

IN THE MATTER OF THE THOMAS R. BRAIDWOOD, Q.C.,  
COMMISSIONS OF INQUIRY UNDER THE *PUBLIC INQUIRY ACT*,  
S.B.C. 2007, c. 9

Room 801  
Federal Courthouse  
701 West Georgia Street  
Vancouver, B.C.

April 28, 2009

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PROCEEDINGS AT  
HEARING (DAY 43)

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|                               |                                      |
|-------------------------------|--------------------------------------|
| Commissioner:                 | T.R. Braidwood, Q.C.                 |
| Commission Counsel:           | A. Vertlieb, Q.C.                    |
| Associate Commission Counsel: | P. McGowan                           |
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(ii)

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| Counsel for Government of Poland:              | D. Rosenbloom                         |
| Counsel for Corporal Benjamin Robinson:        | R. Harris                             |
| Counsel for Constable Gerry Rundel:            | T. Beaubier                           |
| Counsel for Constable Bill Bentley:            | D. Butcher                            |
| Counsel for Constable Kwesi Millington:        | R. Hira, Q.C.                         |
| Counsel for Public Service Alliance of Canada: | C. Buchanan, B. Matthews              |
| Counsel for City of Richmond:                  | J. Goulden, M. Kleisinger, G. Trotter |
| Counsel for TASER International, Inc.          | D. Neave, J. Spencer                  |
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1  
Charles Lee  
Cross-exam by Mr. Neave (for TASER International)  
(cont'd)

1 Vancouver, B.C.  
2 April 28, 2009  
3

4 THE REGISTRAR: Order. The hearing is now resumed.  
5 THE COMMISSIONER: Good morning, everyone.  
6

7 CHARLES LEE, a witness,  
8 recalled.  
9

10 THE COMMISSIONER: Yes, Mr. Neave.

11 MR. NEAVE: Thank you, Mr. Commissioner. David Neave,  
12 for the record.

13 THE COMMISSIONER: You were at Exhibit 80, page 5.

14 MR. NEAVE: Yes, we are at Exhibit 80. Dr. Lee, have  
15 you got Exhibit 80 before you?

16 A No, I don't.  
17

18 CROSS-EXAMINATION BY MR. NEAVE ON BEHALF OF TASER  
19 INTERNATIONAL, continuing:  
20

21 Q Dr. Lee, when we left off we were dealing with  
22 some questions that I had for you with respect to  
23 Dr. Pollanen's opinion, which is Exhibit 80 before  
24 the Commission. You've got that document before  
25 you, Doctor; is that correct?

26 A Yes, I do.

27 Q If I could, Doctor, have you turn up page 9,  
28 please. And the first paragraph:  
29

30 A medicolegal autopsy was performed by a  
31 qualified forensic pathologist. The autopsy  
32 report describes minor superficial injuries  
33 and handcuff injuries. No fatal injury was  
34 found and no overtly lethal condition was  
35 detected at postmortem examination. The  
36 postmortem examination included special  
37 forensic dissection of the anterior neck and  
38 wrists, photographic documentation,  
39 histology, and toxicology. However, there is  
40 no indication that the back or posterior neck  
41 were dissected and some ancillary tests  
42 appear not to have been performed (e.g.,  
43 histology of the "taser mark," vitreous  
44 electrolytes).  
45

46 A Yes.

47 Q Do you agree with that, Doctor?

2

Charles Lee

Cross-exam by Mr. Neave (for TASER International)

(cont'd)

1 A Yes. I did not do a back dissection. I didn't do  
2 the vitreous electrolytes because the death -- or  
3 the autopsy occurred two days after death, and  
4 electrolyte interpretation -- vitreous electrolyte  
5 interpretation would be extremely difficult for  
6 such a long post-mortem interval.

7 Q And then Dr. Pollanen at page 10 reviews certain  
8 aspects of the post-mortem examination, and he  
9 indicates that:

10  
11 My review of --

12  
13 And I'm down halfway through the first paragraph  
14 on that page.

15  
16 My review of the histology reveals marked  
17 macrovesicular steatosis (fatty liver),  
18 pulmonary hemorrhage, rare pulmonary fat  
19 emboli, and degeneration of the superior  
20 cerebellar vermis. I could not confirm the  
21 presence of dilated cardiomyopathy. The  
22 toxicologic findings are non-contributory.  
23

24 Now, with respect to that statement, this opinion  
25 is saying that confirmation of the presence of  
26 dilated cardiomyopathy could not be determined.  
27 Do you know whether -- and I think this is the  
28 case -- that Dr. Pollanen did not have the  
29 opportunity to examine the heart as an organ?

30 A Yes. He obviously could not examine the heart  
31 grossly, and unfortunately I should have taken  
32 photographs of the heart at the dissection -- at  
33 the time of dissection, but I forgot to take  
34 pictures of the heart. Therefore he only had the  
35 microscopic sections of the heart to examine.

36 Q And we've dealt with your view of what the  
37 microscopic slides of the heart tissue indicate,  
38 and that's that in essence are inconclusive with  
39 respect to that condition. Is that a fair  
40 statement?

41 A Yes.

42 Q And you arrive at that conclusion because of the  
43 opportunity that you had as the attending  
44 pathologist to examine the heart tissue yourself?

45 A Yes, that's correct.

46 Q And then, Doctor, if I can have you turn up page  
47 11, please, under the "Effects of the Taser." The

3

Charles Lee

Cross-exam by Mr. Neave (for TASER International)

(cont'd)

1 paragraph reads:

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The video evidence clearly excludes a direct taser-related acute arrhythmic death. The main evidence for this conclusion is that Robert Dziekanski is seen to be alive, after successful deployment of the taser. Thus, I am satisfied that the "temporal dissociation" is sufficient evidence to exclude a direct role of the taser discharge in causing death in this case.

13

Do you agree with that, Doctor?

14

A Yes, I do.

15

Q Then the report continues:

16

17

18

19

20

21

However, does this imply that the taser was not a co-factor in Robert Dziekanski's death? The answer to this question has two dimensions.

22

And firstly he says:

23

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33

It is possible to argue that death can be explained entirely by the *excited delirium/prone-position restraint concept* without referring to additional causes. It is a fact that most people who die in this situation are not subject to a taser deployment. Therefore, it is possible to conclude that the taser need not be a factor in death.

34

Do you agree with that?

35

A Yes, that's one possibility.

36

Q And you're of the view, I think, from your evidence that Mr. Dziekanski was not in a state of excited delirium?

37

38

39

A Yes, that's correct.

40

Q And then he continues on with the second hypothesis:

41

42

43

44

45

46

47

But, if the *excited delirium/prone-position restraint concept* is accepted as an explanation for death, then any co-factor that increases agitation or induces additional stress should exacerbate the

4

Charles Lee

Cross-exam by Mr. Neave (for TASER International)  
(cont'd)

Cross-exam by Mr. Hira (for Cst. Kwesi Millington)

1 mechanisms leading to death. Stated  
2 alternatively, the taser could have  
3 contributed to death through a non-  
4 arrhythmicogenic mechanism.  
5

6 What do you say about that hypothesis?

7 A Again, that's another possibility. That's the --  
8 that's the opinion that I hold, that the Taser  
9 probably contributed to the death but didn't  
10 directly cause it. It's -- again, it's just one  
11 of the forms of physical restraint that probably  
12 contributed to death.

13 Q And that's a hypothesis, correct?

14 A Yes.

15 MR. NEAVE: Those are my questions, Mr. Commissioner,  
16 Thank you. Thank you, Doctor.

17 MR. HIRA: Doctor, my name is Ravi Hira. I represent  
18 Constable Kwesi Millington, and I believe I have  
19 just three questions for you hopefully.

20 A Okay.  
21

22 CROSS-EXAMINATION BY MR. HIRA ON BEHALF OF CONSTABLE  
23 KWESI MILLINGTON:  
24

25 Q One, do I understand your evidence to be that  
26 there is no anatomical cause of death?

27 A Yes, that's correct.

28 Q Two, do I further understand your evidence to be  
29 that there is no anatomical finding that the Taser  
30 caused the death in any way?

31 A That's correct. The Taser doesn't -- the probe  
32 doesn't itself -- doesn't cause significant  
33 injuries. Its effects are physiological, and  
34 therefore there's no anatomic -- no significant  
35 anatomic findings.

36 Q Three, do I also understand your evidence to be  
37 that there are no anatomical findings that point  
38 to the actions of the police officers as having  
39 caused the death?

40 A Yes, that's correct.

41 MR. HIRA: Those are my questions, Mr. Commissioner.

42 THE COMMISSIONER: Doctor, can you tell me what you  
43 meant by the word "anatomical" in that context?

44 A Anatomical in the sense that there are structural  
45 findings that are either visible, grossly or  
46 microscopically. For example, gross injury such  
47 as internal organ injuries, fractured limbs,

5

Charles Lee

Cross-exam by Mr. Harris (for Cpl. Benjamin Robinson)

1 things like that. The injuries that I saw were  
2 all minor and by themselves would not have caused  
3 death.

4 MR. HARRIS: Dr. Lee, my name is Reg Harris. I'm  
5 counsel for Corporal Monty Robinson, sir.

6 A Okay.

7

8 CROSS-EXAMINATION BY MR. HARRIS ON BEHALF OF CORPORAL  
9 BENJAMIN ROBINSON:

10

11 Q Sir, I'd like to take you back to just some of the  
12 processes that you go through prior or during your  
13 post-mortem. And if I understand your evidence  
14 correctly, sir, is you do an external examination  
15 of the body.

16 A Yes.

17 Q And then you move from external to internal  
18 examination?

19 A Yes.

20 Q Your external examination is in essence searching,  
21 looking for any anomalies that might be relevant  
22 to the task you're undertaking, correct?

23 A Yes.

24 Q And in that regard, you're examining for, amongst  
25 other things, abrasions and contusions?

26 A Yes.

27 Q And with respect to contusions and as well as  
28 abrasions, both of those can be caused from blunt  
29 force trauma being applied to the deceased, if you  
30 will?

31 A Yes.

32 Q And blunt force trauma is applying force either  
33 through a strike or placing heavy weight upon an  
34 individual, correct?

35 A Yes.

36 Q And so for example, if someone was to strike an  
37 individual hard enough, you would expect to see  
38 evidence of that strike in terms of the blunt  
39 force trauma leaving either a contusion, abrasion  
40 or both?

41 A Yes, that's correct.

42 Q As well as if one is to place a significant amount  
43 of weight onto an individual, it can leave an  
44 abrasion or a contusion as well?

45 A Yes, it's possible.

46 Q And that's a way of applying blunt force trauma,  
47 correct?

6

Charles Lee

Cross-exam by Mr. Harris (for Cpl. Benjamin Robinson)

1 A Yes, that's correct.

2 Q And in this particular case, your examination,  
3 external examination, you focused on the entirety  
4 of the body, including the neck, head and throat  
5 area, correct?

6 A Yes, that's correct.

7 Q And in your examination of those areas, you found  
8 no evidence of a contusion or abrasion on the neck  
9 area?

10 A Yes, that's correct.

11 Q You found no evidence within the hair area of any  
12 bruise or abrasion?

13 A Yes, that's correct.

14 Q And in fact, you found no evidence from your  
15 external examination to suggest that significant  
16 weight had been placed on the back of the  
17 deceased's neck?

18 A He had some facial abrasions. That's consistent  
19 with him contacting face-first the ground. That  
20 may have occurred if weight was placed against his  
21 neck. But the facial injuries are minor.

22 Q Well, let's back up for a moment, focusing first,  
23 Doctor, on the neck. There was nothing on the  
24 neck to indicate weight being placed on the back  
25 of the neck; is that correct?

26 A Yes, that's correct.

27 Q And these facial abrasions that you've just  
28 referenced could have occurred a number of ways.  
29 For example, you saw the fall that he took to the  
30 ground?

31 A Yes.

32 Q That's one mechanism by which such an injury could  
33 occur?

34 A Yes.

35 Q You saw him turning and spinning on the ground  
36 with his head and face near the ground?

37 A Yes.

38 Q That's another mechanism by which such an injury  
39 can occur?

40 A Yes.

41 Q In other words, from your observations of the  
42 video and your understanding of events, there are  
43 several possible hypotheses for how the abrasions  
44 on the head area outside the hairline could have  
45 occurred, correct?

46 A Yes.

47 Q In addition to your external examination, you also

- 1 do an internal examination, correct?
- 2 A Yes, that's correct.
- 3 Q And that involves removing or accessing by  
4 removing a layer of skin to examine the tissues  
5 underneath what's exposed to the visual eye,  
6 correct?
- 7 A Yes.
- 8 Q And that is in an effort to look for, again,  
9 amongst other things, evidence of any trauma or  
10 force being applied to a particular area?
- 11 A Yes.
- 12 Q And again, in this particular case you did a  
13 layer-wise dissection of the neck?
- 14 A Yes, that's correct.
- 15 Q You saw no evidence of any internal haemorrhaging  
16 or bleeding of any sort within that dissection?
- 17 A Yes, that's correct.
- 18 Q In other words, you saw no evidence within your  
19 dissection of there being any weight at all having  
20 been placed upon the neck?
- 21 A Yes, I saw no internal neck injuries to suggest  
22 any significant force applied to the neck.
- 23 Q In fact, you saw nothing to suggest any force  
24 being applied to the neck; isn't that correct?
- 25 A Yes, that's correct.
- 26 Q And again, in this case you saw no evidence to  
27 suggest that asphyxiation in any way, shape or  
28 form was a component in this particular death?
- 29 A The problem with asphyxiation is oftentimes you  
30 actually don't see anything, so as a result it's  
31 hard to completely exclude the possibility that  
32 asphyxiation played a contributing factor. But in  
33 my opinion, it didn't play a significant  
34 contributing factor.
- 35 Q You saw no evidence whatsoever indicating in your  
36 examination asphyxiation, though, did you?
- 37 A No. There were no signs of asphyxiation.
- 38 Q Now, Doctor, reversing somewhat, I think you  
39 referred to it as a Form B that you received from  
40 the coroner's office?
- 41 A Yes.
- 42 Q And in this case it's been marked as Exhibit 101.  
43 And you received that form before commencing your  
44 autopsy in this case?
- 45 A Yes.
- 46 Q And present at the time of the autopsy were two  
47 RCMP officers?

1 A Yes.

2 Q And your understanding was, from your experience,  
3 they are there to document the process and gather  
4 evidence?

