

Sheriffdom of Tayside, Central and Fife at Dunfermline

DETERMINATION

of

**Sheriff Ian D Dunbar, Sheriff of Tayside, Central and Fife at
Dunfermline**

in terms of

**The Fatal Accidents and Sudden Deaths Inquiry (Scotland)
Act 1976**

into the death of

DAVID CLARK

who died at 37 Grainger Street, Lochgelly

on 12 May 2007

**Procurator Fiscal Depute Ms Hutchison
For Fife Health Board Mr Hughes, Advocate
For Fife Council, Mr Munro. Solicitor
For Dr Cockayne, Mr Jessiman, Solicitor.**

Dunfermline. 29 May 2011.

The Sheriff having resumed consideration of the Inquiry, in terms of the Fatal Accidents and Sudden Deaths (Scotland) Act 1976 makes the following findings.

In terms of Section 6 (1) (a) that David Clark, born 18 June 1986 died on 12 May 2007 at approximately 01.19 hours within 37 Grainger Street, Lochgelly, Fife.

In terms of Section 6 (1) (b) David Clark died as a result of adverse effects of heroin and methadone.

There was no accident resulting in his death.

In terms of Section 6 (1) (c) the only reasonable precaution whereby the death might have been avoided was if David Clark had not taken heroin after he had been prescribed and taken, under medical supervision, methadone.

In terms of Section 6 (1) (d) there were no defects in any system of working which contributed to the death.

This Inquiry commenced on 13 December 2010 after several days had been lost due to inclement weather. We thereafter sat on 14 December when we required to adjourn to allow a witness to seek legal advice. We resumed on 1 February 2011 and sat on 3, 9, 10, 11 and 28 February and 1 March before a hearing on written submissions on 13 May 2011. I am obliged to all the agents for their contributions and for the focussed approach taken to the evidence and the relevant issues. In the order in which they were called the following witnesses gave evidence to the Inquiry.

Ryan Clark.

Cassandra Clark.

Police Constable Amanda Girvan.

Isobel Donaldson.

Gail Peebles.

Dr Lucinda Cockayne.

Robert Palmer.

Ingrid Pitt.

Police Constable Stewart Davidson.

Collin Seneviratne.

Dr David Sadler.

Dawn Stewart.

Dr Robert Hughes.

Ryan McCallum.

Tracy Turner.

Martin Thom.

Dr Brian Kidd.

Dr William Stephen Waring.

Dr Julie McAdam.

Dr Hazel Torrance.

1. I am obliged to the representatives for their production of written submissions and we concluded the Inquiry with a hearing on submissions on 13 May 2011.
2. The bare facts are in relatively short compass and are not a matter of much, if any, dispute. David Clark was a young man who had a drug problem which, for the most part, manifested itself as an addiction to heroin. It is difficult to know the precise extent of the problem as he himself said different things to different people at different times about his heroin consumption and the cost of his habit. It seems likely that immediately before his death his usage was in the region of £40 per day. He smoked heroin and, from time to time, injected it. Once again what he said about how he took heroin varied and it was of some significance in my view that he declined to allow medical staff to view any potential injection sites.
3. He got into trouble and accumulated a number of criminal convictions. On or around 3 April 2007 he was made subject to a Drug Treatment and Testing Order (DTTO). Such an Order has a number of different elements but one of these was the prescribing of Methadone to stabilise with a view to coming off any opiate drugs such as heroin. In being assessed for his suitability for a DTTO Mr Clark met with a number of members of what has been referred to as the "Drug Court Team". There was some concern about his level of maturity for an order but he was deemed to be motivated. After the order was made he continued with the process which was to lead up to a tolerance test to assess the level of Methadone prescription that would be required to hold him in a relatively stable condition.

He appears to have co-operated with the process although he has given conflicting information about his drug habit. For example he gave different figures for his heroin use and how he used it. He provided samples for analysis. He kept drug diaries. He met with a nurse and an addiction worker in the drug team. Some of the test results were not consistent with his declared usage. His case was discussed at a team meeting and a decision made to go ahead with tolerance testing. The first day of his testing was 10 May 2007 when he was seen by Dr Hughes. He was given 40mgs of Methadone then a further 20mgs and a final 20mgs making 80mgs in total. There are issues in relation to guidelines and the quantities of Methadone given and I will deal with these in more detail shortly. Once the full dose was given he should have seen a doctor before leaving but it seemed he was either not seen or there is no clinical note of that particular appointment. He was, however, taken home by a social worker and Dr Hughes said he was happy that if there was any concern about Mr Clark's condition the social worker would have alerted him. He was not so alerted.

4. The next day Mr Clark was seen by the doctor and was described as not being settled. He was alert but said that he had hardly slept. A urine test was taken and this proved negative for any morphine which suggested there had been no heroin consumption. Amphetamines were detected and that could have explained his sleeplessness. He was given 90mgs of Methadone followed by a further 10mgs making a total of 100mgs. Afterwards he was reported as looking slightly drowsy. He was seen by the Dr Hughes who advised him to be cautious and, having been satisfied it was safe to let him go home, released him. There was evidence that he got the bus home on his own and then later went with Robert Palmer and Palmer's mother to buy heroin. It was Mr Clark who knew where to get the drug and who directed Mrs Palmer to the location. He then left the car and returned a short time later having purchased heroin. Once again I will comment in more depth about this but this behaviour was seen by some of the doctors as crucial in helping reach a conclusion that he was tolerating the Methadone he had been given. They then returned to the flat they occupied at 37 Grainger Street, Lochgelly and Palmer and the deceased smoked some of the heroin. According to Mr Palmer they had 2 x £10 bags which would give them about 20 lines from each bag if smoked. They shared the bags and Mr. Clark had at least 8 lines. He then went to his room and injected some more heroin. When he came out of the room he appeared a bit drowsy and was closing his eyes. This was not something which concerned Mr Palmer as he had seen it before and it was quite normal when injecting heroin. He was however a little concerned that Mr Clark had injected on top of the Methadone he had received. During the evening Mr Clark lay on the settee in the living room and was heard to be making loud snoring noises. Mr Palmer tried without any success to waken him. Mr Clark's brother Ryan came in during the

evening and saw the deceased asleep and snoring. At some point later in the evening he heard Mr Clark make gurgling noises and he noticed that there was "sick" running down his chin and he had apparently stopped breathing. He did not regain consciousness. His brother tried to resuscitate him and the paramedics arrived and continued that process. It was to no avail and Mr Clark was declared dead.

5. On the instructions of the procurator fiscal a post mortem examination was carried out by Dr Sadler and Dr Elizabeth Lim who certified the medical cause of death as "Adverse Effects of Methadone."
6. As will be seen when I reach my conclusions, it is clear that Mr Clark died from the adverse effects of both heroin and methadone. There were, however, a number of issues raised in evidence which it is proper to air even if there was no direct relation between the issue concerned and the death. To that end, therefore, and in the hope that lessons can be learned to continue to improve the provision of a methadone substitute programme it is appropriate that I summarise the evidence given to the Inquiry.
7. **Ryan Clark** is the deceased's brother and at the time was living in the same flat. He returned home around 6pm on 11 May 2007 and found his brother lying on the settee asleep. He said that he had seen his brother in a worse state but with drink. His impression of the amount of heroin the deceased took was significantly less than the deceased self reported to the drug team. Similarly his evidence of heroin use that day and whether it was the first or second day of Methadone tolerance testing was at odds with other evidence. Robert Palmer and Cassie Clark were also in the house and in the course of the evening they went to their respective rooms while Ryan Clark sat in the room with his brother. He later heard David Clark make a gurgling noise, saw what he described as "sick" coming down his chin and he had apparently stopped breathing. He called to Robert Palmer for help and tried to revive his brother but to no avail. The paramedics arrived and worked on David Clark but he was dead and they confirmed it. When asked again about David's heroin habit he admitted he was aware that he both smoked and injected the drug and that he had been using every day. He had given a statement to the police but could not remember it or much of the content of it when it was put to him.
8. **Cassandra (Cassie) Clark** had been the deceased's partner for about a year. She is not a drug user (by that I presume she meant heroin in view of her later evidence about using amphetamine) and in 2007, at the age of 17, she knew little about drugs and was quite naïve. She spoke of him coming back from getting his Methadone at Kirkcaldy and looking "wasted" and said his eyes did not look straight. She said that David and Robert Palmer

went out to get some heroin. When they came back she remembered David smoking heroin. He went out of the room and Robert Palmer found him injecting heroin but she did not see this. David came back into the room and lay down and shut his eyes. He never got up again. She went to bed about 9pm and around 00.30am she was woken to be told there was something wrong. She saw Ryan giving his brother mouth-to-mouth resuscitation and they waited for an ambulance. Police and ambulance arrived and they were told shortly after that David had died. When her police statement was put to her she too had some difficulty remembering what she had said. She conceded that she may have had some amphetamine and she had been drinking. She and David had both taken amphetamine the night before and she had not slept. That ties in with the deceased telling Dr Hughes that he was tired having not slept much the night after his first dose of Methadone.

9. **Police Constables Amanda Girvan and Stewart Davidson** both attended at the flat after the emergency call had been made. They described the scene generally and obtained information from witnesses that the deceased had been given Methadone at the start of his programme and had also smoked and injected heroin during the course of the evening. PC Davidson conducted a brief examination of the body and other than a needle mark which he presumed was from the paramedic's cannula he saw no other signs of injecting.
10. **Isobel Donaldson** is in the ambulance service and had no recollection of attending the locus or of giving a statement to the police. She had, however, read the notes and confirmed she was one of two ambulance personnel who attended shortly after 01.00am. She confirmed that there was no cardiac output, no respiratory effort and fixed and dilated pupils which indicated brain death. CPR was attempted but stopped at 01.19am. She also confirmed that the deceased had been intubated with a view to receiving intravenous drugs. He had been given Naloxone which is an anti-opiate and then adrenalin. Once they had decided that he was dead they completed the paperwork including declaration of death form one copy of which goes to the police and the other is kept with the report.
11. **Gail Peebles** is a forensic toxicology technician and was one of those responsible for the toxicology report (Crown production 2). She stressed that procedures had changed since 2007. At that time blood was analysed for alcohol and a variety of drugs, paracetamol and anti-depressants. Urine was analysed for alcohol and any trace of opiates, amphetamine or the like. In the present case the quantification of Methadone looked high. Forty drugs could be quantified including morphine and methadone but it was not possible to say if

the morphine present came from heroin. After the tests were carried out samples were frozen at -20C. Since 2007 the procedure has changed to allow a wider range of samples to be taken to be analysed for morphine and its metabolites. A urine screen is now thought to be unnecessary. They are also now able to trace a much smaller quantity (of morphine) and the amount in this case would have been caught if the tests were being run today. They can also now distinguish which drug is involved such as heroin. They usually have the police report which might help to determine which drugs may be found.

