did the system alert for a second opinion given the number of times that Daniel had presented to healthcare professionals.

### **Key learning**

- Within NHS 111, the NHS Pathways software has design deficiencies in respect of atypical presentations.
- Clinical IT systems can be used or modified to increase awareness of and adherence to policies such as the three strikes rule.

## **Section 5: Root Cause**

Subarachnoid haemorrhage secondary to rupture of aneurysm of Anterior Communicating Artery.

## **Section 6: Recommendations**

It is important that the learning from Daniel's death be shared with those organisations involved in Daniel's care and those who have a responsibility for urgent care services.

### **6.1 Publication and distribution of a learning update arising from this case to all clinicians in urgent and emergency care covering:**

- SAH not presenting as thunderclap headache
- Need for high level of diagnostic suspicion in any patient presenting with acute headache, especially if there is no previous history of headaches, and where headache is not responding to usual self-care.
- The role of cognitive biases in diagnostic error
- The importance of good record keeping both as a means of enabling better continuity of care, and as a core requirement of Good Medical Practice, GMC 2013
- The three strikes principle, and its application across the urgent care system
- Safety netting should include open discussion and sharing of diagnostic uncertainty with patients.

### **6.2 The Trust 5 clinical IT system is modified to enable face to face as a default**

response after two previous contacts for the same condition, which has to be consciously over-ruled by the assessing clinician.

- 6.3** The interface between NHS 111 and Trust 5 should be improved to ensure that clinical information is more effectively shared between the two organisations.
- 6.4** The urgent care system as a whole should explore ways to ensure that when patients present to different organisations, information is more effectively shared.
- 6.5** NHS 111 should review their diagnostic software to ensure it is sufficiently robust to detect atypical presentations of medical conditions.

I would like to thank Mr Carl Hardwidge FRCS, Consultant Neurosurgeon at Brighton & Sussex University Hospitals for his expert guidance in understanding the clinical course of SAH, the secondary care of SAH, the interpretation of imaging reports, and the interpretation of acute hospital records.

I would like to offer my apologies to the Commissioner and to Daniel's family for the length of time taken to complete this report. This was caused by the scale and complexity of the investigation itself, and by a set of unexpected personal circumstances.

## References

- Subarachnoid Hemorrhage. Medscape Overview. Tibor Becske. Aug 2016
- Subarachnoid haemorrhage: diagnosis, causes and management. J. Van Gijn & G. J. E. Rinkel. Brain (2001) 124, 249 -278
- Subarachnoid Haemorrhage – Easily Missed Hankey, G. et al. BMJ 2009; 339:b2874

**Inquest report day 2 – p30 – include an appendix the documentation reviewed when compiling this report**

## Investigation team:

- Dr Peter Devlin (MB BS MRCP DRCOG FRCGP), Lead Investigator
- Natalie Warman Deputy Director of Nursing - Patient Safety, NHS England (South East)
- Dr Claire Cochrane-Dyett, Associate Medical Director, NHS England (South East)