5 A Yes, that's correct.

6 Q And certainly if you felt the need, you had every  
7 opportunity to ask them any questions about the  
8 events?

9 A Yes.

10 Q And you didn't do so in this case?

11 A I believe I did ask them if they had any further  
12 information, but I believe at the time they did  
13 not have any further information.

14 Q All right. And the coroner's report that you  
15 received, the Form B, you were informed that Mr.  
16 Dziekanski had been tasered by the RCMP?

17 A Yes.

18 Q At no time did you ask the coroner how many times  
19 he had been tasered?

20 A No, I did not.

21 Q And at no time did you ask any of the RCMP  
22 officers that were present at the autopsy how many  
23 times Mr. Dziekanski had been tasered?

24 A No, I did not.

25 Q And at no time subsequent to the autopsy did you  
26 either make inquiries of the coroner or the RCMP  
27 regarding the amount of times Mr. Dziekanski had  
28 been tasered?

29 A Yes, that's correct.

30 MR. HARRIS: Thank you, Doctor, for answering my  
31 questions.

32 MR. MCGOWAN: Mr. Commissioner, unfortunately, it  
33 appears we have yet another difficulty with our  
34 audio system. There's no sound either in the  
35 courtroom or the media room. I wonder if we might  
36 just stand down briefly and see if we can address  
37 it in short order. Thank you.

38 THE REGISTRAR: The hearing will recess for ten  
39 minutes.

40

41 (PROCEEDINGS ADJOURNED)

42 (PROCEEDINGS RECONVENED)

43

44 MR. ROSENBLUM: Thank you. Doctor, my name is Don  
45 Rosenbloom and I am the lawyer for the Government  
46 of the Republic of Poland. I have some questions  
47 for you.

1 CROSS-EXAMINATION BY MR. ROSENBLOOM ON BEHALF OF THE  
2 GOVERNMENT OF THE REPUBLIC OF POLAND:

3

4 Q Unless I am in error, your final report, the  
5 autopsy report, is undated as to the time of its  
6 signature. Can you inform me of the date of your  
7 signing it?

8 A I don't remember the exact date but I would have  
9 finalized the autopsy probably two or three months  
10 after I performed the actual autopsy. So it  
11 probably would have been early 2008 that I  
12 finalized and submitted my autopsy report to the  
13 Coroner's office.

14 Q And I see from a stamp on my copy of the report  
15 that the Coroner received it on January 29th. Is  
16 it fair to say that you completed the report  
17 shortly before that?

18 A Yes.

19 Q You obviously went through drafts of the report  
20 before you finalized it?

21 A Yes.

22 Q And did you provide a copy of the draft report to  
23 the RCMP?

24 A I believe I might have. It's normally not -- I  
25 normally don't give draft copies to the police or  
26 the Crown, but I think in this case, because they  
27 wanted information faster, I think I did give them  
28 a draft report.

29 Q In fact, you remember doing so, don't you, Doctor?

30 A I believe so.

31 Q And who did you provide that draft report to?

32 A I believe I provided it to an IHIT member,  
33 Integrated Homicide Investigation Team member.

34 Q And do you recall which member you provided the  
35 report to? Would it have been Superintendent  
36 Rideout?

37 A I don't -- I don't recall the actual name.

38 Q Do you recollect the RCMP asking you for a copy of  
39 the report in draft form before you finalized it?

40 A Yes. I believe they wanted information, whatever  
41 information I had about the autopsy.

42 Q Did you receive any comment about your draft  
43 report from the RCMP before you finalized it?

44 A No, I did not.

45 Q Were there any changes made to your report as a  
46 result of discussions you had with the RCMP  
47 between the draft of the report and the final

- 1 report?
- 2 A I did not have any discussions with the RCMP.
- 3 Q Now, you have provided the opinion that Mr.
- 4 Dziekanski's death was caused by sudden death
- 5 during restraint, correct?
- 6 A Yes.
- 7 Q And you then have defined restraint as including
- 8 in this case both the tasing episode or episodes
- 9 and the struggle with police as they pinned him to
- 10 the ground and handcuffed him, correct?
- 11 A Yes, that's correct.
- 12 Q And you then have said that you couldn't give an
- 13 opinion as to which of these two components of
- 14 restraint contributed more to Mr. Dziekanski's
- 15 death, correct?
- 16 A Yes, that's correct.
- 17 Q And you're still of those opinions?
- 18 A Yes.
- 19 Q Now, can I assume that you would agree with me
- 20 that in the absence of the tasing and in the
- 21 absence of the struggle with the police, Mr.
- 22 Dziekanski would be alive today?
- 23 A Yes. If he wasn't restrained, chances are he
- 24 would still be alive.
- 25 Q In other words, had the arrest taken place in a
- 26 non-confrontational manner, meaning without
- 27 tasing and without a struggle, Mr. Dziekanski
- 28 would be alive?
- 29 A Yes, he would most likely be alive.
- 30 Q Now, you learnt after preparing and signing off on
- 31 your report in late January that he was tasered
- 32 more than once. But maybe that's unfair to you.
- 33 Would you inform us, when did you learn that Mr.
- 34 Dziekanski had been tasered more than the once?
- 35 A I believe that was when the Crown gave that press
- 36 conference where they said that they were not
- 37 charging the police officers.
- 38 Q That was in December of last year, 2008?
- 39 A Yes, I believe so.
- 40 Q And so did you labour under the belief from the
- 41 time that you signed off on the report in January
- 42 of 2008 until December of 2008 that he had been
- 43 tasered only once?
- 44 A Yes, that was my understanding, that he was
- 45 tasered only once.
- 46 Q Were you surprised to learn of the information
- 47 provided in that press conference in December

1 2008?

2 A I guess you can say I was surprised. Again, the  
3 actual -- the actual details of the restraint  
4 process wasn't really known to me. But like I  
5 said, I don't think it really would have made a  
6 significant difference in my opinion had I known  
7 that before.

8 Q I'll get into that in more detail in just a  
9 moment. In respect to the officer imposing his  
10 knee on the neck of Mr. Dziekanski, as we  
11 witnessed it yesterday from the video --

12 A Yes.

13 Q -- you have testified that you observed the video,  
14 you saw the video --

15 A Yes.

16 Q -- prior to doing your autopsy, correct?

17 A Yes.

18 Q Did you, during that period prior to writing your  
19 autopsy report, become aware or did you observe  
20 this form of restraint that we saw yesterday on  
21 the video with the knee on the back of the neck?

22 A No, I didn't -- I wasn't paying specific attention  
23 to the placement of the officer's knees, so I  
24 didn't pick up on the fact that the leg or knee  
25 was on his neck. However, again, I don't think  
26 that played a significant role since he was still  
27 struggling, he was still moving around, and he was  
28 still somewhat vocalizing, which indicates that he  
29 was still able to breathe. I just considered  
30 that, again, as part of the restraint process by  
31 which the police attempt to restrain an  
32 individual.

33 Q But what we learn from you today is that at the  
34 time you signed off on the report, late January  
35 2008, you were unaware of any deployment of the  
36 Taser beyond the one occasion and you were unaware  
37 that there had been this form of physical  
38 restraint with the knee on the back of the neck?

39 A Yes, that's correct.

40 Q Is it fair to say that the more you learnt  
41 regarding the number of Taser deployments and the  
42 more that you learnt about how Mr. Dziekanski was  
43 pinned to the ground, the greater your confidence  
44 with your opinion of the role of the restraint on  
45 causing this man's death?

46 A I'm not really sure how to answer that question.  
47 I'm not an expert in use of force. However, all

1 the information I have read would indicate that,  
2 you know, it's not a clean, straightforward  
3 process. It's often very violent. It's often  
4 very dynamic. And at the end of the day, the  
5 police -- the end result is that the police will  
6 have to successfully restrain and handcuff the  
7 individual. I don't think that they have an  
8 ability to simply give up halfway and say, "This  
9 is too difficult and there may be a chance of  
10 harm. Therefore we give up trying to restrain the  
11 individual." My understanding as a layperson is  
12 that the police are allowed to use any and all  
13 reasonable force, up to and including lethal  
14 force, in order to effect the restraint and  
15 eventual arrest.

16 Given that, my understanding is that their  
17 response is based on the situation and that the  
18 more the person struggles, the greater their  
19 effort to restrain the individual. And therefore,  
20 I really can't say whether or not the amount of  
21 physical force that they used was reasonable or  
22 not.

23 Q Nor am I asking that of you, and I apologize if I  
24 have not framed the question in a manner that you  
25 understand. I appreciate you are not an expert in  
26 that area and I don't think anyone expects you to  
27 be able to give an opinion that's of significance  
28 to the proceedings. What I am asking you is, you  
29 have rendered an opinion that the death was caused  
30 by sudden death during restraint. You have  
31 informed us that the time you gave that opinion,  
32 rendered that opinion in late January of 2008, you  
33 believed that there had only been one deployment  
34 of the Taser. You were not aware of the placement  
35 of the knee on the neck. My question is, knowing  
36 that the restraint was even more pronounced than  
37 you knew at the time you wrote the report, that  
38 there were multiple taserings, that there was the  
39 placement of the knee on the back of the neck, can  
40 I assume that you feel even more confident in the  
41 opinion that you have rendered in your autopsy  
42 report?

43 A I don't think my -- the confidence in my opinion  
44 has actually changed significantly. I still  
45 believe that the restraint did play a contributing  
46 factor in Mr. Dziekanski's death. Obviously I  
47 think there are also other factors that also

1           played a role. But again, it's difficult to say  
2           exactly what proportion of which factor  
3           contributed to his death.

4        Q    I want to now explore the question of how much  
5           information was provided to you as you commenced  
6           your autopsy investigation. Because restraint  
7           plays such a critical role in forensic  
8           investigation with incidents like this one, you'd  
9           expect the police to give you as much accurate  
10          information as is known at the time of your  
11          autopsy. Is that not fair to say?

12       A    I think they give me as much information as they  
13           know.

14       Q    And you'd expect that, wouldn't you?

15       A    Yes.

16       Q    And you'd expect that, sir, because trauma to the  
17           body is a significant set of facts that you want  
18           to know before you carry out your pathology  
19           investigation?

20       A    Basically, the background information will help me  
21           in determining what parts of the body to examine  
22           more closely. That would certainly be of use.  
23           But at the end of the day, what I'm looking for  
24           are significant internal injuries that may help  
25           explain death outside of just the sudden death  
26           during restraint. For example, even though there  
27           may not have been a mention of a neck hold, I  
28           would still do a neck dissection to look for  
29           evidence of significant pressure on the neck, for  
30           example. I would still look for internal injuries  
31           such as fractures or lacerations of the internal  
32           organs that suggest that a significant amount of  
33           force was applied to the body. And those are the  
34           things that I would be looking for. Obviously in  
35           an altercation the person will have scrapes and  
36           bruises, superficial bruises, and those are really  
37           not that significant. So really what I'm looking  
38           for are significant internal injuries regardless  
39           of the type of restraint that they were used.

40       Q    I'm not so much speaking about what you generally  
41           would look for. I'm speaking to what are your  
42           expectations from any police force in a situation  
43           like this where there has been an in-custody death  
44           and where you're about to carry out an autopsy.  
45           Information regarding trauma to the body that the  
46           police may have is critical for you to be aware of  
47           before you carry out your autopsy?

1 A I don't know if it's critical, but it certainly  
2 would be useful.

3 Q And it would be useful, I'm going to suggest to  
4 you, because in the field of forensic pathology,  
5 your field calls for a high standard of exactitude  
6 in terms of your investigation of the body?

7 A Yes, I would say that.

8 Q And as a result, you want to know the history of  
9 trauma to the body before you carry out that  
10 study?

11 A Yes. I would prefer to have as much information  
12 regarding the circumstances as possible.

13 Q And having those expectations from a police force,  
14 how do you expect them to inform you of such a  
15 history of trauma?

16 A Well, the problem is, of course, is that usually I  
17 do the autopsy fairly soon after the event has  
18 occurred, and in many police investigations the  
19 amount of information, of known, true information,  
20 is often limited. And that's simply a limitation  
21 of forensic pathology in that oftentimes scene  
22 investigation and the circumstances are often  
23 limited and the early information may in fact be  
24 incorrect. And that's simply one of the  
25 limitations that we have in this field.

26 Q I understand that. Nobody is suggesting that you  
27 can be informed about facts that the police aren't  
28 aware of. But in the circumstance where the  
29 police are aware of facts relating to trauma,  
30 before you commence your autopsy, you do expect  
31 them to inform you of those facts accurately,  
32 don't you?

33 A Yes. I -- it would nice of they do provide me  
34 with that information. I can't say that I expect  
35 it from them, but again, it would be nice to have  
36 that information.

37 Q And you in fact said that very thing yesterday,  
38 that it would be nice if you had that information.  
39 And in this particular case, it would hearing  
40 brief definitely been useful to you, had you known  
41 that in fact there had been four or five  
42 deployments of the Taser?

43 A Yes, it would have been useful for me to know  
44 that.

45 Q And it would have been useful for you to know it  
46 in part because it would have alerted you to a  
47 closer examination of the body in respect to Taser

1 markings, wouldn't it?

2 A Yes, it would have.

3 Q And in fact, had you been informed prior to your  
4 autopsy investigation that there had been four or  
5 five Taser deployments, you may not have missed  
6 the observing of Taser marks to the back of Mr.  
7 Dziekanski. Is that fair to say?

8 A Yes, that would be fair to say.

9 Q And you are aware there is evidence before this  
10 commission from Officer Hoivik that he was not  
11 only present during your autopsy but he observed  
12 those Taser marks to the back?

13 A Yes, that's my understanding.

14 Q But you missed them?

15 A Yes, that's correct.

16 Q And as a result, that obviously you make no  
17 mention of such marks in your autopsy report?

18 A Yes, that's correct.

19 Q When you are generally dealing with forensic  
20 pathology matters, do the police normally inform  
21 you of facts that you consider relevant simply by  
22 verbal communication or by writing?

23 A In writing the only information I get is from the  
24 Coroner's Service. In suspicious deaths or  
25 suspicious criminal deaths where the police  
26 attend, it really depends on who actually attends  
27 the autopsy. Sometimes it's simply just the  
28 forensic identification officers who simply take  
29 the pictures and who have no first-hand knowledge  
30 of the case. In other times the police officers  
31 who are investigating do attend and sometimes they  
32 can provide me with some more information about  
33 the case. But like I said, in many cases the  
34 information is sketchy.

35 Q Well, in this particular case, Doctor, you carried  
36 out your autopsy examination on the 16th of  
37 October, correct?