12. From Production 2 it showed that the blood was negative for alcohol. The general drug screen from femoral blood disclosed Methadone and no morphine was found. There was 1.1mgs of methadone per litre of blood. The urine test disclosed opiates and Methadone. This was only an indicator and would need to be verified. In 2007 there was no procedure to verify. In cross-examination it was suggested that in 2007 the Dundee laboratory was 15 years out of date and she declined to comment. She did confirm that the lab could only confirm down to 0.06mgs of morphine per litre while other labs were 0.01 and now even 0.005. She was not aware that in other jurisdictions the cause of death has been given as a heroin overdose at amounts less than 0.06mgs.

13. **Colin Seneviratne** was the main forensic toxicologist involved in preparing the report. Ms Peebles did the extractions and he did the interpretation to generate the report for the pathologists to interpret the results. The request from the pathologist will usually say what tests were wanted and may also indicate what type of death was involved. There is firstly a general drug screen for commonly prescribed drugs. This will show if there is a therapeutic dose or a larger dose in which case there would be further tests. In this case Methadone was found and was quantitated. In the urine there was Methadone and opiates. The urine sample was further analysed and the opiate was heroin. He explained that he was also doing what he called a trial at the time where the methods were not then standard and the results could not be confirmed. It was the trial that disclosed opiates. That it had been found was in the report sent to Glasgow in November 2009. It is now accepted practice and he can say if morphine is found in urine if it has any markers of heroin and should therefore be looked into further. He did not put the information about finding opiates in his report for the pathologist as it was a pilot scheme.

14. There was no opiate in the blood sample. The practice was to look only for morphine as there was no test for heroin but heroin becomes morphine once in the system. There were markers of heroin in the urine. In urine there was also a positive test for amphetamine but he did not report it as there was putrefaction and it could have been a false positive.
15. He was cross-examined further about his pilot scheme which was new to Dundee but he had used it for three years while at the City Hospital in Birmingham. If this work had been

done in Birmingham there would have been a report that opiates were present. Before he could say that in 2007 in Dundee there needed to be 0.625mgs/litre of blood. He claimed not to be aware that other labs could detect 0.01mgs/litre. He agreed that the only way noscapine and monoacetylmorphine could get into the system was through heroin and that he did not tell the pathologist he had found either. It seems that the results from his pilot may have been on the file but he could not tell if the pathologist looked at it.

16. **Dr Lucinda Cockayne** is a consultant psychiatrist specialising in addictions. From 5 May 2007 she was clinical lead in Fife Health Board for Fife Addiction Services. That involved working with persons addicted to alcohol and drugs, mainly opiates. Production 4 is the procedure which was in place for tolerance testing when she arrived. She was not sure why her name was on it as she had no part in its preparation. The purpose was to see people safely initiated on to Methadone. The version before the court was an amended version which was not in place in May 2007. She was also referred to NHS production 4 the author of which was Dr Baldacino. This suggests an initial dose rarely exceeding 20 to 40mls then a follow up of 5 to 10mls. She regarded that as a "procedure" which ought to be followed rather than a "guideline". She spoke of the procedures involved to help establish tolerance and suggested there was a narrow therapeutic safety limit between a therapeutic dose and a fatal dose.(of methadone). It was important that there was a clear picture of what the patient had taken and honesty on the part of the patient was key. Generally two tests were taken to show the presence of drugs, either urine or oral fluid. If the patient is injecting the tolerance to opiates will be higher and he/she may need 80mls to stabilise. It was key to find this out and also to ascertain if there was any other condition which might affect metabolising such as hepatitis. If there was a suspicion of injecting she would expect there to have been an inspection of injecting sites although it was common for there to be a refusal to comply. That would result in an assumption that the patient was injecting.

17. In 2007 Dr Cockayne was surprised at the rapidity of the repetition of the second dose of methadone. It takes 72 hours to assess the response and before it was fully in the system. In 2007 the patient would see the key worker 3 or 4 times before a 2 day test. If there were any doubts about suitability for tolerance testing it was discussed with the doctor. She believed David Clark had gone through a comprehensive check and the key worker had accumulated all the evidence she could, it would be for the doctor to decide at a clinical meeting if testing would go ahead. She then went through NHS production 4 and spoke to the various stages involved. At 4.2.1.6 it states that doses should not exceed 100mls and then only for patients on a prescription, not for tolerance testing and a consultant should document in detail why the dose was being given.

18. Dr Cockayne had arrived in Fife within a week before Mr Clark's death. She immediately pulled tolerance testing and introduced community titration. Tolerance testing was labour intensive and many more patients could be treated by titration. In production 4 she confirmed that the initial dose could be up to 40mls but should rarely exceed 20mls. 40mls was not for the methadone naïve patient who would typically get 20 to 30mls. A patient receiving from 40 up to 100mls was not being prescribed as per the protocol. If receiving up to 80mls then provided doctors knew the history and the patient had previously had methadone, they may prescribe but it should be noted and clearly explained.
19. Topping up the first dose hourly would not give enough time to assess how methadone was affecting the system – that needed 4 hours. The protocol suggests monitoring for 30 to 60 minutes before allowing the patient to leave but she would want someone who has been given three doses to remain longer. One hour after 80mls in a naïve patient was not long enough. She stressed however that it was part of the patient's contract that they should not use anything after they leave and that is stressed to the patient as methadone would have a cumulative effect with other drugs.
20. She then spoke about day 2 when the doctor would have some idea if the dose given on day 1 was adequate or too high or low. The first week is the most dangerous in tolerance testing. If the dose is too low there is a danger of topping up with heroin. If a doctor decided there was no sign of withdrawal on day 2 then what had been given might be an adequate dose. In this case he was given the same dose as day one then increased. Even in the methadone naïve it was not uncommon on day 2 to give 80 up to 100mls. If what was given was more than was on the protocol she would expect it to be documented with reasons why it was done. The key change in the move to community titration was the reduced amount given on day 1 and then the 72 hour gap to day 2. There was also a limit of 1 additional dose on day 1. Even though tolerance testing was not "authorised" it was still in use and she was only prepared to allow it if it could be done safely. She did not consider the earlier procedure safe and she was not happy that the protocol was being used as a guideline rather than a procedure. It was not being followed in a way that a "procedure" should be followed. Mr Clark's death resulted in her stopping tolerance testing completely. She had never experienced a death initiated by methadone. She tended to assume that all patients would continue to use drugs during the first few days but the 2007 procedure expected them to change their behaviour before testing which she believed was unrealistic.

21. With community titration there were many smaller increases to get to the correct level, possibly 5mls x 3 times a week. That gave 2 to 3 weeks of slow increments. The guidelines for that in Fife followed national guidelines. In 2007 that was what prescribing GPs would do but now the guidelines cover both GPs and addiction services. There is however a wide variety of opinion about how methadone should be started.
22. With regard to Mr Clark she was concerned that the patient was noted to be drowsy. She would have assumed that either the dose given was too high or he had been using during tolerance testing. If he had taken drugs on top of methadone then there was increased risk. Reversal agents could have been given for drugs causing drowsiness. The nurses said he had been re-assessed and it was felt he had improved. The procedure does not give enough guidance on what is to be done if a patient presents as intoxicated or drowsy. She felt that should have been a medical decision and the document was not worded strongly enough. She was aware from the Notes that Mr Clark was drowsy but she would have expected more than 4 lines in the Notes. There should have been notes on pulse rate, blood pressure, respiratory rate, why he was drowsy and whether it was due to methadone. If he was drowsy he was over-sedated and should not have left. Where there is a reference to "discuss with Dr Hughes" she would have expected to see what was discussed.
23. The assessment had been quite good. The form for opioid withdrawal symptoms was not helpful for detail but it contained a standard withdrawal checklist. The drug diaries are based on the patient being truthful and they disclose that on 17 April he had injected heroin. The assessment form for the Drug Court discloses that he said he was not injecting and had not injected for 2 years. He also said he was not injecting but then referred to using new equipment. There was, therefore conflicting information throughout the assessment. On that basis the staff should have assumed he was injecting especially as he refused to have sites inspected. The notes by the drug team were quite comprehensive. Tolerance testing was then the only route into treatment. The risk was that patients were not told how much they had been given and if they did not know that and took more drugs the risk increased and the toxic level would be even higher.
24. In cross-examination she conceded that some people favoured tolerance testing and did so for legitimate reasons. Her own opinion was that it was unnecessary and a risk especially where it was being used with inadequate resources. Her method uses smaller doses over a longer period and she accepts that a patient will use drugs. It can be dangerous especially if using heroin or benzodiazepines as these drugs decrease respiration. On top of one another they could stop the respiration system completely.

There were dangers no matter how it was prescribed as one could not know the quantity or quality of the heroin being bought on the street.