38 A Yes.

39 Q And you were aware that this case already  
40 attracted some controversy, that it had been in  
41 the media during the 14th and 15th of October?

42 A What I recall hearing was simply that a person  
43 died at the airport after being restrained by  
44 police officers. I believe at the time there was  
45 no mention of a video taken at the time, and that  
46 was basically the extent of my knowledge of the  
47 case prior to the autopsy.

1 Q Now, during your examination of the body - and  
2 you've said two RCMP officers were present - do  
3 you recollect what conversations you did have with  
4 them regarding the incident?

5 A I don't recall any specifics. I think at the time  
6 it was just -- it was treated as another in-  
7 custody death and -- again, I don't recall  
8 anything significant out of that conversations.

9 Q Do you recall any discussion with them regarding  
10 the fact that Mr. Dziekanski had been a victim of  
11 a tasering incident?

12 A I don't think we had any specific discussions  
13 about the Taser itself. I knew that he was  
14 tasered at least once, but I don't think there was  
15 any specific discussion regarding the Taser  
16 itself.

17 Q You have examined other bodies that have been as a  
18 result of a tasering incident?

19 A I think I've only been involved in one other case  
20 involving a Taser, but in that case the Taser did  
21 not penetrate to the skin, and in essence it was  
22 ineffective.

23 Q So this was the first occasion where you carried  
24 out an autopsy of a body where there were visible  
25 Taser marks?

26 A Yes, that's correct.

27 Q Having seen the video and observing the officer's  
28 knee on Mr. Dziekanski's neck for an extended  
29 period of time, as you saw it yesterday, as a  
30 pathologist, would you agree with me that such  
31 conduct by an officer is reckless at best?

32 A I can't give an opinion upon --

33 MS. ROBERTS: I have to object. I'm not sure Dr. Lee  
34 is qualified to talk about use of force and what's  
35 appropriate for a police officer. And by the way,  
36 it wasn't a significant period. It was less than  
37 a minute that was demonstrated yesterday.

38 MR. ROSENBLOOM:

39 Q Let's take out the word "extended period." But  
40 you being a medically trained person, my question  
41 is, is it dangerous for an individual to impose  
42 their weight on the back of the neck, as you saw  
43 it in the video?

44 A It can be potentially dangerous. But in this  
45 case, it was not in fact dangerous. There was  
46 no -- there was no damage -- no significant damage  
47 to either the airways or the neck or even the

- 1 face, which would be my concern on pressure placed  
2 on the back of the neck. The back of the neck  
3 itself, even if there were some bruises, would be  
4 insignificant. It's the effect of the pressure  
5 placed on the back of the neck that we be more  
6 worrisome and that would be injuries to the face  
7 and particularly the nose and mouth area and  
8 potential occlusion or blockage of the airways.  
9 In this particular case, I don't think either of  
10 those cases -- either of those findings were  
11 present. Clearly the facial injuries were minor.  
12 There was no fractures of the nose or mouth area.  
13 I believe he was continuing to vocalize while the  
14 struggle was continuing, and therefore that  
15 indicates that he was able to breathe. Therefore  
16 the placement of the neck -- of the knee against  
17 the back of the neck, in this case I don't believe  
18 significantly contributed to death, outside of  
19 just the generalized restraint process.
- 20 Q And yet the man was cyanotic. Does that not speak  
21 to the possibility of respiratory problems?
- 22 A I believe he was cyanotic after he was fully  
23 restrained, that they noted him starting to become  
24 cyanotic.
- 25 Q But if one is restrained and there is a  
26 respiratory problem, doesn't it take a second or  
27 two or more before the discolouration of the skin  
28 takes place?
- 29 A Yes, that's possible.
- 30 Q So it is possible that at the time of the  
31 application of pressure to the neck, it was  
32 causing respiratory obstruction, which in turn led  
33 to a cyanotic condition?
- 34 A Again, from what I saw in the video, I don't think  
35 that's a reasonable scenario, again, simply  
36 because he was moving, he was vocalizing. That  
37 does indicate that he was able to breathe.
- 38 Q Now, am I right that you did not carry out either  
39 a back or posterior neck dissection?
- 40 A Yes, that's correct.
- 41 Q Why is that?
- 42 A Again, I didn't see any significant injuries and I  
43 thought that even if he did have some bruises on  
44 the back, they would, again, be insignificant.  
45 Again, they would simply be signs of an  
46 altercation.
- 47 Q And other ancillary tests were also not performed,

- 1           for example a histology of the Taser mark?  
2       A     Yes, that's correct.  
3       Q     Nor the vitreous electrolytes?  
4       A     Again, I explained that given that two days had  
5           passed between the death and the autopsy, vitreous  
6           electrolyte changes continue after death, and  
7           therefore the results would be essentially  
8           uninterpretable, so it would be a useless test to  
9           do at the time.  
10      Q     Now, my learned friend, Mr. Harris, questioned you  
11         a few minutes ago regarding whether there were any  
12         observable bruising or contusions to the neck  
13         area, correct?  
14      A     Yes, that's correct.  
15      Q     Did you examine the neck area during your autopsy?  
16      A     I examined the front of the neck, yes.  
17      Q     And only the front of the neck?  
18      A     Yes, because that's where the vital structures  
19           are.  
20      Q     Yes. But where there is pressure imposed on the  
21         back of the neck, obviously if one is to expect  
22         bruising, it is at the location where pressure has  
23         been applied.  
24      A     Yes.  
25      Q     And you didn't examine for that?  
26      A     No, I did not.  
27      Q     And is it not also correct that where you apply  
28         pressure to a portion of the body, if that  
29         individual immediately goes into cardiac arrest,  
30         that you wouldn't expect bruising because there  
31         would be a lack of blood flow from the moment of  
32         cardiac arrest?  
33      A     Yes, that's possible.  
34      Q     You say possible. Are you suggesting, officer, in  
35         a -- excuse me, Doctor. Are you suggesting that  
36         where pressure is imposed on the body and the  
37         individual goes immediately into cardiac arrest,  
38         you'd still expect bruising?  
39      A     You can probably form some bruising immediately  
40         after death simply because there is some residual  
41         pressure for at least a few seconds. The other  
42         problem also is that you can damage the tissue  
43         after death, and depending on how the body is then  
44         positioned for transport -- for example, if  
45         pressure is applied to the back to cause damage  
46         but the person had already suffered a cardiac  
47         arrest at the time, a bruise may not occur at the

1 time, but then when you flip the body over for  
2 transport and transport him face up, the lividity,  
3 the settling of the blood, may possibly create an  
4 artefactual bruise simply because blood vessels  
5 have been torn and now that the blood is settling,  
6 it may start to leak out. So in some cases, you  
7 can in fact form a post-mortem bruise immediately  
8 after death.

9 Q But in some cases you won't, correct?

10 A Yes, that's correct.

11 Q Yesterday you spoke about Mr. Dziekanski's  
12 condition shortly after being handcuffed. I think  
13 you spoke about the cyanosis, the laboured  
14 breathing, the unconsciousness. And I believe you  
15 said - and please correct me if I misstate your  
16 evidence - that Mr. Dziekanski was in the process  
17 of death during this period of time. Is that a  
18 fair comment of your evidence?

19 A Yes. I believe I said that given the signs that  
20 he apparently was expressing at the time, that he  
21 probably was in the dying process.

22 Q And this was shortly after the handcuffing?

23 A Yes.

24 Q And I want to review the significance of the  
25 observations that were made at the scene by the  
26 police officers as they've testified under oath  
27 here. We have testimony from the officers that  
28 they observed unconsciousness. Some of them  
29 observed the cyanosis. They described it as  
30 bluish colour in the extremities and the face.  
31 And they also spoke of the laboured breathing  
32 including snoring. Now, you're probably aware  
33 that police officers are trained in first aid?

34 A Yes.

35 Q As a doctor, can you please inform us why these  
36 observations are critical to a first aid trained  
37 individual.

38 A Well, the biggest concern would be the cyanosis or  
39 the turning blue. That's an indication that the  
40 body is not receiving enough oxygen and that could  
41 be for a number of reasons. That, combined with  
42 the laboured breathing, would suggest to me that  
43 the person is having difficulty breathing, and  
44 that requires assistance, either change in  
45 position, to help -- possibly help improve his  
46 ability to breathe, or -- or the use of more  
47 advanced resuscitation techniques.

- 1 Q And you would expect airway passages to also be  
2 inspected?
- 3 A Yes.
- 4 Q Especially where there's a state of  
5 unconsciousness?
- 6 A Yes.
- 7 Q There is a danger of obstruction of the airway by  
8 the tongue?
- 9 A Yes, that's a possibility.
- 10 Q All these signs that I spoke of a moment ago are  
11 likely or possibly precursors of death, right?
- 12 A Yes.
- 13 Q So what should be expected of such a trained  
14 individual in the field of first aid? First of  
15 all, the defibrillators -- should they be brought  
16 to the scene of such an incident at the moment one  
17 observes this condition?
- 18 MS. ROBERTS: While I appreciate that Dr. Lee is  
19 medically trained, his specialty is pathology,  
20 which is the examination of tissues, either from  
21 live persons or dead bodies. We do have other  
22 experts coming who are experts in emergency  
23 medicine. That's not his area of specialty and  
24 that's not the area in which he was qualified to  
25 give an opinion.
- 26 MR. ROSENBLOOM: This doctor is medically trained. He  
27 is the first medical witness here. I don't see  
28 any reason why it is inappropriate to ask this  
29 doctor regarding medical questions.
- 30 THE COMMISSIONER: I think it all goes to weight. Go  
31 ahead.
- 32 MR. ROSENBLOOM: Thank you.
- 33 Q So knowing the observations that were made by the  
34 RCMP officers in attendance that day, what should  
35 be expected of officers that have first aid  
36 training?
- 37 A I believe that they should have followed the ABCs  
38 of basic resuscitation: airway, breathing and  
39 circulation. If they saw an individual who would  
40 appear to be in distress, I believe they should  
41 have gone through the basics of making sure that  
42 the airway is clear, that the person was able to  
43 adequately breathe, and obviously assess the  
44 circulation.
- 45 Q Being in a public building, should they have  
46 called for a defibrillator?
- 47 A If one was available, then I guess it should have

1           been called for. I don't know if there was one  
2           available, but if it was available, it should have  
3           been called for.

4       Q     There is indeed evidence that they were available  
5           at the airport within a fairly short distance of  
6           where the scene took place.

7           Doctor, in a circumstance like this, should  
8           the body also be placed in a manner where CPR can  
9           be carried out on short notice?

10       A     Yes. I think the body needed to -- should have  
11           been moved to at the very least allow the person  
12           to breathe more easily, again depending on --

13       Q     Should be -- I'm sorry, I didn't hear you.

14       A     To breathe more easily if the airway was thought  
15           to be partially obstructed.

16       Q     The body should be placed on its back, shouldn't  
17           it? That's how CPR will be performed if it has to  
18           be done?

19       A     Yes. If CPR actually has to be performed, the  
20           body needs to be on its back. However, if the  
21           person is still semi-conscious -- again, this is  
22           sort of getting outside of my expertise, but I  
23           believe that there are certain dangers of placing  
24           a person directly on the back in terms of possible  
25           obstruction to the airway.

26       Q     And it's kind of trite, but you would agree with  
27           me that one does not carry out CPR with handcuffs  
28           with the hands to the back?

29       A     Yes. That would make CPR very difficult.

30       Q     And in respect to the monitoring of the vital  
31           signs in circumstances where you have observed the  
32           cyanosis, you have observed the unconsciousness,  
33           you have observed the laboured breathing, what  
34           should one expect from a first aid trained  
35           individual in terms of monitoring? I'm going to  
36           suggest to you that monitoring should be  
37           continuous. Do you agree?

38       A     If at all possible it should be continuous. There  
39           may be situations in which it's difficult to  
40           monitor, for example, the pulse continuously. It  
41           really depends on the circumstances.

42       Q     But assuming it is possible, one should be  
43           monitoring on a continuous basis, correct?

44       A     Yes. I believe it -- I hate to -- like I hate to  
45           use the word "should," but again, if at all  
46           possible, I think it would be the best way to do  
47           it would be to monitor continuously.

- 1 Q And the reason for that, Doctor, is that time is  
2 precious if the individual goes into cardiac  
3 arrest?
- 4 A Yes. The shorter the delay between cardiac arrest  
5 and resuscitation efforts, the better.
- 6 Q And in fact the window of opportunity is at best  
7 three, four, five minutes?
- 8 A Yes, I would agree with that.
- 9 Q And the optimum situation is that that  
10 intervention with CPR or with a defibrillator be  
11 immediate?
- 12 A Yes.
- 13 Q And the progression of events that one is likely  
14 to witness in this situation is a loss of  
15 consciousness and then the shallow breathing,  
16 correct?
- 17 A Yes. I believe that's what occurred in this case.
- 18 Q And then apnoea, in other words the breathing  
19 stopping?
- 20 A Yes.
- 21 Q And then no pulse?
- 22 A Yes. If the breathing stops before the heartbeat,  
23 the heartbeat will eventually stop probably a  
24 minute or so afterwards.
- 25 Q Which leads to a multi-system organ failure?
- 26 A That happens after circulation has ceased for  
27 several minutes.
- 28 Q Which leads, of course, to cardiac arrest?
- 29 A No. Cardiac arrest means that the heart has  
30 stopped, so --
- 31 Q Yes.
- 32 A -- by that time the heart has already stopped.
- 33 Q I see. Which leads to the organ damage?
- 34 A Yes. Well, once a heart stops, the person's  
35 essentially dead.
- 36 Q All right.
- 37 A So by definition, all other organs will eventually  
38 fail as well.
- 39 Q A Richmond Fire personnel, officer, a first  
40 responder to this scene, testified here in these  
41 proceedings that when he arrived at the scene, the  
42 police were five to ten meters away from the body.  
43 Would those observations surprise you?
- 44 MR. HARRIS: I'm going to rise.
- 45 THE COMMISSIONER: Well --
- 46 MR. ROSENBLUM:
- 47 Q The ambulance personnel testified in these

Charles Lee

Cross-exam by Mr. Rosenbloom (for Government of Poland)

Cross-exam by Mr. Harris (for Cpl. Benjamin Robinson)

(cont'd)

- 1 proceedings that by the time they got to the  
2 scene, the man was centrally cyanotic. Can you  
3 explain what that means?
- 4 A I believe that that means that he was essentially  
5 blue sort of in the core portions of the body,  
6 basically the central parts of the body.  
7 Oftentimes cyanosis may occur sometimes in the  
8 extremities or the fingertips, for example. But  
9 once they start -- for example, once their face  
10 and their lips start to turn blue, I guess that's  
11 a pretty good indication that the person is in  
12 distress, in medical --
- 13 Q Is what?
- 14 A In medical distress.
- 15 Q Yes. And the first signs of that central cyanotic  
16 condition would be extremities?
- 17 A Yes, usually.
- 18 Q And again, a precursor of what's to come with  
19 central cyanosis if there is not intervention?
- 20 A Yes.
- 21 Q In your autopsy report you indicate that Mr.  
22 Dziekanski's heart was 370 grams?
- 23 A Yes.
- 24 Q Is this weight within normal limits for a male who  
25 has done manual labour?
- 26 A Yes. The heart weight itself is within normal  
27 limits.
- 28 MR. ROSENBLUM: Thank you. I have no further  
29 questions.
- 30 THE COMMISSIONER: Yes, Mr. Harris.
- 31 MR. HARRIS: I'd like re-examination on clarification  
32 of a question asked by --
- 33 THE COMMISSIONER: Yes, go ahead.
- 34
- 35 CROSS-EXAMINATION BY MR. HARRIS ON BEHALF OF CORPORAL  
36 BENJAMIN ROBINSON, continuing:
- 37
- 38 Q Doctor, you were asked by Mr. Rosenbloom with  
39 regards to the monitoring of pulse, and the word  
40 "continuously" was used. Do you recall that  
41 during the sequence of questions?
- 42 A Yes.
- 43 Q Do you mean that at the scene an individual is to  
44 keep their fingers on a person's pulse at all  
45 times?
- 46 A It may not be necessary to do it at all times, but  
47 probably regular -- regular checks would be

24

Charles Lee

Cross-exam by Mr. Harris (for Cpl. Benjamin Robinson)  
(cont'd)

1           useful, especially if it looks like the person is  
2           in distress, i.e. he is turning blue, his  
3           respirations are shallow. That's sort of an  
4           indication that the person probably is close to  
5           going into cardiac arrest if he isn't already, and  
6           that one would have to be prepared to do further  
7           resuscitation efforts on short notice.