25. She was then taken to Crown production 10 and the part dealing with once only medication. She explained it needed two clinicians unless the other person was authorised to dispense. She identified the signature of Dr Hughes and that of a nurse before saying it was her signature against an entry at 12.25/12.30pm for 20mls of methadone. She said it was not in accordance with procedures at which point her evidence was stopped to allow her to seek some legal advice. When we resumed on 1 February 2011 Mr Jessiman appeared on behalf of Dr Cockayne. She began by being taken over details of her experience before being appointed in Fife. She came to Fife as a consultant psychiatrist in addiction in May 2007 and was tasked with looking at policies and procedures. She accepted that at that time there was a national debate ongoing between the merits of tolerance testing and community titration and that there was no right or wrong way to do it. When taken back to 10 May 2007 she had no memory of being at Whyteman's Brae where tolerance testing was done nor could she remember signing the prescription although she must have done so. On looking at the Withdrawal Symptoms Checklist (production 10 p54) she noted there were still moderate withdrawals so it was reasonable to prescribe more methadone.
26. In answer to Mr Munro she confirmed that it was not tolerance testing as such she was against more the way it was carried out, the total dosage of methadone over two days and apparent variations in procedure. She was concerned that Mr Clark had received a safe dose and also if he was told what dose he had been given. She also confirmed in re-examination that she would have been aware when she prescribed what he had already been prescribed. Finally in answer to me she confirmed that Mr Clark would not have known the quantity of methadone given although there was evidence he was aware in general terms and he had also been given a prescription to take to the pharmacy which would have been a reasonable indicator. She did however confirm that it was high risk to take methadone and heroin.
27. **Robert Palmer** was a friend of Mr Clark and they lived together in Mr Palmer's flat. He was aware that Mr Clark had gone the day before he died to get his first dose of methadone. He confirmed that Mr Clark took heroin, sometimes smoking and sometimes injecting. On 11 May 2007 he recalled Mr Clark coming back from the testing and suggesting they get some heroin. Mr Palmer telephoned his mother who gave Mr Clark and Mr Palmer a lift to Dunfermline, near the police station. Mr Clark, having told the driver where to go, got out of the car and was away from the car for about 10 minutes

while he got drugs. They returned to the flat and shared the heroin. They smoked most of two x £10 bags and Mr Clark took the rest to his bedroom and injected it. He seemed all right for a few minutes then began "smacking out" something Mr Palmer had seen before and which happens when people inject heroin. He was not worried about Mr Clark. Mr Clark had told Mr Palmer that he had been given 110 or 120mls of methadone and was quite drowsy although that may have referred to day one. He was concerned that Mr Clark was drowsy and said he should not have injected. During the evening Mr Clark lay on the couch making loud snoring noises. Mr Palmer tried to waken him but could not do so. When Ryan Clark arrived later he asked what was wrong with his brother and Mr Palmer replied he was "out of his nut". He was woken by Ryan at about 01.00 and was told that David Clark was not breathing. He got up and checked him then called emergency services. He said that he and Mr Clark had talked about taking heroin on top of methadone but Mr Clark had insisted he would be all right.

28. **Ingrid Pitt** works for Fife Health Board Addiction Services as a team leader who looks at operational issues, development and liaison with responsibility for about 20 staff. In 2007 she was a senior addictions nurse with a case load and 5 nurses to provide treatment. She was familiar with tolerance testing and spoke of the requirements in the run up such as assessment of the type and amount of drugs used, patient drug diaries, monitoring use by urinalysis which helped to substantiate drug diaries. The named nurse, in this case Dawn Stewart, would explain what the testing was about, the process itself and the expectation the team had of what the client would do. The team, through the key worker, would need to know if there were any allergies, any previous interaction with methadone, any substance being taken and any prescribed medication. They would also look at motivation. There would be information given about methadone, the importance of not using other drugs or alcohol as well and the importance of honesty when looking at drugs taken. This was reiterated on the day of tolerance testing. It was important because of the risks involved when given a first dose of methadone. The risks of using on top of methadone were made known from day one all the way through, during tolerance testing and throughout the process. It was put in terms that the danger was overdose leading to death.
29. She was part of the team when David Clark was to be tolerance tested and she spoke to procedures over the two days. She spoke of the audit trail both in the testing team and the pharmacy for the methadone prescribed to any individual. From the productions and her memory there was nothing amiss with what Mr Clark had, he had been given an appropriate dose and the top-up was also appropriate. When pressed on educating patients of the dangers she mentioned the methadone handbook but could not explain

why Mr Clark's was still on the file and unsigned. She had no concerns about Mr Clark. Dr Hughes had noted that education had been done.

30. **Police Constable Stewart Davidson** was one of the officers who attended at 37 Grainger Street on 11 May 2007. He had been told of the visit to start methadone that day and a figure of 100mls was mentioned. Both Ryan and Cassandra Clark had mentioned that David had taken heroin by smoking and by injecting. He examined Mr Clark's body for signs of violence and there was none. He saw no sign of needle marks apart from the IV drip which the ambulance personnel had put in.
31. **Dr David Sadler** is a pathologist based in Dundee since 1990. He prepared the post mortem report (production 1). The main information he received would be the police report from the Procurator Fiscal. This was a two doctor post mortem with a full external examination, full autopsy examination, examination of the organs and samples taken for histology and toxicology. In his first report the cause of death given, "Presumed drug related", is provisional only with the final cause coming after the histology and toxicology reports. In the first report the medical cause of death is provisional and the best guess was that the death was drug related. He was aware Mr Clark was on a DTTO but did not mention in the history that he was on methadone. He was guided by the police report which mentioned heroin misuse. The toxicology report would come with quantification attached and the pathologist would then interpret the results in light of history etc and prepare the final report. Production 2 was the report he received. If need be he could have accessed the toxicology files which were kept in the same area but he said he would not understand them. He was aware that methods (in toxicology) were changing and new methods were being introduced but he could not say what was happening at that time. He saw little purpose in looking through a file. He may have done so if the findings were unexpected in relation to the history.
32. The second report shows the same cause of death but it shows there was 1.1mg/litre of methadone which rang an alarm bell. He thought this might be a dangerous level. A therapeutic concentration would be 0.5 to 1 mg/litre. Fatalities have occurred at 0.4 to 1.8 mg/litre so the difference between therapeutic and fatal levels of methadone is much the same. 1.1mg/litre could be either a therapeutic or fatal dose depending on the person and the tolerance. It could also be affected by the cocktail effect of one or more drugs being taken in addition to methadone causing a reaction which will give a lethal level. There is always danger that there are drugs which are undetectable or untraced. With a new or naïve methadone user there was a higher risk in the first few days until tolerance is built up. It becomes complicated if there is a cocktail. Tolerance to one opiate does not

necessarily mean there will be tolerance to another. Tolerance is variable both from person to person and within an individual.

33. When samples are taken from living addicts, the levels found are from circulating blood and therefore quite reliable. On death the drug levels will alter and drugs will redistribute. Therefore post mortem blood tests can never reflect the level in life; it can go up or down. If he had been made aware of the presence of noscapine or 6 MAM it would have added weight to the suggestion that Mr Clark was taking heroin the day he died. It was possible that the drug level was different at various parts of the body. If he had taken heroin on the day he died he would have expected to see some in the blood. Therefore everything he had pointed to death being due to the "adverse effects of methadone" as stated in the final post mortem report.
34. Dr Sadler was cross-examined at length about his findings and conclusions. He said that if there was any heroin present it would be less than 0.625mg/litre. If it was at that level, in the absence of methadone he felt it was unlikely to cause death although he was aware that lower levels have been given as the cause of death. He agreed that methadone was lipophilic, i.e. it had an affinity for fat and can leach out after death. If it leached into the blood it could affect the post mortem blood analysis. Heroin was converted into other substances after injection including noscapine or 6MAM. He felt there was quite a good history in the police report stating drugs had been taken and the rough times they had been taken. There was a reference to heroin about 4pm and that Mr Clark was up and about. The half life of heroin is short compared to the half life of methadone and any heroin could have been metabolising before death. If he had been aware there were opiates in the urine and not the blood he may have looked again but it was not there so he got on with the report. He was surprised to find out later that there was morphine in the blood. He could not recall speaking about it with the toxicologist. He was aware that toxicology had found heroin but could not confirm it. He agreed he could have asked about it but the findings in the toxicology report were not so surprising as to seek an explanation. He agreed that the cocktail effect of taking heroin and methadone could be fatal.
35. He described the report as a summary report, not a full technical report which was not requested. The whole post mortem process is recorded on tape and that tape is the full report. Tapes were generally retained for 18 months and where the death might lead to a Fatal Accident Inquiry maybe longer. In this case it was kept for two and a half years before being destroyed. He was taken to the toxicology report produced for Fife Health Board (production 6) and agreed that if he had seen these results his conclusion would

have been that cause of death was "Adverse effects of methadone and heroin" although he accepted too that the substances could be mentioned the other way round. He did however disagree with the second conclusion on page 8 and said that many methadone deaths occur during sleep. If the highest risk was at the time of peak concentration most deaths would occur in the afternoon.

36. In Dundee there are now new detection techniques which allow detection to a much lower level. The figures for heroin here would now be discovered and disclosed in the course of toxicology tests.

37. **Dawn Stewart** is a member of the community drugs team in Kirkcaldy but in 2007 she was an addictions nurse in the forensic drugs team. She described the whole process in general and went through many of the forms which were used. She spoke also to many entries on Mr Clark's file. He had said he smoked heroin but there was no way of checking or confirming quantities. He denied injecting in the past month but refused to give permission to inspect injection sites. She was not concerned at that as she could revisit the subject once the nurse/patient relationship had developed. Initially a urine test or, if he could not pass urine, an oral fluid test would be taken at every appointment. An action plan was drawn up and discussed at the clinical meeting. Mr Clark was asked to keep a drug diary and record what he had, where, when and with whom. There was stress on the need to be honest. There were positive tests for heroin yet there were also negative tests which could not be right if he was declaring a steady, daily use. Ms Stewart was concerned and reported back to the clinical team. However, from all the information available to them it was decided to progress him to tolerance testing and the need for honesty was once again stressed to Mr Clark. There was education about other drugs and stress placed on the high risks of using anything else while taking methadone. He was also told that the process takes 4 days and he should not take other drugs or alcohol during these days. She was not at his tolerance testing but she did discuss it with Dr Hughes as the negative samples did not add up. Some of the discussions with Dr Hughes had not been noted. She undertook further education with Mr Clark including discussion of the handbook. She was sure that he understood. Ms Stewart last saw Mr Clark on 8 May 2007.