8           MR. HARRIS: Thank you.

9           THE COMMISSIONER: All right. That seems to be  
10          everything. Dr. Lee, thank you very much. I must  
11          say that your evidence has been very clear and  
12          concise and very helpful.

13          A        Thank you.

14

(WITNESS EXCUSED)

15

16  
17          THE COMMISSIONER: Thank you. We'll adjourn to have  
18          the next phase set up.

19          THE REGISTRAR: The hearing is adjourned and will  
20          resume shortly.

21

(PROCEEDINGS ADJOURNED)

22

(PROCEEDINGS RECONVENED)

23

24

25          MR. VERTLIEB: Mr. Commissioner, we were attempting to  
26          reconfigure your courtroom so we could not have  
27          counsel's back to you, but Mr. Giles feels that  
28          the technical sides of that would be most  
29          difficult. So for this session right now - it's  
30          not preferable obviously; I don't think any lawyer  
31          likes to have his back to the trier of fact - but  
32          if you don't mind, we'll do it the same way we did  
33          earlier and we'll try to redo it maybe over the  
34          lunch hour.

35          THE COMMISSIONER: Yes, go ahead.

36          MR. VERTLIEB: Sorry about that, but that's just the  
37          way it seems to work best right now.

38

39

CHARLES SWERDLOW, a witness  
appearing via video link,  
affirmed.

40

41

42

43          THE REGISTRAR: And spell your surname.

44

A        S-w-e-r-d-l-o-w.

45

46          THE REGISTRAR: Thank you. And now I will turn you  
47          over to the Commissioner.

47

THE COMMISSIONER: Thank you, Doctor, for your time.

25  
Charles Swerdlow  
In chief by Mr. Vertlieb

1           There are a few questions here, as you well know.  
2           Yes, Mr. Vertlieb.

3       A     Nice to see you again, Commissioner.

4

5       EXAMINATION IN CHIEF BY MR. VERTLIEB:

6

7       Q     Dr. Swerdlow, you are a cardiologist and an  
8           electrophysiologist?

9       A     That's correct.

10      Q     And you work at Cedars Sinai in Los Angeles?

11      A     Yes.

12      Q     You made a presentation to the Commissioner last  
13           year when he was conducting his study about Taser  
14           use in British Columbia?

15      A     Yes, I did.

16      Q     And you know that in this case counsel for TASER  
17           has asked us to contact you about providing an  
18           opinion to the Commission, and we have done that.  
19           We've asked you to provide an opinion.

20      A     I'm aware of that.

21      Q     Now, you've prepared a report that all counsel  
22           have seen. It's dated April 22. We thank you for  
23           that. April 22, 2009. Everybody is familiar with  
24           it so I'm not going to go through it in any  
25           detail. I just want to ask you some questions and  
26           doing it in a way to leave ample time for Mr.  
27           Neave from TASER and others to ask you questions.

28           First let me ask you, are there any changes  
29           or corrections you wish to make to your report?

30      A     Well, I wrote it kind of quick, and reading it  
31           this morning I noticed a few typos, but there are  
32           no [word(s) dropped in transmission] issues.

33      Q     Now, I wanted to ask you about the reference at  
34           page 6 to Mr. Enchelmaier's evidence. I  
35           understand that you on your own initiative went to  
36           our website and took his evidence off the website  
37           and you reviewed it.

38      A     That is correct.

39      Q     You've never spoken with Mr. Enchelmaier? You  
40           don't know him at all, correct?

41      A     Correct.

42      Q     Now, in your report you mention about the pulse  
43           taking and breathing issues that Mr. Enchelmaier  
44           observed?

45      A     Yes, I do.

46      Q     I just want to be clear we're working with the  
47           same evidence on that. As I understand Mr.

1 Enchelmaier's evidence, the first time he says he  
2 checked the pulse it felt strong and fast. Does  
3 that seem familiar to your recall?  
4 A Yes.  
5 Q He did not look at his watch, though, to actually  
6 count the beats. Did you realize that?  
7 A I did realize that. He described the pulse as  
8 similar to a pulse of someone who was running. So  
9 I think that gives us an idea of the range of what  
10 he might have thought the pulse would have been.  
11 Q Normally when someone's checking pulse, would they  
12 count how many beats per minute?  
13 A I think that's the usual approach.  
14 Q So the first pulse, strong and fast. We've  
15 covered that. The second, according to Mr.  
16 Enchelmaier, was not as fast, like a person at  
17 rest. Do you recall that?  
18 A Yes.  
19 Q And then he said the third time -- and  
20 incidentally, on the second he didn't count it  
21 either. You were aware of that?  
22 A Yes.  
23 Q And then the third time Mr. Enchelmaier checked,  
24 he said it was a slow pulse, slow, low breathing.  
25 Did you have that impression?  
26 A I remember that he said it was a slow pulse but he  
27 didn't characterize it as clearly as he  
28 characterized it the first two times. He didn't  
29 say it's like someone who was sitting or running.  
30 He just didn't use any descriptor. He just said  
31 it was slow.  
32 Q So the question then at page 6 of your report, if  
33 you look at your fourth paragraph where you're  
34 talking about Mr. Enchelmaier -- and if you could  
35 just turn to page 6, please, fourth paragraph,  
36 second sentence. You say: "The second and third  
37 times he assessed the pulse it was slower." Do  
38 you see that?  
39 A Yes.  
40 Q Did you have the impression that it was getting  
41 slower from first to second to third, or did you  
42 think it was the same second to third?  
43 A I couldn't tell. I think -- from the description,  
44 I think it's clear that the pulse is slower the  
45 second and third times than the first time. But  
46 he doesn't provide sufficient detail in his  
47 testimony for me to draw any conclusions about

1           whether the pulse was slower the third time than  
2           the second time.  
3       Q     So your opinion is based on your interpretation  
4           that the pulse that Enchelmaier took was the same  
5           the second and third time?  
6       A     No, I didn't say it was the same. It was just  
7           simply that he could feel a pulse.  
8       Q     Now, I wanted to ask you next about your view of  
9           whether or not Taser was a contributing factor to  
10          the death of Mr. Dziekanski. What do you say  
11          about that?  
12       A     Well, I don't know of any scientific evidence that  
13           would indicate that it was a contributing factor.  
14       Q     Next I want to ask you about page 7. You said  
15           that -- pardon me, page 5, about human volunteers.  
16           Do you remember making that reference in your  
17           report?  
18       A     Let me just pull it up so I can -- could you point  
19           to me where it is on page 5? I don't --  
20       Q     The paragraph "Effect of CEW Discharges on  
21           Acidosis."  
22       A     Yes, I do see that.  
23       Q     Now, the human volunteers, would any of those  
24           volunteers replicate the conditions that Mr.  
25           Dziekanski was facing and in at the time of his  
26           death?  
27       A     No. I think the conditions in the Vancouver  
28           Airport of having travelled for a long period of  
29           time and been up for over 30 hours that are  
30           clearly different than conditions that are done in  
31           people who are participating in approved and  
32           controlled experiments.  
33       Q     Thank you. Now, I want to next ask you about  
34           page 7, number 4, top paragraph. Do you have that  
35           in front of you?  
36       A     I do.  
37       Q     Number 4, I'll read it:  
38  
39                   The initial ECG recording from the LP-12  
40                   defibrillator also shows asystole, excluding  
41                   the diagnosis of VT or VF.  
42  
43           Are you suggesting that there could have been no  
44           VT prior to the asystole?  
45       A     Yes. I know you asked me about this in our  
46           conversation earlier this morning. So first, my  
47           point number 4 here specifically addresses Mr.

1 Dziekanski's cardiac rhythm at the time the  
2 recording was made.

3 Q Yes, I understand that.

4 A Now, you're -- so I think the broader question is,  
5 is there a chance that he had ventricular  
6 tachycardia or fibrillation before this recording  
7 was made and then that rhythm stopped and it was  
8 just never recorded. I think the likelihood of  
9 that is exceedingly low. And the reason I think  
10 that is as follows.

11 Mr. Enchelmaier felt the pulse and felt a  
12 slow pulse up to about two minutes before the  
13 Richmond Fire Rescue crew appeared and recorded  
14 asystole. So we're talking about a two-minute  
15 interval during which we don't have any data.  
16 Now, the general rule [word(s) dropped in  
17 transmission] ventricular tachycardia or  
18 fibrillation would last longer than two minutes.  
19 We don't know exactly how often it lasted, but  
20 let's just say it lasted for two or three seconds.  
21 Then we really wouldn't care because Mr.  
22 Dziekanski was unconscious on the floor for a  
23 number of minutes, and if there was a transient  
24 minor rhythm disturbance that was unimportant,  
25 then we wouldn't know about it and it wouldn't  
26 matter. So for it to be important, it would have  
27 had to last for several minutes and in that case  
28 would have had to start at least two minutes -- it  
29 would have to start in the last two minutes and it  
30 would be very likely, in fact nearly certain, that  
31 it would have persisted until the Richmond Fire  
32 Rescue crew arrived. So I think the chance of  
33 that is exceedingly remote.

34 Q Of course you realize -- or do you realize that  
35 when Richmond arrived, they didn't immediately put  
36 on the equipment? Did you realize that?

37 A I do realize that and I did review their emergency  
38 medical report in some detail, and my memory is  
39 that the time delay from their arrival on the  
40 scene to the recording was of the order of a  
41 minute. I don't have the exact time. Is that  
42 approximately your view of the situation?

43 Q So I just want to come back to it. Are you saying  
44 there is no way there was tachycardia prior to the  
45 asystole recording?

46 A I'm saying that there's a gap of two or three  
47 minutes where we can't be sure, but it would be

1           exceedingly unlikely. And I don't really see how  
2           it changes anything.

3           Q     Now, you know that there was a survey paper by a  
4           Dr. Zian Tseng, a gentleman with similar  
5           qualifications to you who practises in San  
6           Francisco? Are you familiar with that work?

7           A     I'm familiar with -- I'm familiar with a paper  
8           published by Dr. Lee on which Dr. Tseng was a  
9           co-author in the *American Journal of Cardiology*  
10          earlier this year. I'm generally familiar with  
11          it. I haven't reviewed it in any detail.

12          Q     Now, you've gone through the analysis and we've  
13          got that in your report. Are you suggesting that  
14          Mr. Dziekanski would have died anyway even if no  
15          Taser had been used?

16          A     You know, I don't consider any hypotheticals in my  
17          report. If no Taser had been used, we'd be left  
18          with a situation where Mr. Dziekanski was facing  
19          off against the RCMP in the Vancouver Airport.  
20          Whether the RCMP would have been able to find a  
21          Polish translator [word(s) dropped in  
22          transmission] it had to get into a different kind  
23          of struggle with him. Now, I don't have any  
24          expert opinion to comment on what would have  
25          happened.

26          Q     Now, I wanted to ask you about page 9 of your  
27          report in the "Concluding Comments" section. You  
28          talk about -- the last comment given:

29  
30                   Given the low rate of these sudden in-custody  
31                   deaths, such a prospective study would likely  
32                   require a sample size greater than 100,000  
33                   arrests to achieve meaningful power.

34  
35           Do you see that sentence?

36          A     I do see it.

37          Q     Are you familiar that one of the comments from an  
38          epidemiologist, Dr. Chambers, is just to that  
39          effect, that there hasn't been an appropriate  
40          sample done in this field of Taser use?

41          A     No, I don't know Dr. Chambers and I don't know his  
42          work and I'm not familiar with -- and I don't know  
43          anything about his testimony or comment.

44          Q     And then in the next sentence, you say:

45  
46                   It would be expensive, and it would require a  
47                   consensus that the hypothesis being tested

1                   justified withholding use of CEWs in tens of  
2                   thousands of cases.  
3

4                   I really want to ask you about "expensive." We  
5                   understand that drug companies and other medical  
6                   companies spend large sums of money testing  
7                   products before they're put on the market and that  
8                   other companies, non medical, spend large sums of  
9                   money. What did you mean by expensive?

10          A        You mean how much money would it cost?

11          Q        Well, I don't know. You use the word, "It would  
12                   be expensive..." I'm just wondering what you  
13                   mean.

14          A        Well, what I meant is that to collect data  
15                   prospectively on 100,000 [word(s) dropped in  
16                   transmission] All I meant was it would require  
17                   considerable resources to prospectively track tens  
18                   of thousands of arrests, collect data, collate the  
19                   data, and analyze the data. And I don't know the  
20                   exact amount of money it would cost, but it would  
21                   be a substantive effort. I'm not suggesting by  
22                   any -- I'm not suggesting it wouldn't be worth it.  
23                   I'm just saying that someone would have to  
24                   identify the resources. It's not something that  
25                   could be done with minimal resources.