38. In cross-examination she said that oral fluid tests were notoriously unreliable. She said that from March to May she would have gone over on a number of occasions the risks of poly drug use and the risks of using on top of methadone. He would have been clear about the risks. He was quite intelligent, not silly and had potential and insight. He was very anxious and frightened of failure. She was taken through some productions relating

to the assessment done for court before he was put on a DTTO. There was a comment showing concern about his maturity and age but she did not know who had these concerns. She had seen patients drowsy after receiving methadone. Mr Clark was tested "blind" but he left with a prescription so would know the amount he was getting.

39. **Dr Robert Andrew Hughes** is based at Ward 5 of the Victoria Hospital, Kirkcaldy and he assesses patients for suitability for substitute prescribing for dependence on opiate drugs. He has been doing this since 1990. In 2007 he was seconded to the Drug Court where he did that assessment, initiated prescribing and reviewed patients periodically. He did not recall Mr Clark all that well but remembered discussions at clinical meetings.
40. Tolerance testing in 2007 was a means to try to get a patient on the correct dose of methadone as quickly as possible. All patients were discussed at clinical meetings and if the patient had other problems Dr Hughes would see him. The information for the meetings came from assessments by the nursing staff including the key worker for the patient. These meetings were attended by medical and nursing staff only but he said that if any social worker wanted to come he or she was welcome to do so. The nurse would normally write up the notes, whether or not the patient was ready for tolerance testing, if Dr Hughes was to see the patient etc. Once the decision was taken to go to tolerance testing he would see the patient, do the first observations and discuss current drug use in case it had changed. The decision to proceed was a collective one based on a number of factors; the assessment had to be completed; how much he was currently using; whether using anything other than heroin; any obvious contra-indications such as mental health disorder; the level of motivation.
41. There was guidance as to dosage of methadone in a number of publications and one consideration was how much heroin was being taken and how it was being taken. That was part of the assessment. Testing was sometimes delayed by a week or two to complete more drug diaries and for more testing. That testing would tell the drugs used but not the quantity.
42. On the day of the tolerance test the clinical file is available along with information from the nurse. His memory of David Clark's use was that it was £40 a day but £40 to £50 was discussed at clinical meetings. The amount any patient took would vary depending on their finances and the availability of heroin. The point of the test was to give a patient a dose of methadone and see the effect it had. It may or may not support what the patient says he is taking. Most patients were started with 20 to 40mls depending on the view of the treating doctor who, in David Clark's case was Dr Hughes. He agreed that in the first

Protocol there was written 20mls as a first dose. Mr Clark had said he had last used heroin the day before by injecting, something he had been noted as doing before. Dr Hughes also said that Mr Clark had told him and the nurses confirmed that he had said that he sometimes smoked and sometimes injected. That information was not in the notes. At the tolerance test a set of observation were taken and the opioid withdrawal checklist done in an attempt to assess the degree of opiate withdrawal but that would be affected by the heroin the previous day at about 15.30. He was then given a dose of methadone.

43. The protocol was being revised at the time and Dr Hughes used it as a guideline rather than a protocol. He agreed with what was in the protocol at the time of writing (1992/1993 but he later agreed the dates were wrong) but then he had no clinical experience of tolerance testing. He was aware that a draft review was taking place but not the detail of the review. When referred to NHS production 4, he confirmed that "methadone naïve" meant someone who had not been prescribed or had taken methadone before. Some of the criteria were not relevant for a Drug Court case. The initial dose would be decided by Dr Hughes. The methadone for tolerance testing was diluted to half strength and the patients were not told how much they were getting (blind titration). The patients find out how much they are getting at the end of day 2 when they get a prescription. Once the first dose was taken the patient would sit in a room to see how he reacted. He was supervised at all times. Where it says the initial dose should be 40mls and 20mls in a methadone naïve patient, the dose would be prepared to a volume of 50mls and he tended to follow that accurately. A standard hospital medication chart was completed and signed (production 10 page 60) and this shows 40mls given even though David Clark was a methadone naïve client. The observation sheets show he was in a bit of discomfort. He was showing a degree of significant withdrawal and therefore it was justified to go beyond 20mls. The reasoning for this was not in the clinical notes. There is no entry in the notes for 10 May and he could not explain that. Most patients would get 30 to 40mls as an initial dose. If the patients were to be kept comfortable then they had to be given that amount.
44. After the first dose he was monitored and repeat observations done which suggested continuing withdrawal so a further 20mls was given. They would expect to see some effect in 1 hour although the peak effect was not for 3 to 4 hours. They did not have time to wait 3 or 4 hours and there has never been a problem with this practice. The protocol suggests a second dose of 5 to 10mls. Dr Hughes thought he needed 20mls but no reasons appear in the notes. He was monitored for an hour and another set of observations was taken. He was not then seen by Dr Hughes who thought he was seen by Dr Cockayne. A third dose of 20mls was given and that was not a dose he decided on.

When he became aware of the third dose he was surprised and he would not have given it as looking at the observations he was not sure he needed it. By that time Mr Clark had gone. He would go with the usual warnings about not taking anything and the risks involved. There is no note of the third dose or how Mr Clark looked when he left. He had been taken home by a social worker so there was some confidence that if there were any concerns the social worker would have got in touch. After the final dose the peak time would be 3 to 4 hours so the risk would last for that time. Patients are told repeatedly during tolerance testing that they should not use anything beyond what they had been given.

45. Day 2 is a repeat of day 1 and observations were done. At 09.05 he was not settled but seemed quite alert. He did say he had not slept. A urine test was taken and he denied he had taken any drugs. The test was negative for 6MAM although amphetamine was detected (which could have explained the lack of sleep). Given what had been prescribed on day 1 and Dr Hughes' gut feeling that he had used overnight he would have been kept under close scrutiny. At one point an addiction worker said she thought Mr Clark looked sedated. Dr Hughes checked him and he did not appear sedated. The notes show titration to 100mls and education done. He is noted as "slightly drowsy" but that should have been "reported to have been slightly drowsy". It also says "advised to be cautious". Dr Hughes reinforced what had been said about the dangers of using on top of methadone.
46. Dr Hughes thought on day 2 that Mr Clark was still in a degree of withdrawal and originally thought that as much as 120 to 130mls might be needed. He considered the dose from day 1 and Mr Clark was quite bright and alert so he may have been over-hasty in concluding he had been given too much on day1. He therefore gave 90mls as a first dose. An hour later Mr Clark was still a bit agitated and not feeling right, blood pressure was raised, he was sweating and had muscle twitching all objective signs of withdrawal. Therefore he elected to give another 10mls. He had assumed the reported heroin use of £40 a day was true. Dr Hughes was asked further about the protocols and described them as "useful" but guidance especially for those with little experience. In 2007 no one was monitoring tolerance testing procedures and there was no check if standard procedures were being followed. There was no audit system. If the protocol was rigidly adhered to a lot of patients would not get the right dose of methadone. Time constraints are also important. He has never felt that tolerance testing was unsafe and still does not think so even though it is now not done a lot. Dr Cockayne decided that it was too time consuming and twice as many patients could be seen if standard titration was adopted. Mr Clark was given a the second and final dose of 10mls after further observations were done and he was still showing signs of withdrawal.

47. After that dose Dr Hughes saw him, gave him his prescription and reinforced the message about being careful and not using other drugs. He said it was a high dose of methadone and to be very careful. A final set of observations was done; pulse rate and blood pressure had come down. Dr Hughes was concerned about drowsiness so examined Mr Clark and having done that did not remain concerned. The education process tells them to phone if they experience drowsiness. At production 10 page 34 there is a note on advice but there is no note elsewhere. He accepted that he could have written more in the notes. He did not learn of Mr Clark's death for about a week. He was not aware of a review of tolerance testing after the death; he has never had a death on tolerance testing. He was surprised there was no immediate follow-up to the death as in most drug related deaths that is what happens. Since the death the system had changed and there is much less tolerance testing and, when it happens, the lead clinician has to agree to it. Now, the same calculation of what a patient may need is carried out and after assessment by medical staff the patient is given a prescription to take to the pharmacy which would typically be 40mls for 4/5 days the 50 for 4/5 days until the desired level was being reached. Patients will continue to use until they feel comfortable and may, therefore, end up on higher doses of methadone than they would before. He has seen up to 200mls of methadone on community titration yet still positive tests for opiates.
48. He could not remember if Mr Clark had been given the handbook but he should have been and it should have been noted. Where there was a reference to "education done" more often than not the handbook was given on day 2.
49. In cross-examination Dr Hughes said that safe and effective prescribing of methadone cannot be assured. It was controversial but had many beneficial effects such as reduction of criminal activity, decreased mortality through misuse, a reduction of disease (where not injecting) and improvement in all round well-being. The aim of tolerance testing was to stop use of opiates on top of methadone quickly whereas community titration accepts there will be continued heroin use. Methadone can give a high, like heroin, but not to the same extent and its purpose is mainly to cancel withdrawal effects. David Clark seemed motivated. Methadone has a longer half life than heroin to allow the next prescription to be taken before withdrawal. Heroin is now cheaper and more readily available and patients are taking much more than they did 5 years ago. There were, however, inconsistencies in the reports of the amount David Clark was taking. The oral fluid tests can only detect opiates for about 36 hours whereas a urine test will detect them for up to 4 days. Nurses preferred oral fluid as it was difficult to get someone to provide a urine

sample in front of someone. Patients were asked not to use from about 5 pm on the day before tolerance testing.

50. There are a number of indicators of overdose of methadone but drowsiness is not usually the first. There can be slurred speech and staggering. Neither of these was brought to the doctor's attention and when he saw Mr Clark his speech was normal and he was walking normally. If he was able to go home on day 2, go out, buy heroin and go home and use it sounded as if he was quite well orientated. The difficulty with the protocol is that it does not allow for clinical judgement. Doctors would deviate from the protocol using their clinical experience. When the protocol was written (by Drs Hughes and Baldacino in 2002/03 and not as earlier stated) neither had much experience of tolerance testing and they were over-cautious. The protocol was often disregarded for the first dose. When considering Mr Clark's readings and observations on day 1 he thought the level of withdrawal was moderately severe so 40mls was chosen as the first dose. He thought somewhere between 90 and 110mls would be needed to stabilise. Dr Hughes was surprised that systolic blood pressure had gone up but there was still some withdrawal hence the second and third doses. The next day there was some withdrawal and he clearly needed some methadone. By 10.35 am he was worse hence the second dose and after the third dose he was significantly better. He was comfortable with the level of prescribing and surprised to find out that Mr Clark had died. He did not see how it could be due to methadone unless he had acquired illicit methadone. He thought it more likely that he had taken heroin. Having said earlier that he was not sure if the third dose was needed on day 1, Dr Hughes revised his view when he saw Mr Clark at the beginning of day 2 and thought there was neither too much nor too little. It was not an exact science with many variables. He seemed surprised until looking at the notes while giving evidence at the number of oral fluid tests done. That testing was relatively new and if the specimen was not collected in the correct way there could be erroneous results. A negative result could be due to this. He agreed that there were unanswered discrepancies between tests and what Mr Clark had declared he was using and that the noting was not always as good as it might have been. There were items missing which could and should have been there. He would not have been surprised if the methadone handbook was in Mr Clark's file as there were often 2 or 3 left behind after "education". He conceded that there were times when the relationship between the social workers and the clinical team supervising Drug Court orders could have been better. Nurses felt they were disregarded. He said he was not privy to information on social work reports re tests and that concerned him.
51. **Ryan McCallum** is a member of the Drug Court supervision and treatment team and he was supervising David Clark on his DTTO. That involved monitoring compliance, preparing

court reports for reviews, risk assessment, case discussions with other team members and ensuring Mr Clark could comply by helping with matters like Housing Benefit etc. The assessment took place and involved a number of team members. He was deemed suitable and an Order was made. There were some concerns about his maturity but Mr McCallum said although he was young he found that he complied and wanted to change. He had no concerns regarding maturity or motivation. He spoke of some clashes between the social work and clinical members of the team. They came from different backgrounds and he thought the clinical team too punitive in, for example, withdrawing prescriptions when other drugs were being used on top of the prescribed methadone. His evidence tended to illustrate the fact that the two sides perhaps had different goals for a DTTO and different views about how they were to interact with each other. That is not, however, something which played any part in Mr Clark's death. At the time of a review Mr McCallum remained happy with compliance and had no concerns or worries.

52. On day 1 he recalled collecting Mr Clark and taking him for tolerance testing. He thought he had overslept and looked a bit sleepy but he was talking in the car. On day 2 he picked him up and he seemed fine. He had called at the house on 14 May as he had agreed to help Mr Clark with some forms but there was no answer to the door or his mobile. He was concerned and more so when he realised the prescription had not been collected. He was told of the death by someone in the Sheriff Clerks' office. He was surprised that 100mls had been given as most clients got only 50 to 60mls.
53. His criticism of prescriptions being withdrawn seemed to be that the patients generally needed more time to sort themselves out and continued to use. Mr Clark was reporting to him use of 0.2grs per day which in 2007 would have been 2 x £10 bags. He had seen the clinical notes where it said current use was 0.8grs and £40 per day but he had reported different levels at different times. He was aware of use "spiralling out of control" at some points and of injecting. Misreporting of the amount taken was very common amongst users. Mr McCallum was asked specifically if Mr Clark needed a Drug Court order. He had failed previously with the community drug team. Mr McCallum did not attend clinical meetings although he could have done. The practice had developed and there was the clash between the two sides. He had reinforced to Mr Clark in the build up to tolerance testing the danger of using on top of methadone and the risk of overdose.
54. **Tracey Turner** is now a Criminal Justice assistant and was previously an Addiction Worker and she was Mr Clark's addiction worker. She did part of the assessment of Mr Clark. He was highly anxious but motivated and suitable for a DTTO. She saw him on 18 and 25 April then again on 3 May when he was still anxious about how to function. There

was no further contact. She was told by Ryan Clark on 15 May that David Clark had died. She was aware of the differing usage declared by Mr Clark. She was critical of the fact that social workers were apparently not encouraged to go to clinical meetings as she felt she had most contact with a client and could have added something useful. She said that clients tended not to know their levels of tolerance and that Mr Clark knew at a meeting on 3 May of the dangers of using on top of medication.

55. **Martin Thom** was, in 2007, the team manager of the Drug Court support team. After Mr Clark's death he was asked to do a case file review to ensure all procedures and policies were accurate. He asked the clinical team if they wished to be part of the review and they declined saying they would do their own review once he was finished with the files. He formed a working group and they went through social work, clinical and addiction worker files. He expressed a number of concerns many of which have no direct bearing on Mr Clark's death. He was critical of some of the record keeping in the social work files although he confirmed that the work of the addiction worker was exactly what was supposed to have been done. He was concerned at the attitude of the NHS to his review and how social work and clinicians had different views about how an Order should be delivered. He accepted things had changed for the better and there was now more discussion and consultation. He commented on the fact that the last noted positive test was 24 April. The notes on reported use did not make sense against other notes on the file. He was concerned that what he termed the "whole pack" was still on the file including the methadone handbook which should have been handed to Mr Clark. He went on to make a number of criticisms and concerns none of which had any direct bearing on Mr Clark's death.
56. In cross-examination he made it clear his review was procedural only and was not a review of clinical procedures. Where he criticised it was mainly record keeping not the treatment as such and his conclusion was that record keeping was poor. He accepted when questioned that there were one or two minor errors in parts of his report, for example missing out "slightly" when referring to Mr Clark being "drowsy" or not knowing where the use of "heavily sedated" came from. He then said that if a patient seemed sedated he was not allowed to leave and kept until a doctor saw him and declared him fit to go home. However, he accepted that Mr Clark had seen a doctor and was then sent home. I had some difficulty seeing the relevance of that part of his evidence.
57. **Dr Brian Kidd** is a consultant psychiatrist and academic who specialises in addiction and he was asked to look at the clinical care. He had access to the NHS case records, the Fife Protocol and the national guideline. He was not personally experienced in tolerance testing

but Fife was part of a network in Tayside and from that and working alongside Dr Baldacino he had some understanding of what went on. He was not sure the national guideline was that in use at the time and practice had changed a lot since the last guideline in 1999.

58. The service was managing a large volume of individuals and the appropriate way to note care is with a contemporaneous note but there was much bespoke paperwork so discussion tended to be lost. Usually a summary of what was discussed or decided was noted. When asked to look at some of the summaries of clinical meetings he commented that they did not contain the detail he would have expected. There were uncertainties about what discussion had gone on or what was behind decisions. The oral fluid test of 3 May which is shown as "negative to all" should have triggered alarm bells and there is no record of a discussion with Dr Hughes which would have been useful and should have been there. There were no notes for 10 May, the first day of testing. He would have expected matters from 8 May to be noted and that issues had been sorted. It was not unusual to get inconsistent oral fluid or urine tests and they should not be used in isolation. At a tolerance test the first dose can increase risk for up to 2 weeks. At that time Fife was the only area using blind prescribing. With regard to the amounts of methadone given, he would have expected more notes and he regarded it as a very rapid increase in methadone. His maximum on day 1 has been 60mls in 4 or 5 cases at most. He was very surprised to see so much being prescribed. The protocol was comprehensive and conservative therefore he was surprised at the rate of increase in prescription.
59. On day 2 given what was noted he would be surprised if Mr Clark was perceived as requiring more treatment. At 10.35 the note does not suggest that there are worsening withdrawals. Based on what was recorded there were no alarm bells that the patient was undertreated. In the protocol it is accepted that there has to be clinical judgement built into the guidelines but if there is no record of what the clinical judgement is based on, it was hard to comment. He had never witnessed 80mls per day. The national guideline was no more than 30mls and the Fife guideline was 20 + 20mls maximum. He could not find in the notes why the decision to move more rapidly was taken. Commenting further on what was given, he would have expected a note regarding withdrawals etc before prescribing another 20mls x 2 although the decisions on day 2 would be based on the judgement of those assessing. If he was "reported to be drowsy" and then checked, that does not give a sense of a risk situation. The UK guidelines of 2007 agreed a conservative approach to initial prescribing, over 2 to 4 weeks as the risk of premature death increases in weeks 1 and 2 then lowers a lot. The guidelines are more directed to GPs who prescribe and

"experts or specialists" may choose to do it differently. It was a matter of clinical judgement.

60. His concerns were note keeping which, because of procedures and protocols, was becoming harder. Contemporaneous notes capture the nuances of discussion but everyone is very busy so there is a tendency to default to filling in the boxes.
61. In cross examination he said that he had done hundreds of tolerance tests but his tests were done differently, over a number of weeks. He may increase more rapidly but that would be a matter of clinical judgement. His ceiling dose is usually 40mls on day 1. He was aware of the view that doses of methadone can be dangerously low because it increases the possibility of sourcing illicit drugs. The use of heroin on top of methadone can be dangerous. When he says in his report that there is no record of IV use, he says it because during assessment Mr Clark keeps saying he is not injecting however when taken to entries showing he did inject, Dr Kidd conceded he may not have seen the entries. If he had been aware of IV use his report would have been different. He did not regard the conversion chart or the price list contained in NHS production 4 as particularly helpful. Clinical judgement is paramount but his preference would be to see the patient. If he had social work records or the information that Mr Clark's habit was "spiralling out of control" that would have been helpful. In conclusion, he was not sure if he should comment on Dr Hughes' statement that he had treated many people in the same way and had no deaths. He knew of no expert opinion in favour of rapid titration but he also knew of people being undertreated. He believes there are hazards associated with rapid increases and therefore prefers a conservative approach. He was sympathetic to the view that Dr Hughes might play "catch up" if small doses were building up and the patient used heroin as well.
62. **Dr William Stephen Waring** is a consultant physician at Yorkhill Hospital, Glasgow and has an interest in toxicology. He had been asked to prepare a report (NHS production 1) and to comment on the amount of methadone ingested, concerns raised by drowsiness, the relevance in relation to the death and reports of illicit drug use against laboratory findings showing no heroin. He had, since preparing that report, been made aware of a further toxicology report which disclosed the presence of heroin metabolites. His conclusion was –
63. *"Illicit heroin use would be expected to have had a far greater effect in Mr Clark due to the prior administration of methadone, and I believe that this is the explanation for opioid toxicity and death in this case. Methadone administration alone did not cause sufficient toxicity as to have been life-threatening in this case, however, its administration*

exaggerated the effects of the heroin that Mr Clark might have anticipated. This unfortunate case illustrates the potential for continued illicit drug use in patients receiving methadone treatment even when under specialised supervision, and the processes used for tolerance testing should aim to take this into account."