26          Q        Now --

27          A        And I'm not suggesting it shouldn't be done.

28          Q        Now, I just want to conclude, because as I say, I  
29                   want to leave time for others, but I was just  
30                   passed a note. When I thought you went to the  
31                   website to check for Mr. Enchelmaier, I'm given a  
32                   note that says you did not go to the website on  
33                   your own but that in fact Jennifer Spencer  
34                   directed you to that website. So just so we're  
35                   clear, did you go to the website on your own to  
36                   find Enchelmaier or were you directed by Ms.  
37                   Spencer, who's one of the lawyers for TASER, to go  
38                   there?

39          A        She told -- yes. She indicated that -- sorry, you  
40                   mean did I look -- did I go to the website after  
41                   she indicated there was a website? No, she  
42                   informed me the website existed and then we went  
43                   to the website and downloaded the -- downloaded  
44                   the daily testimonies and found Mr. Enchelmaier's  
45                   testimony.

46          Q        And you've had contact with the lawyers for TASER  
47                   here in British Columbia concerning this case?

31  
Charles Swerdlow  
In chief by Mr. Vertlieb

1 A I have, absolutely.  
2 Q And shared information with them?  
3 A Limited information.  
4 Q And finally, you were good enough to respond to  
5 our request for disclosure of your business  
6 relationships with TASER. You sent us an e-mail  
7 dated April 25. It's a one-page e-mail outlining  
8 your business relationship with TASER?  
9 A I did.  
10 Q I want to thank you for that. Just so we're  
11 clear, because you have categories in two  
12 paragraphs, compensation for consultation as a  
13 member of their advisory board, the medical  
14 advisory board, and then also for giving evidence.  
15 But the total number for 2008 is there on the page  
16 if you add the three columns for board and board  
17 meetings and consulting, right?  
18 A [Word(s) dropped in transmission]  
19 Q I'm sorry?  
20 A That's correct.  
21 Q What I'd like to do, Dr. Swerdlow, then, is have  
22 your report marked the next exhibit and your  
23 e-mail the exhibit after that.  
24 MR. VERTLIEB: Mr. Giles, if you could that, please.  
25 THE REGISTRAR: The report will be marked as Exhibit  
26 104.  
27  
28 EXHIBIT 104: Copy - Report of Dr. Charles  
29 Swerdlow dated April 22, 2009  
30  
31 THE COMMISSIONER: And 104A.  
32 THE REGISTRAR: And 104A for the e-mail.  
33  
34 EXHIBIT 104A: Copy - C. Swerdlow e-mail  
35 dated April 25, 2009  
36  
37 MR. VERTLIEB: Thank you.  
38 THE COMMISSIONER: All right, who's next?  
39 MR. KOSTECKYJ: I would have expected Mr. Neave to go  
40 next.  
41 THE COMMISSIONER: Oh, this is not Mr. Neave's witness.  
42 MR. KOSTECKYJ: Ah, okay.  
43 MR. NEAVE: Mr. Commissioner, I only rise. Mr.  
44 Vertlieb has called Dr. Swerdlow. He's not been  
45 qualified, and I think that process ought to occur  
46 such that before my friend engages in seeking  
47 various opinions that we all know the scope of the

Charles Swerdlow

Ruling on qualifications

Cross-exam by Mr. Kosteckyj (for Zofia Cisowski)

1           opinion and the scope of his qualifications in the  
2           normal manner. And I'm pleased to do that.  
3       THE COMMISSIONER: Yes, go ahead. I mean, his  
4           qualification is so obvious to me, but go ahead  
5           and be particular.  
6       MR. NEAVE: Mr. Commissioner, if you're content that  
7           he's appropriately qualified to give evidence with  
8           respect to electrocardiophysiology issues and the  
9           deployment of the Taser and the effect on that,  
10          I'll stop now. I don't think it's necessary.  
11       THE COMMISSIONER: Yes, I agree with that.  
12       MR. NEAVE: Thank you.  
13       MR. KOSTECKYJ: My name is Walter Kosteckyj. I'm  
14           counsel for Zofia Cisowski.  
15       A     I'm sorry, sir, I didn't get your name.  
16       MR. KOSTECKYJ: Walter Kosteckyj and --  
17       A     Okay.  
18       MR. KOSTECKYJ: -- I'm counsel for Zofia Cisowski. I  
19           have a few questions for you.  
20  
21       CROSS-EXAMINATION BY MR. KOSTECKYJ ON BEHALF OF ZOFIA  
22           CISOWSKI:  
23  
24       Q     Mr. Vertlieb indicated and you've provided  
25           information about what you've been paid as being  
26           part of the medical advisory board. Are you also  
27           a shareholder of TASER International?  
28       A     No, I'm not. I -- I once owned some TASER  
29           International stock when I was asked to join  
30           about -- it was a little under \$10,000 worth.  
31           When I was asked to become a member of the  
32           scientific advisory board, I sold that stock in  
33           2004, so I have not since that time. And I bought  
34           that stock on the open -- I mean I bought that  
35           stock on -- you know, through a standard  
36           commercial transaction. I have not been paid by  
37           TASER International in stock or stock options or  
38           in any other way.  
39       Q     Now, let's talk about the evidence that you gave,  
40           and specifically in relation to this as to whether  
41           or not there could have been ventricular  
42           fibrillation. You cannot discount that Mr.  
43           Dziekanski went into ventricular fibrillation at  
44           some point before the ambulance people arrived?  
45       A     Well, I would disagree with you.  
46       Q     Okay. Well, how would you be able to do that?  
47       A     Well, the presence of a pulse -- well, if we

1 accept Mr. Enchelmaier's testimony, then it's  
2 clear that for the three times his pulse was  
3 sampled while he was unconscious and lying on the  
4 ground for a number of minutes after the Taser  
5 discharge, he had a pulse, and that's inconsistent  
6 with ventricular fibrillation. So now we're down  
7 to the possibility, nine minutes later, for the  
8 period in which there is no data, that  
9 fibrillation started and then it stopped and he  
10 became asystolic.

11 Now, that is not theoretically impossible.  
12 It's just exceedingly improbable. But even if it  
13 did occur, it would be irrelevant to the question  
14 which I'm asked to give expert witness on, and  
15 that is whether or not the Taser could have caused  
16 -- Taser electrical stimulation could have  
17 resulted in a cardiac arrhythmia. And the reason  
18 that it's irrelevant is that if a Taser or any  
19 other electrical stimulation causes rhythm  
20 disturbance, it happens immediately. It's not  
21 delayed for nine minutes. So whether or not there  
22 was a rhythm disturbance that came and went and no  
23 one actually recorded in a brief interval after  
24 the last pulse was taken and before the first ECG  
25 was taken, it really doesn't bear on Taser effects  
26 on Mr. Dziekanski's heart for electrical  
27 stimulation.

28 Q Are you aware, sir, of pig studies which have  
29 concluded that after a tasering that a pig after  
30 some period of time can develop ventricular  
31 fibrillation minutes later? Are there such  
32 studies?

33 A I'm not aware of any such studies.

34 Q You've never heard of studies where there has been  
35 testing done on pigs and that after the stimulus  
36 has been provided to the pigs, that in minutes  
37 later ventricular fibrillation has arisen?

38 A I'm not aware of studies in which -- I'm aware of  
39 studies in which as a direct result of Taser  
40 stimulation, ventricular fibrillation occurs. I  
41 am not aware of any studies, not just with Taser  
42 stimulation, but there have been thousands of  
43 studies performed over the last 70 years with  
44 direct electrical stimulation in which ventricular  
45 fibrillation has been attributed by a credible  
46 scientist or medical investigator to a delayed  
47 effect of any type of electrical stimulus on the

1 heart. That's just inconsistent with the laws of  
2 electrophysiology and bioelectrical stimulation as  
3 we understand them.

4 MR. NEAVE: Mr. Commissioner, it would assist if Mr.  
5 Kosteckyj has a specific paper that he discuss  
6 that with the witness rather than a general  
7 statement to this effect. I think that would be  
8 of some assistance to all of us.

9 MR. KOSTECKYJ:

10 Q Now, are you aware, sir, that there's been  
11 evidence before the Commission as early -- as late  
12 as yesterday that Mr. Dziekanski was breathing --  
13 making a snoring sound rather than breathing in  
14 the moments after he was restrained, probably  
15 within a minute after the last tasing occurred?

16 A I'm not aware of any evidence given to the  
17 Commission yesterday. I did read the  
18 circumstances document in which Mr. Dziekanski's  
19 breathing is described as loud shortly after he  
20 was restrained.

21 Q And are you familiar with agonal breathing?

22 A Yes.

23 Q There's been some evidence that that's what Mr.  
24 Dziekanski was -- what was happening to him in the  
25 minutes after he was restrained. Were you aware  
26 of that?

27 A No. But I would say this in response, that agonal  
28 breathing by definition is breathing that's slow,  
29 erratic and, you know, by definition around the  
30 time someone's dying, and that it would be  
31 inconsistent to have a strong, regular pulse for  
32 minutes later and be in an agonal state prior to  
33 that.

34 Q And were you aware that Mr. Dziekanski started to  
35 become cyanotic within minutes of the last  
36 tasing and almost immediately after he was  
37 handcuffed? Were you aware of that, sir?

38 A I'm aware in the circumstances report that  
39 there's -- the circumstances report mentions the  
40 presence of cyanosis.

41 Q And is that important in your considerations, the  
42 fact that this gentleman was in a cyanotic state  
43 at that time?

44 A Yeah. Now, the reports I read didn't indicate  
45 exactly how strong that evidence was, but I would  
46 agree that it's important. And cyanosis indicates  
47 that there's a lack of adequate oxygenation of

- 1           some body tissue. So I think that is important.
- 2       Q     So that combined with the evidence about agonal
- 3           breathing at about the same time, was that
- 4           evidence that you were aware of, sir?
- 5       A     I was aware of the evidence of -- I was aware of
- 6           the reports of cyanosis. I did not hear the term
- 7           agonal breathing used until you just used it in
- 8           your questioning. So I have -- you know, I was
- 9           aware of the description of the breathing as given
- 10          in the circumstances document.
- 11       Q     Knowing those two facts now, or accepting those
- 12          facts -- whether they're right or not, but I'll
- 13          ask you to accept that in the moments after Mr.
- 14          Dziekanski was handcuffed, which would have been
- 15          approximately a minute or less after last tasering
- 16          was administered to him, that those facts are
- 17          important in determining what effects the Taser
- 18          may have had on Mr. Dziekanski's death.
- 19       A     No, I would reject that. I would say those
- 20          effects are important in giving us clues as to a
- 21          likely mechanism of Mr. Dziekanski's death. I
- 22          wouldn't necessarily relate them to the use of the
- 23          Taser or any other specific aspect of the method
- 24          by which he was restrained.
- 25       Q     Well, it seems that one of your problems with the
- 26          Taser being involved or responsible in any way for
- 27          Mr. Dziekanski's death is the gap of time between
- 28          the time that he was tasered and the time that the
- 29          ambulance people arrived. Am I being fair there?
- 30       A     No. That's not -- that's not a -- I'm sorry. I
- 31          didn't -- no, I would ask you to repeat that on
- 32          several levels. I don't think I have any problems
- 33          here, so maybe you could rephrase that. You said
- 34          I had a problem with -- you said I had a problem,
- 35          and I haven't perceived having any problems.
- 36       Q     All right. Well, let me explain it this way. One
- 37          of the indications that you've made is why you
- 38          discount the Taser having a direct effect in Mr.
- 39          Dziekanski's death, as I understand it, is because
- 40          the Taser was administered long before the effects
- 41          that Mr. Dziekanski felt, or the asystole
- 42          occurred. This gap in time, that's important to
- 43          you, is it not?
- 44       A     The gap -- the delay is important, but asystole is
- 45          also not a direct electrical effect of cardiac --
- 46          is not a direct effect of cardiac electrical
- 47          stimulation. But even if he had become asystolic

Charles Swerdlow

Cross-exam by Mr. Kosteckyj (for Zofia Cisowski)

Cross-exam by Ms. Roberts (for Government of Canada)

1 within a few seconds after being hit by the Taser,  
2 there aren't, to my knowledge, any scientific  
3 reports of direct cardiac stimulation causing  
4 asystole within the magnitude or order of  
5 magnitude of electrical stimulation that Taser  
6 delivers. So the presence -- so if we assume that  
7 the mechanism of cardiac arrest is asystole, I  
8 think we can use that to exclude a direct effect  
9 of Taser. And independently, a time delay is also  
10 important.

11 Now, it's important to recognize this. I'm  
12 not an expert on breathing and I'm not providing  
13 expert testimony on direct effects on the  
14 respiratory system. And it would certainly be  
15 possible for any number of factors without my  
16 expert knowledge to affect Mr. Dziekanski's  
17 breathing. But whether or not he was turning  
18 cyanotic because he wasn't breathing, we still  
19 have good evidence that he had a strong and, for  
20 practical purposes, relatively close to normal  
21 pulse for a number of minutes.

22 Q Now, in your report, you'll agree with me that you  
23 consider that Mr. Dziekanski was not the usual  
24 candidate for a sudden death mechanism -- or  
25 sudden death syndrome in restraint. Is that  
26 correct?

27 A I think what I said in my report that there's some  
28 aspects of his case that are typical and some  
29 aspects that are atypical. I think his age and  
30 gender are pretty typical. Most of these happen  
31 to males between the ages of 20 and 50. I think  
32 what's atypical is that most of the -- most of the  
33 cases I reviewed had some type of stimulant or  
34 other drug use involved. And Mr. Dziekanski's  
35 autopsy shows no evidence of drug use. So I think  
36 it would be atypical in that regard.

37 MR. KOSTECKYJ: All right. Thank you. Those are my  
38 questions.

39 MS. ROBERTS: Dr. Swerdlow, my name is Helen Roberts.  
40 I'm counsel for the Government of Canada. Can you  
41 hear me, sir?

42 A Yes, I can, Ms. Roberts.

43 MS. ROBERTS: Thank you.

44  
45  
46  
47

1 CROSS-EXAMINATION BY MS. ROBERTS ON BEHALF OF THE  
2 GOVERNMENT OF CANADA:

3

4 Q You and I have never met or spoken before?

5 A Is that a question?

6 Q Yes. Is that correct?

7 A Yes, that's correct.

8 Q Thank you. We haven't had a lot of evidence so  
9 far about the heart, and I wonder if I could ask  
10 you some questions that are very basic to you, I'm  
11 sure. There's a number of different rhythms and  
12 lack of rhythms that the heart can have, and I  
13 understand ventricular fibrillation is one of  
14 those. Can you give us a very short definition of  
15 that?