64. The picture was of ongoing substantial illicit drug use on top of methadone and the timing of that use was in keeping with the time of death. On day 2 Mr Clark would have had peak concentration of methadone from 1 to 5 hours after receiving 90mls, between 10.30 and 14.30. The later administration of 10mls would have only a minor effect. In a healthy young man the peak time would be 2 to 4 hours. The methadone given the day before had no apparent ill-effects. Dr Waring had seen patients with methadone excess or opiate toxicity on the back of methadone. The duration can be longer with heroin but the symptoms are similar. The symptoms can be reversed by administering other drugs. Drowsiness is subjective and, on its own, does not indicate opioid toxicity. If Mr Clark took heroin on top of his methadone it would have a much greater effect on him than if he had taken it without methadone. Taking the two was one of the main causes of death of those on methadone programmes especially if heroin use remained at the previous level.
65. Dr Waring regarded the doses of methadone here as quite high and he himself was familiar with slower titration. It was, however, reasonable to give higher doses especially as there was a supported environment with experienced staff, good monitoring and a contract signed not to use opiates. He was intrigued by Dr Sadler's theory that most deaths like this happen in bed. He has never come across it and can find no evidence to support it. At best it is anecdotal. When asked to comment on NHS production 4 (the protocol at the time) he said the purpose was to introduce consistency into clinical practice yet still leave room for clinical judgement. Guidelines are used in a lot of fields but it is common to deviate due to individual clinical factors or the individual patient. If the price of heroin on the street had changed the table in the production should have been monitored. A starting dose for stabilisation is a broad guide for use and detoxification is where someone has become stable. While the dose of methadone by itself could have been fatal the addition of heroin was what, in his view, had caused death.
66. **Dr Julie McAdam** is a consultant forensic pathologist in Glasgow and was asked to comment on the post mortem report which she described as a summary rather than a full report. Her department would provide a provisional report which had more information than here, then, when histology and toxicology were available, a final report. A post mortem report should be capable of comment by another pathologist. She said that Dr Sadler's practice was to keep reports on tape and a final report was not done unless asked

for by the Procurator Fiscal. After a period of time the tape would be erased. She regarded that as unacceptable practice both to her and the Procurator Fiscal in Glasgow. Eye witness accounts are very important and here they said that heroin had been consumed. Dr Sadler had that information yet toxicology showed no heroin in the blood. That would have surprised Dr McAdam and she would have had the tests repeated. She would also have enquired for opiates in the urine. Just to say "opiates" is not helpful as it could have been morphine, noscapine, heroin or simply codeine. 6 MAM is a clear indicator of heroin use. It was worth going back and asking questions. If it was only methadone that was a cause she would be concerned for the doctor who had, in effect, prescribed a dose that killed the patient.

67. She was referred to NHS production 6 and said it was obvious to her that blood, urine and vitreous blood needed re-testing. Her lab had equipment which could detect lower levels than Dundee. Levels themselves mean nothing but the fact that drugs were there at all was important. Her conclusion at page 8 was that the cause of death should be given as *"1a. Heroin and methadone intoxication."* It was splitting hairs to put the substances the other way round. Given the circumstances of the death the methadone alone would not have killed him. It was the fact he had taken heroin on top that killed him.
68. Both heroin and methadone act on the respiratory system by depressing it. Breathing is shallow and if it becomes shallower the patient can go into a coma and die. The two have an additional and a cumulative effect. On re-analysis of the tissue from the post mortem histology, she found morphine in the blood and 6 MAM in the urine and she could conclude that the morphine in the blood was from heroin. She could find no scientific basis for Dr Sadler's suggestion that the most dangerous time (for a methadone user) was when he was asleep. The most dangerous time is when he is at peak level. If feeling drowsy he may go to bed and, therefore, die in bed. What her lab found fitted what was known of the circumstances of death. She agreed that if there was earlier medical intervention there was a better chance of survival and also that the peak danger for Mr Clark on day 2 was between 10.30 and 14.30.
69. **Dr Hazel Torrance** is a forensic toxicologist and was asked to look at the analysis of the samples. She re-tested part of the toxicology for opiates and methadone although she would have been more specific about "opiates" which she described as a general term which could include, for example, codeine or a prescription drug. It is possible to identify specific opiates. Heroin breaks down into metabolites, 6 monoacetylmorphine (6 MAM) so it must have come from diamorphine. If found in Mr Clark's blood he must have died

relatively soon after taking heroin. Noscapine is found in the poppy that heroin derives from and 6 MAM can be found in prescribed diamorphine.

70. She referred to her report (NHS production 7) and said that there are difficulties in working with post mortem blood as there can be variations. The differences are small, not major. Where there is a reference to "preserved" that means some preservative has been added. She found morphine in all three blood samples, urine and vitreous humour. In Dundee the samples were negative in blood and positive in urine. Her lab can detect morphine down to 0.01mg/litre where Dundee could detect 0.0625mg/litre which she found quite high. In preserved blood the figure was 0.08 which is above the Dundee level but there is no reference in the report. That could be explained by the length of time between the two analyses.
71. 0.625 is a significant level in blood. There could be several hours between injecting heroin and death. Morphine is breaking down and can, post mortem, show low levels but it is still significant in causing death. The fact there was 6 MAM in urine and vitreous humour suggests recent ingestion. 6 MAM in vitreous humour comes from blood and stays in the blood for 2 to 3 hours after injection which indicates that Mr Clark had injected 2 to 3 hours before death. It was hard to say if the concentration of methadone alone would have caused death. There is a huge range of methadone concentrates found in deaths. Methadone is lipophilic which can mean that after death it may leach out and go to different parts of the body giving abnormally low or high levels. Both heroin and methadone are central nervous system depressants. Each can depress the respiratory system so together they pose a greater danger.
72. The Dundee test on urine is a screening test which will give a quick result. She uses a more specific and accurate test which produces semi-quantitative results. She was puzzled that if Dundee found morphine in the blood in their pilot it was not disclosed. She felt there was a moral duty to report any findings. When she looked at NHS production 8 which was the Dundee toxicology case file she saw that on page 10 there was information about the circumstances of Mr Clark's death. That is useful in that it informs what happened before death and, therefore, what may be found in the blood. If she had been doing the work she would have questioned the result and asked for the tests to be repeated but their methods were not sensitive enough. The toxicology could clearly affect a pathologist's conclusions.
73. She commented on the nature of the equipment in Dundee in 2007 and compared that with other centres in Scotland. Her own lab equipment is much more sensitive; it is an accredited lab under ISO 1725 and individual methods are also accredited. Edinburgh and

Aberdeen both have accreditation but she was not aware if Dundee had accreditation. 0.01gs/litre is now standard. She sees a lot of heroin deaths and the concentrations can vary. The methadone in Mr Clark's blood was 0.72 which equates to 0.96 as calculated from plasma which she described as a high therapeutic level.

Submissions

74. The parties all prepared and lodged detailed written submissions which I, and I am sure the other agents involved, found very helpful. I would thank them for the care and the detail in these submissions. On 13 May 2011 there was a brief hearing on submissions. Ms Hutchison said she had nothing to add to her written submissions. Mr Hughes said the same. He agreed that note taking was an issue but if the question was did that have any contribution to Mr Clark's death, the answer was no. He urged caution when dealing with the evidence of Mr Thom. His criticism of communications between social workers and health professionals was not put to these health professionals and, in any event, what he had to say bore no relation to the death. Mr Jessiman repeated his suggested findings and commented on Mr Munro's suggestion regarding titration rather than tolerance testing. There was no evidence to support that suggestion. Under section 6 (1)(c) the only finding that should be considered is that the deceased himself was aware of the dangers of taking methadone and heroin together yet he did so. It may have been a reasonable precaution for him not to have done so. Finally, Mr Munro said that the concentration of methadone was high. Some of Mr Thom's evidence related to differing views on stopping methadone which had nothing to do with the death. As far as record keeping was concerned, that would not necessarily have made any difference.

Conclusions

75. May I begin by extending my sympathy to Mr Clark's family and close friends many of whom attended the Inquiry and listened with great dignity to what must have been very difficult evidence concerning his death. The death of a young person is often tragic and is certainly a very difficult, sad and emotional time for family and friends. David Clark died over four years ago and I have no doubt that his family has asked throughout that time why and how he died. The immediate answer on the death certificate was that he died of an overdose of methadone and, unsurprisingly, that caused them and probably others to

query what had happened at the beginning of his Drug Treatment and Testing Order which caused an apparently fatal dose of methadone to be administered. What became apparent over the many days of this Inquiry was that death was not caused solely by the prescribed methadone. The fact that Mr Clark had taken heroin shortly after he received his second dose of methadone meant that the combination of the two was the likely cause of death. Had the presence of heroin, which was clearly in Mr Clark's blood and other samples and tissue, been detected and/or reported when the post mortem was carried out then the cause of death might have been more accurately stated and we may not have needed to have this Inquiry with all the emotional upset for the family and the considerable cost involved.

76. The purposes of a Fatal Accident Inquiry are clearly set out in the *Fatal Accidents and Sudden Deaths Inquiry (Scotland) Act 1976* and it is for the Sheriff to make a determination setting out the following circumstances of the death so far as they have been established to his satisfaction:-

Where and when the death and any accident causing the death took place

The cause or causes of death and any accident resulting in the death

The reasonable precautions, if any, whereby the death and any accident resulting in the death might have been avoided

The defect, if any, in any system of working which contributed to the death or any accident resulting in the death

Any other facts which are relevant to the circumstances of the death.