16 A Yes. As you probably know, but just starting at  
17 the basics, the heart has upper chambers and lower  
18 chambers. The upper chambers are called the atria  
19 and the lower chambers are called the ventricles.  
20 When a chamber is in fibrillation, that refers to  
21 rapid, chaotic and irregular electrical activation  
22 that results in ineffective contraction so that  
23 the blood -- there's no blood flow. And if a  
24 patient persists in ventricular fibrillation long  
25 enough, he or she will suffer -- you know, will  
26 suffer irreversible brain damage and die. So  
27 ventricular fibrillation if untreated is a fatal  
28 arrhythmia and the only reliable treatment is  
29 electrical counter-shock. Is that a sufficient  
30 summary, Ms. Roberts?

31 Q Yes, thank you. And you've also talked about VT.  
32 Is that ventricular -- is it tachycardia, the T?

33 A So ventricular tachycardia, as you probably know,  
34 means rapid heartbeat. Normal heartbeats  
35 originate in the atria, in the heart's upper  
36 chambers, and those are called -- actually in a  
37 part of the upper chambers called the sinus node.  
38 So normal heartbeats are called sinus rhythm. A  
39 normal fast heartbeat would be called sinus  
40 tachycardia, indicating where it originated.  
41 Ventricular tachycardia is a rapid heartbeat that  
42 originates in the lower chambers, the ventricles.  
43 Tachycardia usually is a serious rhythm  
44 disturbance. And I think we've focused on  
45 ventricular fibrillation and ventricular  
46 tachycardia because cardiac electrical stimulation  
47 [word(s) dropped in transmission] dangerous and

- 1 serious outcomes usually causes ventricular  
2 fibrillation. On very rare occasions, especially  
3 in people who've had prior heart attacks or other  
4 types of heart disease, can rarely cause  
5 ventricular tachycardia.
- 6 Q We've also heard the term asystole. Can you give  
7 us a brief definition of that?
- 8 A Sure. Systole is the word used to refer to the  
9 [word(s) dropped in transmission] not happening.  
10 I believe it's a Greek prefix. So asystole means  
11 no heartbeat at all. On a practical basis,  
12 asystole is used also to refer to extremely slow  
13 heart rate, say less than about five beats per  
14 minute. But generally asystole refers to heart  
15 rate that -- heartbeat -- either the complete  
16 absence of heartbeat or heartbeats that are too  
17 slow to sustain life, typically five beats a  
18 minute or less.
- 19 Q There's also been reference to PEA or pulseless  
20 electrical activity. Can you tell us what that is  
21 very briefly?
- 22 A Well, pulseless electrical activity describes the  
23 spectrum of rhythms seen in cardiac arrest in  
24 which the rate of the heart's electrical activity  
25 would be sufficient, if the heart could pump  
26 blood, that the person would remain alive. But in  
27 the case of PEA, the heart is being electrically  
28 stimulated but it's not mechanically contracting.  
29 So either there is a disconnection at the cellular  
30 level in the heart's electrical activity and the  
31 ability to pump blood, or there's a series of  
32 other types of [word(s) dropped in transmission]  
33 that would allow the heart to beat but no blood to  
34 be pumped, and those could be -- people have  
35 nearly bled to death so there's no blood to pump  
36 and a variety of other sort of trauma-related  
37 situations that don't really have relevance in Mr.  
38 Dziekanski's case.
- 39 Q We've also heard evidence about defibrillators and  
40 what use they could be. Which of these heart  
41 conditions can defibrillators effectively treat?
- 42 A They can effectively treat ventricular  
43 fibrillation.
- 44 Q Can they treat someone who has VT or is asystole  
45 or has PEA?
- 46 A VT is ventricular tachycardia and they can treat  
47 ventricular tachycardia. They cannot treat

Charles Swerdlow

Cross-exam by Ms. Roberts (for Government of Canada)

Cross-exam by Mr. Hira (for Cst. Kwesi Millington)

1           asystole or pulseless electrical activity.

2           Q     And according to your evidence, my understanding  
3           is that in your view Mr. Dziekanski did not have  
4           ventricular fibrillation or ventricular  
5           tachycardia --

6           A     That's correct.

7           Q     -- after his collapse? I'm sorry?

8           A     I think we were both talking at the same time. I  
9           understood your question to be, my opinion is that  
10          Mr. Dziekanski did not have ventricular  
11          fibrillation or tachycardia, and that's correct.

12          Q     And in fact, have you seen the strips from the  
13          defibrillator monitor?

14          A     I have.

15          Q     And my understanding is he was asystole?

16          A     That was the interpretation of the EMS crews and I  
17          agree with that interpretation.

18          Q     So a defibrillator would not have helped Mr.  
19          Dziekanski?

20          A     That is correct.

21          Q     You've also given some evidence about sudden death  
22          during restraint, or that's been referred to.

23          A     Yes.

24          Q     And we've heard evidence from the pathologist who  
25          conducted the autopsy that that occurs outside the  
26          field of law enforcement. Is that your  
27          understanding as well?

28          A     Most of the reports -- in fact, all of the reports  
29          I know about or have read about related to law  
30          enforcement. I'm not aware of situations in which  
31          sudden death -- about sudden death during  
32          restraint in other situations. But I'm a cardiac  
33          electrophysiologist, and it could very well be  
34          that a pathologist knows more about this than I  
35          do.

36          MS. ROBERTS: Thank you very much, sir.

37          MR. HIRA: Sir, my name is Ravi Hira and I'm the lawyer  
38          for Constable Kwesi Millington.

39

40          CROSS-EXAMINATION BY MR. HIRA ON BEHALF OF CONSTABLE  
41          KWESI MILLINGTON:

42

43          Q     First, Doctor, you and I have never met or spoken?

44          A     That's correct.

45          Q     I wish to ask you a question regarding the  
46          evidence that you gave on June 25, 2008, during  
47          the study session of the Commission. At that

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Cross-exam by Mr. Hira (for Cst. Kwesi Millington)

Cross-exam by Mr. Neave (for TASER International)

1 time - and I'm looking at, for the record, page  
2 31, lines 19 through 24 - you testified:  
3

4 What I don't understand very well, and I  
5 don't think is understood very well by  
6 anyone, is how, with all the stress going on  
7 in these confrontations with law enforcement,  
8 how all of a sudden people's hearts just stop  
9 despite all the adrenaline that's going on  
10 there.  
11

12 You recall giving that answer?

13 A I don't recall giving that answer and I have not  
14 reviewed my testimony and I don't have it  
15 immediately available. But it certainly sounds  
16 like I could have said, and I would accept that I  
17 said that.

18 Q Fair enough. It continues to be your opinion?

19 A Right. That's correct.

20 Q In other words, from your perspective, it's  
21 difficult to find an anatomical cause of death in  
22 these circumstances?

23 A I think -- I think if I was going to rephrase  
24 that, it's difficult to understand that the usual  
25 response to stress, catecholamine and the  
26 activation of the sympathetic nervous system, is  
27 to have your heart race and go fast. And we can  
28 understand how rapid heart rhythm disturbances  
29 could be caused by these types of acute stress.  
30 And in the field of neurocardiology, there are  
31 quite a few studies that link ventricular  
32 fibrillation to various types of stressful  
33 situations.

34 What's perplexing to most investigators is  
35 how in the same situation the heart could all of a  
36 sudden just stop. And yes, I do find that  
37 perplexing and I don't think that's well  
38 understood, either by me or by -- generally by our  
39 field.

40 MR. HIRA: Thank you, Doctor. Those are my questions.

41 MR. NEAVE: Mr. Commissioner, for the record, David  
42 Neave for TASER International.  
43

44 CROSS-EXAMINATION BY MR. NEAVE ON BEHALF OF TASER  
45 INTERNATIONAL:  
46

47 Q Dr. Swerdlow, you and I have met when you were

- 1 preparing for the first phase of the Braidwood  
2 Inquiry; is that correct?
- 3 A Yes, Mr. Neave.
- 4 Q And I'm going to ask you a couple of questions  
5 with respect to your qualifications. But before  
6 that, you did not provide me nor did I have any  
7 comment about the opinion which has been tendered  
8 as your report prior to its tendering and signing  
9 off on April 22nd, 2009; is that correct?
- 10 A That's correct. I'm sure you would have caught  
11 the typos if I'd provided it.
- 12 Q Now, I'm just going to step back for a moment, Dr.  
13 Swerdlow, and talk briefly about your  
14 qualifications. Your education speaks for itself  
15 and I'm not going to go through that in any  
16 detail. Is it fair to say that you are first and  
17 foremost a cardiac electrophysiologist?
- 18 A Yes, I'm a cardiac electrophysiologist.
- 19 Q And you've been employed at Cedars Sinai Hospital  
20 since 1990?
- 21 A Correct.
- 22 Q And you've been nine years as a clinical professor  
23 of medicine at the University of California; is  
24 that correct?
- 25 A Yes.
- 26 Q You've conducted hands-on research with respect to  
27 the medical effects of Taser deployments?
- 28 A No, I haven't.
- 29 Q You have written and in press is paper 98, with  
30 respect to Taser devices, correct?
- 31 A That's correct. That's a review of -- and that  
32 paper is the first systematic review of the  
33 cardiac rhythm and sudden deaths that were  
34 unexplained and occurred after use of Taser  
35 devices. But it's a review of records taken from  
36 EMS recordings and hospital recordings and police  
37 recordings and police records as opposed to my own  
38 personal hands-on testing of the weapon.
- 39 Q Am I correct, Doctor, that in preparing this paper  
40 for the *American Emergency Medicine Journal*, you  
41 sought and obtained various rhythm strips and  
42 other circumstances of persons involved in death  
43 cases in which there had been a proximate use of a  
44 Taser?
- 45 A Yes.
- 46 Q What's the status of that paper, Doctor?
- 47 A It's accepted and in press. I don't have a

1 publication date. I understand it will be this  
2 summer.

3 Q And is the *Academic Emergency Medicine Journal* a  
4 peer-reviewed journal?

5 A Yes, it is.

6 Q And can you just inform the Commissioner what the  
7 peer review process is.

8 A Certainly. When a manuscript is submitted to a  
9 peer-reviewed journal, typically the editor  
10 reviews it and if he or she considers the  
11 manuscript generally in the field the journal  
12 might be interested in and identifies suitable  
13 experts who would have expert knowledge of the  
14 specific subject matter, the paper is then sent to  
15 typically two or three experts. They provide a  
16 critical review of the manuscript with respect to  
17 originality, scientific methodology, quality of  
18 the data, whether the conclusions are supported by  
19 the data, and any other -- and general level of  
20 contribution to the scientific field, and then  
21 they evaluate the paper, make suggestions for  
22 improvement, and advise the journal editor whether  
23 or not the paper would be acceptable if it were  
24 suitably revised.

25 Q And in this case the paper has been accepted?  
26 It's in print or will be printed shortly?

27 A That's correct. I received several helpful  
28 suggestions for revision from peer reviewers, and  
29 I made those revisions and it's been accepted for  
30 publication.

31 Q The last issue I'm going to deal with with respect  
32 to your qualifications is the issue of your  
33 involvement with TASER. Am I correct, Doctor,  
34 that you sit on a number of medical boards for a  
35 variety of companies in the United States?

36 A I am a medical advisor to several medical device  
37 companies but no other weapons company.

38 Q And what's the purpose of your participation on a  
39 medical board?

40 A Well, I think specifically with respect to TASER,  
41 TASER is interested in input from physicians  
42 regarding the risks associated with use of its  
43 weapons and the design of scientific studies that  
44 would appropriately evaluate those risks, how to  
45 conduct them. In my particular field, it's  
46 difficult to evaluate the cardiac rhythm during a  
47 Taser discharge because electrical signals from

1 the heart are typically very weak signals.  
2 They're in the range of millivolts or thousandths  
3 of a volt, whereas Tasers put hundreds or maybe a  
4 thousand volts on the skin. So it's very  
5 difficult to do an electrocardiographic recording  
6 during a Taser discharge, and there are some  
7 substantial methodological issues about how to  
8 record the cardiac rhythm during Taser discharge  
9 that I've provided advice to TASER about.

10 So broadly it relates to methodology,  
11 understanding the effects of electricity on the  
12 heart, and designing appropriate studies to  
13 evaluate risk and safety.

14 Q The correct name for that board in terms of TASER  
15 is the scientific and medical advisory board; is  
16 that correct?

17 A Scientific and medical advisory board.

18 Q And what are the backgrounds of some of the other  
19 people that are on that board?

20 A Two other physicians are cardiac  
21 electrophysiologists. Two of them are emergency  
22 medicine specialists. One is a biomedical  
23 engineer. One is a pathologist. And if I left  
24 anyone out, I apologize.

25 Q Thank you, Doctor. Now I'm going to firstly,  
26 before I turn to your report proper, just touch  
27 and go back with respect to the issue that Mr.  
28 Kosteckyj raised about agonal breathing. Can you  
29 provide me with and provide Mr. Commissioner with  
30 a description, firstly, of what agonal breathing  
31 is, and then provide the Commissioner with your  
32 opinion as to whether there is any issue related  
33 to agonal breathing in this case.

34 A Well, I think agonal -- my understanding -- I  
35 wouldn't qualify myself as an expert on agonal  
36 breathing but I've certainly seen enough of it and  
37 heard the phrase quite a few times. Agonal  
38 breathing is typically described in the context in  
39 which someone's having a cardiac arrest and has no  
40 pulse, and it's the breathing associated with the  
41 absence of pulse in which someone -- and it's  
42 typically irregular, deep and very transient. And  
43 that's really all I would have to say about it.

44 Now, I don't think that term applies here  
45 because in the normal use of the term agonal  
46 breathing, the next thing that happens is that  
47 people just stop breathing. It's the breathing --

1           it's the last breathing people have before they  
2           die. In this particular -- in Mr. Dziekanski's  
3           case, I think there's -- I mean, of course this is  
4           all testimony, but there's quite clear testimony  
5           from Mr. Enchelmaier and I believe there's also a  
6           mention in the circumstances report that Mr.  
7           Dziekanski was breathing for quite a few minutes  
8           after he was lying on the floor, and the breathing  
9           I think is typically described then for a number  
10          of minutes in the general terms of being shallow.  
11          I don't recall the exact words. But that would be  
12          inconsistent with the usual use of the term agonal  
13          breathing, which is basically the last breaths  
14          people take before they stop breathing.