77. It is important to note that a Fatal Accident Inquiry should not go beyond its remit. It is not a public enquiry into all the circumstances pertaining to drug treatment or tolerance testing although certain aspects of these have a bearing in this case. It is not an exercise to find or attribute fault. The object is to look at **all** the circumstances surrounding a death with a view to ascertaining the cause of death, whether it could have been avoided, whether there were any defects which contributed and any **relevant** facts and circumstances relating to the death. In making their submissions the parties were, in most respects, agreed as to where and when Mr Clark died and as to the cause of death. The procurator fiscal depute suggested that under section 6(1)(b) the cause of death should be "adverse effects of methadone and heroin". Mr Hughes for Fife Health Board suggested that cause of death should be "heroin and methadone intoxication". Mr Jessiman said that the cause of death should be the combined effects of heroin and methadone. Mr Munro for Fife Council suggested that the cause be the "adverse effects of heroin and methadone". From the evidence available there is no doubt that death was due to the combined effects of heroin and methadone.

78. While not directly pertinent to the death it is appropriate to comment on the omission of heroin from the original post mortem findings. There are a number of things I find puzzling and possibly even disturbing about the original post mortem findings and the toxicology investigation. It seems to be accepted that when a pathologist is preparing to undertake a post mortem examination a primary source of evidence of the circumstances surrounding a sudden death is the police report. In the present case the police report, apparently, referred to the fact that witnesses had stated that Mr Clark had taken heroin in the hours before his death. That knowledge seems to be accepted by Dr Sadler. The absence of any reference to opiates in the toxicology report is, therefore, puzzling although perhaps explained by the fact that in 2007 the detection level in the Dundee lab was much higher than it is now or than what seems to have been the industry standard (0.0625 as against 0.01). Nevertheless, cross-reference with the police report would have disclosed the apparent anomaly and begged the question that heroin had been taken so why was it not present in the toxicology? Dr Sadler does not seem to have considered that point. Mr Seneviratne knew what the police report said and did not comment on the lack of opiates in what I might call his standard test.
79. Equally puzzling is the fact that in the course of carrying out tests for what he termed the pilot study Mr Seneviratne found traces of opiates yet still did not mention this to Dr Sadler. He seemed to think that as the results could not be verified he should not disclose them. The results were in the working file yet Dr Sadler was clear that it was not normal practice to look at the toxicologist's working file. The fact is that the information that both noscapine and 6 MAM were present in David Clark's urine was not brought to the attention of Dr Sadler when he was determining the cause of death. That is regrettable but it has no direct bearing on Mr Clark's death but it may well have had a bearing on what Dr Sadler inserted as the cause of death. What it has meant, however, is that Dr Hughes and the other members of the DTTTO team involved in Mr Clark's case have had hanging over their heads for four years the possibility that over prescribing of methadone might have caused his death. With the benefit of hindsight we can see now that there were shortcomings in both the capability and practice of the forensic pathology and toxicology services in Dundee in 2007 and these were spoken to quite clearly by both Dr McAdam and Dr Torrance. The Inquiry heard that standards have increased and the detection capability has improved which has to be a good thing. However, the layman might expect that forensic services should all be working to the same procedures and standards. From the evidence it seemed there is some doubt if Dundee has ISO accreditation. If it does not it would be a positive and beneficial step if it took steps to be accredited in the same way as the other Scottish laboratories.

80. There was much evidence about tolerance testing and community titration and the benefits and dangers of each method. There is no doubt that Mr Clark was on a high dose of methadone particularly for one described as methadone naïve. Dr Hughes has much experience in the administration of methadone and has undertaken hundreds of tolerance tests. The rationale is that if a patient gets a sufficiently high dose of methadone to "hold" him, he may not be tempted to top up with illicit drugs, especially heroin. When someone is being considered for a Drug Treatment and Testing Order (DTTO) there is a rigorous assessment process which involves both medical staff and social workers. The need for honesty is stressed to the client. Motivation to change is tested. Compliance with drug tests is monitored. Social needs are considered. Only after that assessment will one be recommended as suitable for a DTTO. It is then for the court to decide if any individual should be placed on a DTTO. Once on the order assessment continues with further urine or oral fluid tests to establish what drugs are being used. The tests cannot tell the quantity being used and the DTTO team have to rely on the individual's honesty in declaring the extent of his use. Drug diaries are kept to establish what and how much is being used and how it is being used. There are meetings with medical staff and different social work staff. There is much education about what is involved in undertaking a tolerance test before receiving a prescription for methadone. In particular the dangers of continuing to use illicit substances, especially heroin, are stressed regularly. It is perfectly clear from the evidence of a number of witnesses that these dangers were spelt out to Mr Clark by different people on numerous occasions. I am quite satisfied that he was well aware of the danger.
81. Much was made of the fact that there were guidelines in Fife and nationally about starting patients on methadone. These guidelines suggested that much lower levels be used and that increases should take place slowly over longer periods. There was discussion with various witnesses about what a guideline meant. What was the difference, if any, between a guideline and a protocol which is how the Fife practice was termed? Unfortunately there was no real answer. The Fife protocol has now been updated and there is little tolerance testing now done. Dr Cockayne arrived in Fife only about a week before Mr Clark's death. She was more accustomed to community titration over a longer period and that was what she made the Fife practice very soon after Mr Clark's death. She accepted that one of the dangers of that method is that clients will continue to use heroin and it is more difficult to get them on a stable dose of methadone. What is important, however, is that no matter what method was used or if any guideline or protocol was involved, one of the major factors in prescribing methadone was individual clinical judgement in each individual case and that has to be correct. There are clear misunderstandings or misapprehensions on

what is meant by a guideline or protocol and whether they might be mandatory or discretionary and where in the scheme of things lies clinical judgement. It would be no bad thing if someone centrally looked at "guidelines" and "protocols" and tried to define what is meant so that across the whole health service, in whatever discipline, no one could be in any doubt as to their relevance or importance. It is not enough that they might be honoured in the breach or not honoured at all or that "clinical judgement" should be deemed to, in effect, overrule guidelines or protocols.

82. In this case Mr Clark had gone through the assessment. There were some issues relating to his actual, reported and recorded usage but I will touch on these shortly. He was seen by Dr Hughes on 10 May 2007. He was showing signs of heroin withdrawal. A full set of observations was taken and an initial dose of methadone given. There was nothing in the procedure which was in any way out of the ordinary. He was observed and further observations taken. He was given a top-up dose of methadone. He was observed again and further observations taken before being given a third and final dose of methadone. Dr Cockayne signed the prescription for the third dose and said that, with hindsight, she perhaps should not have done so without seeing the patient. In an ideal world that may be correct but she had been there less than a week and was dealing with a testing regime with which she was not familiar. She was asked to do something which seemed to be normal practice and there had been two previous prescriptions signed for by the treating doctor, Dr Hughes. I can readily understand why she acted as she did. After he had all his methadone Mr Clark was observed before he was allowed home. He went with further warnings ringing in his ears about the dangers of using other drugs especially heroin. He was taken home by a social worker who did not report anything adverse.

83. He presented the next morning tired and said that he had not slept. That was said to be not unusual. The presence of amphetamine in a sample may account for his lack of sleep. He was seen by Dr Hughes who assessed he was still suffering some withdrawal symptoms and prescribed another dose of methadone of 90mg/180ml. He was observed and seen again before being given a further 10mg/120ml. Dr Hughes had not signed the prescription for the third dose on day one, that being done by Dr Cockayne, and, initially he queried the need for it. However, having seen Mr Clark to be bright on day two he felt he had been too hasty in his judgement. After the second dose on day 2 Mr Clark appeared drowsy and was seen By Dr Hughes. Unfortunately there is some confusion caused by poor noting and this has led to what, in my view, may be unfair criticism of Dr Hughes. It was reported to him that he appeared drowsy, not that he was drowsy. Dr Hughes examined and spoke to Mr Clark and was satisfied that he did not appear to be sedated which would have been an indicator of a possible overdose of methadone. Mr

Clark was again allowed to go home with further warnings about the dangers of using heroin on top of his methadone.

84. All the evidence suggested that from the times when Mr Clark had his methadone on day 2 the peak danger time would be between 10.30 and 14.30. The fact of the matter is that Mr Clark went home on his own. He then met Mr Palmer and it was agreed that they would go to buy heroin. Mr Palmer queried with him at some point the wisdom of taking heroin on top of his methadone. They persuaded Mr Palmer's mother to come and give them a lift to a place near the police station in Dunfermline. Mr Clark got out of the car and was gone for about ten minutes before returning with heroin. They returned to their flat and the heroin was taken. All that would seem to indicate that Mr Clark was not displaying any signs of methadone overdose. This all took place during or just after the peak danger times.
85. There was evidence that within the medical profession there is a divided view between tolerance testing and community titration. The latter seems to be the preferred option of most of the witnesses other than Dr Hughes. However there seemed to be general acceptance that it was difficult to say that there was a right way and a wrong way. If tolerance testing was done under good medical supervision then there was a place for it. With the exception, perhaps, of note keeping and communication, no one has suggested that there was anything wrong with the arrangements made for Mr Clark's testing. Some may have expressed surprise at the levels of prescription but no one said that what was done was either wrong or dangerous in itself. There were some matters which might have benefited from discussion within the DTTO team such as apparent discrepancies between what he reported using and the various tests or how he was using. There may have been discussions but they were not always noted. Against that, on examination by Dr Hughes he was showing all the signs of heroin withdrawal. While some personal views were expressed about the amount of methadone prescribed it was always qualified by saying that it was, in the end, a matter of clinical judgement taking account of all the facts. It would not therefore be appropriate to use this Inquiry to express a view on which of the two methods of methadone reduction might be the better option. There is clearly a place for both. Each has its own benefits and each carries its own risks.
86. There was comment that the amounts given to Mr Clark were, in the opinion of the witnesses making the comments, high. There was no real suggestion that it was anything other than a therapeutic dose albeit a high therapeutic dose. Dr Kidd in his practice gave less but he bowed to clinical judgement. He was aware through his contacts with Dr Baldacino what the practice was in Fife. It did not mirror his own practice but that did not

make it wrong. All the evidence about how David Clark presented on both days of testing suggested that he was tolerating the methadone given and showing no signs of toxicity. Indeed the ability to think and plan the expedition to get heroin would confirm that he was functioning "normally" allowing for the fact that he was new to methadone. He had been properly checked by a doctor before being allowed to leave testing. There is therefore nothing to suggest that he was prescribed too high a dose of methadone.

87. There was some evidence of clashes between the social workers and the medical staff on the DTTO team. There seemed to be different aims and objectives on each side. The medical team saw the aim as getting the client off heroin and, eventually, drug free. If the client endangered himself by continuing to use heroin they would stop the methadone prescription. The social workers seemed to view the aim as being to get the client to stop committing crime to fund his habit and to improve his social standing and skills. They felt at times that the pulling of the prescription was done too readily or quickly. It is clear that this clash of view or philosophy caused a degree of ill feeling amongst the various members of the team, particularly on the social work side, but there is not a shred of evidence to suggest that there was any impact on any decision made in relation to David Clark. Information was shared. The fact that there was some concern about his maturity was shared. Decisions made were shared. No one gave evidence to the effect that he or she felt that he or she could have contributed or was prevented from contributing something which might have affected the outcome. The different approaches remained a feature even after Mr Clark's death when the NHS side declined the social work offer to be part of their enquiry preferring to conduct their own enquiry. It was clear that Mr Thom had an issue with this and it tended to flavour his evidence. I would say, however, that I accept what he had to say insofar as his review of the social work case notes was concerned. Whether or not there was the sort of "clash" described by Mr Thom may be a matter of the perception of each individual but nothing was put to any of the medical team about such a clash. What is clear, however, is that even if there was some sort of difference of view within the DTTO team, nothing came through which in any way affected decisions being made in David Clark's case. It was carried out conform to what was the accepted practice at the time and with a full exchange of information in the lead up to the test.

88. If there was any clash of approach or philosophy in 2007, the change of direction introduced by Dr Cockayne once she was fully in post seems to have had a positive effect across the whole team. It is stating the obvious to say that it is essential for the well being of patients subject to a DTTO that all parts of the team servicing that order are working together with the same aims and objectives. They are dealing with individuals who are in

the main vulnerable and with multiple problems and with a variety of needs. A "one size fits all" approach will not work and full, frank and open discussion along with clinical judgement on an individual basis is what is needed.

89. There were shortcomings which ought to be mentioned even if there is no evidence that any shortcoming in the system had any part to play in Mr Clark's death. These mainly relate to the state of the clinical notes and communication. Dr Waring said that contemporaneous notes which captured the flavour of any discussion would be the best approach. He also said that in the real world, because practitioners were so busy, that often did not happen. There were a number of issues here which might have benefited from better note keeping. There were clear discrepancies between what Mr Clark was putting in his drug diary, what he was telling team members he was taking, how he was taking heroin, by smoking or injecting and the results of various tests, both urine and oral fluid. Mr Clark was aware of the need for honesty in disclosing his drug consumption. Sadly it seems he was not always fully forthcoming with the information. Quantities varied from £10 to about £40 per day. There was conflicting information about how he used heroin. Sometimes he said he had not injected for weeks and at other times it was within a week. He declined to let nurses examine any potential injection sites which might have rung an alarm bell that he may have been trying to hide something. There is some doubt about how often he was tested or how he was tested. On the face of it he does not seem to have given many urine tests in the run up to testing. Oral fluid tests were relatively new and some witnesses thought they may be a bit unreliable. Some of his oral fluid tests apparently showed negative for opiates which flew in the face of his declared intake. Was that a fault in the tests or was Mr Clark misleading the team as to his consumption? The tests and the results were not always properly noted and the anomalies thrown up were neither noted nor checked out. Dr Hughes accepted that note taking and documentation were at times lacking and that was a failing in the clinical files. I trust that lessons have been learned and that there is now in place a more robust system of noting in clinical records and some form of audit to make sure that the noting is up to standard.
90. While some of the witnesses have commented on the notes or lack of them, no one has suggested that there is any connection with the death. Questions might have been asked especially about the apparent contradiction between Mr Clark's self confessed habit and the result of tests. The lack of evidence of tests in the days before the tolerance test was a matter of comment. But, against all that is a pattern of Mr Clark being seen by members of the team and being prepared for tolerance testing. He was seen by Dr Hughes before it began. He was displaying signs of heroin withdrawal. He was given and apparently coped with the methadone given over two days.

91. One area where there was criticism which may not have been made if there was a proper note relates to the end of day 2 when Mr Clark was said to be drowsy. There was a suggestion he was not properly monitored given the drowsiness. It is clear that Mr Clark's apparent drowsy state had been brought to the attention of Dr Hughes. There was an explanation that he had not had much sleep the night before. Dr Hughes was satisfied that there was no sedation and allowed him to go home. Had all that been noted there could have been no possible criticism but as there was no note the issue was, quite rightly, raised by Mr Thom in his review who conceded that had it been noted he may not have commented.
92. The success of a DTTO depends on an honest and motivated client but it is also important that the team responsible for the order all know what is happening and are able to communicate one with the other. Full and proper note taking by all of the team at all times by all members of the team is essential to successful communication. This would, hopefully, improve the flow of information across the team and would result in a full written record of the whole assessment process which would stand up to scrutiny. Similarly there is scope for some sort of uniformity in noting procedures. Dr Waring referred to filling the box and some of what we see is just that. But even there boxes are filled or marked in different ways by different people. For example, some charts are marked with a numbered score by some people and by the use of the symbol "++" by others. They may each know what the other means but someone else looking at the file might misinterpret and where we are dealing with such matters as a DTTO there could be damaging consequences.
93. It is particularly important that major events are the subject of contemporaneous notes probably at the hand of the person responsible. For example, medical notes seem to be absent from 10 May and are to say the least brief for 11 May. I accept the evidence of what happened on these days but a good deal of stress might have been avoided had there been good notes. Having said all that there is nothing to suggest that any shortcoming in notes or recording played any part in Mr Clark's death.
94. Could his death have been avoided? That question cannot be answered with certainty but, on balance of probabilities, had he not taken heroin on 11 May 2007 after he had been given methadone, Mr Clark would not have died. All the evidence suggested that while it was theoretically possible that the methadone could have killed him, all the evidence of how he was and what he was doing after receiving his methadone suggested that he had not received a toxic dose. He got himself home; he talked about going for heroin; he went by himself to acquire it; he smoked some and then he injected some. All of these actions

were unlikely if he had overdosed on methadone. He was made aware time and again of the dangers of taking heroin on top of methadone. I accept that despite the lack of notes or the fact that the handbook was still on his file that numerous witnesses spoke to him about these dangers. Accordingly the only conclusion I can reach is that his death might have been avoided had he not taken heroin in the late afternoon and early evening of 11 May 2007.

95. Could anything have been done to prevent death? Earlier medical intervention might have prevented death but for that to happen one of the people in the flat would have had to recognise that Mr Clark was more than simply sleeping off the effects of his drugs. They had all seen him under the influence before. They had seen him in a similar state. Robert Palmer described the deceased as being "out of his nut", a state he had seen him in before. Cassie Clark and Robert Palmer had gone to bed. Ryan Clark was a little concerned when he first got back to the flat but he too said he had seen his brother in a similar state albeit he thought it was through drink. It was only when he noticed his brother was not breathing and was emitting fluid from his mouth that he realised something serious was wrong and he raised the alarm. I cannot be critical of anyone in the flat for not identifying that David Clark was anything other than in a deep drug induced sleep. They should not in any way blame themselves for not seeking earlier medical attention.
96. In conclusion, it is impossible to hold that this was anything other than a tragic accident brought about by Mr Clark taking heroin when he had received methadone and was well aware of the dangers of such action. This Inquiry was presumably ordered because the cause of death was originally attributed solely to the adverse effects of methadone. If that was established then the ramifications not only for those involved in his treatment but also for substitute prescribing in general were potentially at least serious. As became apparent, had the toxicology analysis been of the standard now available in Dundee, had the presence of opiates been disclosed to the pathologist and had the anomalies thrown up by the toxicology results and the police report been known at the time or shortly after, the cause of death might well have been the adverse effects of heroin and methadone. Had that been the case this Inquiry may not have been necessary.
97. While I have made no findings under Section 6 (1) (e) of the 1976 Act as they are not strictly facts which are relevant to the death, there are three issues I feel should be mentioned if only so that relevant authorities might consider if anything ought to be done to improve services in the relevant areas.

98. There was some criticism of the services provided in Dundee by pathology/toxicology. There was also evidence in general terms that the ability to analyse substances to a greater depth had improved. The criticism may or may not be merited. However, there was evidence that Glasgow, Edinburgh and possibly Aberdeen all had services which were accredited and reference was made to ISO 1725. To the layman it would seem that all services across Scotland should be operating to the same standard and that standard should be as high as possible. If any pathology or toxicology service is not accredited then should steps be taken to obtain accreditation?
99. There was clear confusion about the effect or standing of "guidelines" or "protocols" and the part to be played by clinical judgement where one or other of these is pertinent. For example, we heard about national guidelines and the Fife Protocol for methadone induction and treatment. We also heard that notwithstanding these, clinical judgement could well be the deciding factor in each individual case. Perhaps it would be appropriate on a local or better still on a national level for there to be an attempt to define the status of guidelines and protocols and make sure that all staff at all levels who may be affected are fully educated.
100. Dr Hughes and others conceded that note taking was not as good as it should have been. I hope lessons have been learned. While it was clear from the evidence from the various team members that communication amongst them was good, that was not always obvious from the state of the clinical notes. Indeed some of the criticism made would have been avoided if proper noting had been done. If it has not already been done, consideration should be given to random auditing of clinical files to check procedures, note taking and the like.