15        Q     Now, Doctor, moving to your report, I just want to  
16              clarify the nature of the factual information that  
17              you were provided in forming the opinions that are  
18              contained therein. I understand that you were  
19              provided from Commission counsel with a document  
20              that is entitled "Robert Dziekanski -  
21              Circumstances." It's a document of 12 pages in  
22              length. And as well, I understand you were  
23              provided with some electronic information; is that  
24              true?

25        A     Yes.

26        Q     And the circumstances upon which you relied are  
27              outlined in the report that Commission counsel  
28              provided you; is that correct?

29        A     I'm sorry, you said -- could you repeat that  
30              question, Mr. Neave?

31        Q     Yes. The information that you relied upon in  
32              forming your opinion is contained within the  
33              circumstances document that Commission counsel  
34              provided and the electronic information that was  
35              provided?

36        A     Yes, that's correct.

37        Q     And that over and above that, you took the  
38              opportunity to review the evidence of Mr.  
39              Enchelmaier that's posted on the Commission's  
40              website, correct?

41        A     That's correct.

42        Q     Now, if I can cause you, Doctor, to just turn to  
43              page 10 of 12 of the circumstances document.

44        A     I have it.

45        Q     And I will read the bottom paragraph. Part of the  
46              information that you were provided was this:  
47

1 Mr. Dziekanski was then repositioned so one  
2 leg was bent at the knee, and he was angled  
3 so as that he was not fully prone. An airport  
4 employee checked for and claims he found a  
5 carotid pulse, and also concluded that he was  
6 breathing. The employee knelt at the back of  
7 Mr. Dziekanski's head and placed two fingers  
8 on his neck. First he detected a very fast  
9 pulse; he did not hold his fingers in place.  
10 Initially after Mr. Dziekanski went  
11 unconscious it was noticed that his breathing  
12 appeared to be quite laboured, as though he  
13 had been exerting himself physically. However  
14 in subsequent checks the breathing rate was  
15 described as someone being at rest. About two  
16 minutes after the airport employee checked  
17 Mr. Dziekanski's pulse for a first time he  
18 checked it again and this time a slower pulse  
19 was detected. Again he did not count the  
20 beats. A third check was done about two  
21 minutes before the firefighters arrived, and  
22 an even slower pulse was detected; again, no  
23 beats per second were counted.  
24

25 That information was provided to you, and did it  
26 form the facts upon which you opined?

27 A Yes.

28 Q Doctor, I'm first going to take you to page 2 of  
29 your report, to the "Summary and Conclusions"  
30 section.

31 A I have it. Thank you.

32 Q Thank you. You say this:

33  
34 I was asked --  
35

36 And that is Commission counsel asking; is that  
37 correct?

38 A That's correct.

39 Q  
40 I was asked to evaluate the records provided  
41 to me by the Commission to determine the  
42 cause of Mr. Robert Dziekanski's death and  
43 what role, if any, CEWs may have played in  
44 his death. I have three conclusions.  
45

46 So from that, I understand that Commission counsel  
47 sought your opinion with respect to the issue

1 outlined in that sentence; is that correct?

2 A Yes.

3 Q And you formed three conclusions. And I'm going  
4 to deal with them in order and come back to the  
5 three of them separately. The first conclusion is  
6 this:

7  
8 The pathophysiological mechanisms that caused  
9 Mr. Dziekanski's death cannot be determined  
10 with a high degree of certainty.

11  
12 The second conclusion:

13  
14 The circumstances of Mr. Dziekanski's death  
15 are typical of the poorly-understood syndrome  
16 of sudden, in-custody death, often occurring  
17 after restraint.

18  
19 And lastly you conclude:

20  
21 There is no medical, scientific evidence to  
22 support the conclusion that CEW discharges  
23 contributed to Mr. Dziekanski's death.

24  
25 Those are your conclusions, Doctor?

26 A They are.

27 Q Let's deal with the first one, that being:

28  
29 The pathophysiological mechanisms that caused  
30 Mr. Dziekanski's death cannot be determined  
31 with a high degree of certainty.

32  
33 Can you inform the Commissioner as to why you  
34 formed that conclusion?

35 A Yes. So just to look at the big picture of the  
36 circumstances of Mr. Dziekanski's death, after he  
37 collapsed to the floor, I think there's a general  
38 consensus that he was unconscious but that he had  
39 a pulse and that he was breathing although his  
40 breathing may not have been entirely normal.

41 Now, it's not -- again, I'm a cardiac  
42 electrophysiologist but I'm also a physician. And  
43 it's not entirely clear -- I don't think -- I  
44 don't have a good explanation, and from what I've  
45 read in the autopsy report and the circumstances  
46 document, there's really no good explanation for  
47 why this gentleman, who was fighting with the RCMP

1 and resisting while he was on the ground and being  
2 handcuffed, all of a sudden stopped resisting and  
3 then lost consciousness.

4 But I think we can conclude that if we had to  
5 say -- thinking of sort of the three main body  
6 organs involved here, the brain, the heart and the  
7 lungs, that something was going on with the brain  
8 because otherwise you would remain conscious. And  
9 so the first thing that happened to him is  
10 something related to his brain, and exactly what  
11 it was, I don't understand. I think later we have  
12 good evidence that he continues to have an  
13 adequate pulse whenever it was sampled during the  
14 period of time for, say, at least five to seven  
15 minutes when he was lying on his back. And for  
16 all this time, he remains unconscious and it seems  
17 that his breathing is shallow, and if he's  
18 cyanotic, perhaps his breathing is inadequate.

19 So the next thing that happens is there was a  
20 number of minutes where he's probably not  
21 breathing adequately. Now, why that should be,  
22 again, is not clear to me.

23 Finally, he has a cardiopulmonary arrest.  
24 Now, although we don't know for sure exactly why  
25 that happened, it seems more likely to me that the  
26 primary thing that happened is his breathing got  
27 shallower and shallower and he stopped breathing,  
28 and of course, once you don't breathe at all for a  
29 while, then your heart stops. But I think the  
30 exact physiologic mechanisms by which he lost  
31 consciousness and then why his breathing got  
32 shallower, I don't understand those. And that's  
33 what I -- that's sort of a (indiscernible).

34 Q What can you inform Commissioner Braidwood about,  
35 in terms of the pulse issue? You've described in  
36 your response that there was an adequate pulse.  
37 And what does that have to do, if anything, with  
38 ventricular fibrillation and whether it existed at  
39 any point in time?

40 A Well, patients or subjects who have ventricular  
41 fibrillation have no palpable pulse. And so the  
42 presence of a palpable pulse categorically  
43 excludes the rhythm diagnosis of ventricular  
44 fibrillation.

45 Q Can ventricular fibrillation self-correct?

46 A Yes, it can. It's rare but it can.

47 Q Under what circumstances?

1 A Well, I think ventricular fibrillation can self-  
2 correct -- let me backtrack. I don't think we  
3 have a clear understanding of all the  
4 circumstances. Most cases of ventricular  
5 fibrillation or nearly all cases do not stop, but  
6 occasionally in the medical literature we run into  
7 cases of ventricular fibrillation that exist for  
8 30, 15, 10, 15, 30 or 60 seconds and stop on their  
9 own. And when that happened in all those reported  
10 cases, the patients have been -- have made a full  
11 recovery, they've returned to a normal pulse, no  
12 medical intervention has been done, and it's  
13 typically reported as a curiosity.

14 So ventricular fibrillation does not self-  
15 terminate after 30 or 60 seconds to asystole. The  
16 reported cases in the clinical literature all deal  
17 with people who've had transient episodes and  
18 recovered normally without any medical  
19 intervention.

20 So I don't really think this applies to Mr.  
21 Dziekanski's case, in which we have a period in  
22 which his pulse was being felt, we have a brief  
23 interval where we just don't know what the rhythm  
24 was - we have no data - and then he was asystolic.  
25 There's no reason to suspect he had ventricular  
26 fibrillation in that interval.

27 Q Does a person who is experiencing ventricular  
28 fibrillation have the ability to vocalize or move?

29 A No. After the first 10 or 15 seconds, patients  
30 with ventricular fibrillation are unconscious and  
31 in cardiac arrest. They're unable to make any  
32 voluntary or purposeful movement.

33 Q Doctor, the second conclusion you reached was  
34 this:

35  
36 The circumstances of Mr. Dziekanski's death  
37 are typical of the poorly-understood syndrome  
38 of sudden, in-custody death, often occurring  
39 after restraint.

40  
41 Can you expand on why you arrived at that  
42 conclusion for Mr. Commissioner.

43 A Well, this syndrome generally is assigned when the  
44 cause of death is uncertain. And I think the  
45 first thing I think we can say is the precise  
46 cause of death is uncertain, and it's a  
47 descriptive syndrome, a syndrome in which subjects

1 who are taken into custody, often with the use of  
2 restraint, typically after a few minutes, just  
3 stop resisting and are found dead. The typical  
4 age range is 20 to 50 years. Typical subject is a  
5 man. There are very few women. So to the extent  
6 that this is a death that occurred shortly after  
7 restraint, there's no other cause of death  
8 found - you know, he fits that age and gender  
9 profile - that my statement is based on that type  
10 of thinking.

11 Q Doctor, on page 8 of your report, you outline a  
12 number of criteria that you say are typical of  
13 decedents who experience sudden, in-custody death.  
14 And you've mentioned already male, age 2 to 50  
15 years. Tell me about the agitated behaviour  
16 criteria.

17 A I neglected to mention these two other facts.  
18 Just for the record, I believe you said age 2 and  
19 you meant age 20. I apologize. So often these  
20 subjects are agitated, and again, I mean, I'm not  
21 a psychiatrist, but certainly Mr. Dziekanski while  
22 he was in that lounge and throwing equipment  
23 around generally seemed agitated.

24 And then most commonly in these deaths, the  
25 first recorded cardiac arrest rhythm is asystole  
26 or PEA, and that would fit with the recorded  
27 rhythm in Mr. Dziekanski's case.

28 So just to put this in context for the  
29 Commissioner, look at the cardiac arrest rhythm in  
30 subjects who die on the street unexpectedly.  
31 Typically, say, 40 to 70 percent of those subjects  
32 will have ventricular fibrillation depending on  
33 the city in which you look at those data and that  
34 sort of thing, whereas for the limited data that  
35 we have about -- and particularly the data -- the  
36 limited data we have from previous studies about  
37 the cardiac rhythm in sudden unexpected death  
38 syndrome after restraint, that most of those  
39 patients had either asystole or PEA.

40 Q Doctor, in that context, dealing with the criteria  
41 that you indicate of the first recorded cardiac  
42 arrest rhythm is asystole or PEA, can you provide  
43 the Commissioner with some further information  
44 about the scope of your research paper that we  
45 previously discussed, as I think that is on that  
46 topic.

47 A Yes. So when I started consulting with TASER, one

1 of the questions I asked when they asked me about  
2 could these deaths happening after exposure to  
3 Taser be caused by Taser, I said, "Do we know what  
4 the rhythms are? Because if the rhythm is  
5 ventricular fibrillation, then it might be  
6 possible. If the rhythm's not ventricular  
7 fibrillation, then electrical stimulation couldn't  
8 be the cause of death." And I said, "Do we know  
9 what the time course of collapse is? If people  
10 collapse instantly or within 10 or 15 seconds,  
11 that's very consistent with electrical stimulation  
12 causing ventricular fibrillation, but if people  
13 collapse a few minutes later, that's really  
14 completely inconsistent." And they said, "Well,  
15 we have a few anecdotal reports but no one's ever  
16 reviewed this information. It's very hard to  
17 get."

18 So I did an exhaustive survey of all the  
19 cases I could find that had been reported off of  
20 an Internet website of subjects who had died  
21 suddenly and unexpectedly after use of Tasers and  
22 collected and wrote to the police and emergency  
23 medical organizations that had taken care of these  
24 subjects and got as many responses as I could.  
25 And I was able to -- and here are some of the  
26 things I learned. I learned first of all, of the  
27 sudden deaths that happened after Taser exposure,  
28 about 60 percent of them happened in the first 15  
29 minutes and about 40 percent happened more than 15  
30 minutes later, way out of the range of time in  
31 which direct electrical stimulation could be  
32 considered relevant.

33 And then I looked in detail at the records  
34 for as many of the subjects who died within the  
35 first 15 minutes, and I was able to get about half  
36 of those with adequate medical records to  
37 determine what the cardiac rhythm was. And of  
38 those, the cardiac rhythm was ventricular  
39 fibrillation in only four of the 56 subjects, and  
40 it was asystole in the remaining -- or PEA in the  
41 remaining 52.

42 And so generally, the cardiac rhythm after  
43 Taser in deaths that have occurred in the first 15  
44 minutes after Taser stimulation is asystole or  
45 PEA, and Mr. Dziekanski's cardiac rhythm would be  
46 typical of the most common rhythm seen, which was  
47 asystole.

1 Q Doctor, your third conclusion on page 2 of your  
2 report is this:

3  
4 There is no medical, scientific evidence to  
5 support the conclusion that CEW discharges  
6 contributed to Mr. Dziekanski's death.  
7

8 Would you please expand on that for Mr.  
9 Commissioner.

10 A Well, from a cardiac electrophysiological point of  
11 view, there are a couple of things you can  
12 [word(s) dropped in transmission] on when it comes  
13 to bio-electrical stimulus. One is that direct  
14 electrical stimulation always causes immediate  
15 effects. The second is that when direct cardiac  
16 electrical stimulation causes a heart rhythm  
17 disturbance, it's almost always ventricular  
18 fibrillation, and every now and then it's  
19 ventricular tachycardia.

20 In Mr. Dziekanski's death, we know his  
21 collapse was not immediate. We know he had an  
22 adequate cardiac rhythm for a number of minutes  
23 following exposure to Taser, [word(s) dropped in  
24 transmission] Taser stimulation. And we know that  
25 when he did have a cardiac arrest, it was  
26 asystole. So nothing here fits with direct  
27 cardiac electrical stimulation.

28 So then we need to consider any other  
29 possible indirect effects of the Taser, and I  
30 think -- you know, we've talked a little bit about  
31 the concept of stress effects. And certainly  
32 while the idea of stress is a little bit nebulous,  
33 it's generally considered to be as it relates to  
34 the brain-heart access, the physiological response  
35 of a person or an organism to the perception of  
36 threat, and that involves as far arrhythmias are  
37 concerned, it involves direct sympathetic nerve  
38 stimulation of the heart and it involves release  
39 of stress hormones, and the ones we care about the  
40 most are catecholamines. Now, both sympathetic  
41 nervous stimulation and stress-related  
42 catecholamines can directly affect the heart.  
43 They can make the heart beat faster, as we all  
44 know when we feel an immediate stress, and in  
45 vulnerable individuals they can cause ventricular  
46 tachycardia and fibrillation.

47 The time course of that typically would be a

- 1 few seconds to a minute. But again, in Mr.  
2 Dziekanski's case, we know that for minutes later  
3 he had a normal rhythm. And so while I think it's  
4 nearly certain Mr. Dziekanski was stressed,  
5 there's no evidence that stress, whether it was  
6 the stress of the confrontation, stress of  
7 fighting with the police officers, or any other  
8 kinds of stress he was under or stress from the  
9 Taser -- whatever the stress he was under, it  
10 didn't cause the cardiac arrhythmia that led to  
11 his death. I think that's the substance of my  
12 third point.
- 13 Q Doctor, I've just got a few questions just for the  
14 purpose of clarification on certain terms that are  
15 in your report. On page 3, under the heading of  
16 "Diagnosis of Cardiac Arrest Proximate to TASER  
17 CEW Discharge," you refer to some modelling  
18 studies, research in animals and humans, and you  
19 use the term "cardiac axis." What is that?
- 20 A Right. Let me just look this up. I'm sorry, it's  
21 in which paragraph? I apologize.
- 22 Q It's in the first full paragraph on page 3 under  
23 the heading "Diagnosis of Cardiac Arrest Proximate  
24 to TASER CEW Discharge."
- 25 A Sure. Well, the broad point is this, that when  
26 Taser -- if electricity is delivered to the body,  
27 it's not just how much electricity is generally  
28 delivered to the body; it needs to get into the  
29 heart. And so the axis of the long axis of the  
30 heart is sort of top to bottom along the heart,  
31 and the general idea is that we have the greatest  
32 likelihood of getting the strongest electrical  
33 field if the heart is sort of put in a sandwich  
34 between the two electrodes. And a good way to do  
35 that would be to line the electrodes one  
36 immediately above the heart on one side and one  
37 immediately below the heart on the other side.  
38 The term "cardiac axis" refers to the direction in  
39 which the heart is oriented.
- 40 Q Am I correct that the axis would be from midline  
41 centre chest to upper left chest?
- 42 A Well, I thought it would be more to the left of  
43 the chest and in a line that sort of runs toward  
44 the left foot from the centre of the chest. In  
45 other words, different orientation.
- 46 Q Okay, that's fine.
- 47 A I think the broad point -- it may be that although

1 I use this term "cardiac axis," I think the broad  
2 purpose of my report was to mean that if you want  
3 to study the effects of Tasers on the heart, you  
4 want to get a Taser electrical field that's strong  
5 in the heart, you want to put the electrodes one  
6 on each side of the heart to maximize the chance  
7 that the field strength will be strongest around  
8 the heart. And the term "axis" here is not really  
9 critical to my report.

10 Q Thank you. Doctor, you say at the bottom of that,  
11 the last sentence in that paragraph:

12  
13 It is widely accepted that closely-spaced  
14 drive-stun, electrodes cannot induce VF.

15  
16 Can you expand on that, please.

17 A Yes. Well, first of all, just on principles of  
18 bio-stimulation, a corollary to what I just said,  
19 if you want to have a big effect on the heart,  
20 what you do is you take electrodes and put them  
21 directly on opposite sides of the heart so  
22 electric current flows from one electrode to the  
23 other through the heart. If you want to have a  
24 small effect on the heart or minimize that chance,  
25 you'd stimulate through two very closely spaced  
26 electrodes on the skin so the electrical field is  
27 very weak far away from those two electrodes.

28 Now, in terms of experimental evidence,  
29 really, except for, I believe, one study by Dr.  
30 Lakireddy, all the studies that try to evaluate  
31 Taser effect on the heart use the probe electrodes  
32 and put them on opposite sides of the heart  
33 because it's very hard to show Tasers cause  
34 cardiac arrhythmia in animal models and the  
35 investigators want to maximize the chance of  
36 showing that.

37 So Lakireddy, who did study the effect of  
38 drive stun stimulation, shows that it -- he didn't  
39 show that -- he did not induce any arrhythmias  
40 with the drive stun stimulation no matter where he  
41 put it on the chest.

42 Q Doctor, in the course of your report on pages 4  
43 and 5, you discuss the potential role of acidosis.  
44 Can you provide Mr. Commissioner with information  
45 on that issue, please.

46 A Right. Well -- you know, acidosis is one of the  
47 factors that is often considered possible cause

1 when patients stop breathing and their hearts stop  
2 beating. They develop asystole. And there are  
3 two problems that happen when you stop breathing.  
4 One is there's no oxygen flowing to the body, and  
5 that's the cause of the cyanosis. The second is  
6 that a result of the lack of oxygen flowing to the  
7 body, the body -- I'm sorry -- that independent of  
8 the issue of oxygenation, breathing also is used  
9 to exhale the built-up carbon dioxide that's the  
10 result of metabolic activity. If you don't exhale  
11 carbon dioxide, it builds up in the blood as an  
12 acid called carbonic acid and this is what's  
13 called respiratory acidosis. And as the body  
14 becomes progressively more acidic, then cellular  
15 mechanisms, including cardiac contraction, tend to  
16 work less poorly, so that if people don't breathe,  
17 it's both a combination of the acidosis as the  
18 result of being unable to exhale carbon dioxide as  
19 well as the lack of oxygen from the blood, lack of  
20 oxygen that causes people to die.

21 Now, beyond that, there's an issue with  
22 excretion of what are called metabolically  
23 originating acids, and the biggest one we are  
24 concerned about in somebody who had been  
25 struggling with the police is called lactic acid.  
26 Lactic acid is an acid that's generated when  
27 muscles work very hard and they don't get  
28 sufficient oxygen transported to them while  
29 they're exercising, and the general broad pathway  
30 for getting rid of lactic acid is it goes to  
31 the -- blood transports it to the liver. In the  
32 liver the lactic acid is converted to carbonic  
33 acid, which is the acid that the lungs can then  
34 breathe out as carbon dioxide.

35 So if a person, for example, had a lot of  
36 lactic acid built up from exercise and had bad  
37 liver disease, it would take longer to convert the  
38 lactic acid to carbonic acid that you can exhale.  
39 And of course, if your liver's not working well  
40 and you're not breathing well, then the potential  
41 for being acidotic is greater. And since these  
42 considerations generally apply in Mr. Dziekanski's  
43 case, I raise them as things that would reasonably  
44 be considered. Now, we don't actually have a  
45 measure of blood acid or pH in Mr. Dziekanski's  
46 case, so we don't have any precise evidence as to  
47 his degree of acidosis, or, if he had acidosis,

1 what the causes is.

2 But I thought that since there were these  
3 issues with him not breathing and him having a  
4 history of liver disease, that I ought to raise  
5 them in my report.

6 Q Doctor, if I can move now to page 5 of your report  
7 under the heading of "Medical Summary of Events  
8 Leading to Mr. Dziekanski's Death," you have a  
9 paragraph under "Background" which is:

10  
11 Based on post-mortem evidence and reports of  
12 his activities, Mr. Dziekanski was, to a high  
13 degree of certainty, a chronic alcoholic who  
14 had both alcoholic liver disease and  
15 alcoholic dilated cardiomyopathy.

16  
17 On what basis did you arrive on those conclusions?  
18 A The autopsy report that the Commission provided me  
19 with.

20 Q Thank you. Now, on page 6, you had the  
21 opportunity to review Mr. Enchelmaier's evidence  
22 with respect to his monitoring of the pulse, and  
23 that's consistent with the information that was in  
24 the circumstances document that the Commission  
25 counsel provided you; is that correct?

26 A It's generally correct. I have one very minor  
27 comment about not inconsistency but lack of  
28 clarity that I just wanted to raise. If you look  
29 at the circumstances report, on the top of page 11  
30 if you have the opportunity to [word(s) dropped in  
31 transmission].

32 Q Yes.

33 A The circumstances report says in the second line:

34  
35 A third check was done about two minutes  
36 before the firefighters arrived, and an even  
37 slower pulse was detected; again, no beats  
38 per second were counted.

39  
40 Now, if you read Mr. Enchelmaier's exact  
41 testimony, he doesn't compare the rate of the  
42 pulse the third time he checked it with the rate  
43 of the second time he checked it. He just says it  
44 was a slow pulse. The first time he says it's a  
45 slow pulse as if somebody was sitting, sort of  
46 implying, best I could tell, that it was a normal  
47 pulse. Here he just says in Mr. Enchelmaier's

1 testimony that it was a slow pulse but he doesn't  
2 specifically characterize it.

3 But you know, that's, I think, a subtlety of  
4 detail that generally -- you know, I've gotten my  
5 facts from the circumstances document and from Mr.  
6 Enchelmaier's testimony, but when there have been  
7 subtle differences, I went by Mr. Enchelmaier's  
8 testimony because that seemed to be the source.

9 Q And indeed, Doctor, page 97 of Mr. Enchelmaier's  
10 evidence, the statement in his evidence is this:

11  
12 I noticed that with his pulse it was a slow  
13 pulse, still a clear pulse there in his  
14 carotid pulse, again in his neck. And the  
15 breathing was slow, low breathing, but still  
16 clearly breathing.

17  
18 A Yes. That's the passage I'm referring to. I'm  
19 just making really a minor, relatively subtle  
20 point that he doesn't make a specific comparison  
21 of the pulse when he did it the second -- measured  
22 it the second and third time.

23 Q Doctor, are you generally familiar with how  
24 automated external defibrillators work?

25 A Yes.

26 Q In this case there's evidence that when the AED  
27 was first hooked up to Mr. Dziekanski, there was a  
28 no shock advisory. What does that mean?

29 A Well, a no shock -- well, automatic external  
30 defibrillators analyze the heart rhythm, and if  
31 they detect a very rapid rhythm, which would  
32 usually be ventricular fibrillation but it might  
33 be ventricular tachycardia, they advise a shock.  
34 And if it does not detect a very rapid rhythm --  
35 and typically the rate [word(s) dropped in  
36 transmission] automatic external defibrillators  
37 are around 200 beats a minute. So if the rate is  
38 below that, it advises no shock.

39 Now, in Mr. -- in this particular case, not  
40 only do we have the conclusion of the  
41 defibrillator analysis circuit that no shock  
42 should be advised - that is, ventricular  
43 fibrillation or ventricular tachycardia is not  
44 present - we also have the actual recording that I  
45 or any other expert can review it and make an  
46 expert determination as to what the exact rhythm  
47 was at the time and whether the defibrillator

1 algorithm got it right. And in this case -- and  
2 the Commission was kind enough to provide me with  
3 those recordings, and I think it's quite clear  
4 that the diagnosis was not only just a non-  
5 shockable rhythm; it was clearly asystole. As  
6 soon as they stopped CPR and for the duration in  
7 which they stopped CPR on the Richmond Fire  
8 Department report, there are no heartbeats of any  
9 kind.

10 Q At page 7 of your report, Doctor, you engage in a  
11 discussion under the heading, "Mr. Dziekanski did  
12 not die from electrically-induced cardiac  
13 arrhythmia," and you outline a number of factors.  
14 Can you expand on that part of your opinion,  
15 please.

16 A Yes. Let me just bring it up very quickly so that  
17 I have the same pages in front of me as you do.  
18 So the first point - and this is a bit repetitious  
19 with some of my previous testimony - but if  
20 electrical stimulation causes an arrhythmia, it's  
21 always ventricular tachycardia or fibrillation and  
22 it always occurs immediately. And then the  
23 subsequent points I raise all show how that --  
24 those circumstances are inconsistent with the  
25 facts in this case.

26 So first, the time between the last Taser  
27 discharge and both Mr. Dziekanski's loss of a  
28 pulse was certainly not immediate. Now, the  
29 timeframe might be as long as -- it was probably  
30 in the range of 9 to 11 minutes depending on when  
31 in that two-minute gap after the last pulse  
32 measurement by Mr. Enchelmaier Mr. Nijinsky lost  
33 his pulse -- Dziekanski, excuse me, lost his  
34 pulse, but it certainly wasn't immediate.

35 Secondly is just the fact that Mr.  
36 Enchelmaier clearly describes a pulse within the  
37 normal range of volume and rate for a number of  
38 minutes after the Taser discharge.

39 The third is that the rhythms recorded both  
40 by the fire fighters' AED and subsequently by the  
41 paramedics' more sophisticated defibrillator show  
42 asystole, and that's of course a different rhythm  
43 from ventricular fibrillation or ventricular  
44 tachycardia.

45 So there's clear evidence that Mr. Dziekanski  
46 had an adequate pulse [word(s) dropped in  
47 transmission] discharge, and that when he lost his

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Cross-exam by Mr. Neave (for TASER International)

Cross-exam by Mr. Stewart (for Vancouver International Airport)

1 pulse the rhythm was asystole.

2 MR. NEAVE: Thank you, Doctor. Mr. Commissioner, I  
3 would request that Dr. Swerdlow's report be filed  
4 as an exhibit proper and that the "Robert  
5 Dziekanski - Circumstances" 12-page document also  
6 be filed as an exhibit proper.

7 THE COMMISSIONER: Yes, I agree, and they'll each have  
8 a separate number.

9 THE REGISTRAR: The first document will be 105 and  
10 105A.

11 MR. NEAVE: Thank you, Dr. Swerdlow. Those are my  
12 questions. Others may have questions for you.

13 MR. HIRA: I think the report has already been filed as  
14 104.

15 THE REGISTRAR: Mr. Commissioner, I've been advised  
16 that's already been marked. It's 104.

17 THE COMMISSIONER: So then the circumstances will be  
18 105.

19

20 EXHIBIT 105: Copy - Robert Dziekanski  
21 circumstances report

22

23 MR. STEWART: Dr. Swerdlow, my name is Dwight Stewart  
24 and I'm counsel for the Vancouver International  
25 Airport.

26

27 CROSS-EXAMINATION BY MR. STEWART ON BEHALF OF THE  
28 VANCOUVER AIRPORT AUTHORITY:

29

30 Q I just have a few brief questions just to  
31 understand the basis of just really one comment,  
32 and it's in terms of the comments in terms of the  
33 breathing of Mr. Dziekanski. And so I'm looking  
34 at page 7 of your report, subparagraph 2 under the  
35 heading cardiorespiratory arrest. And so it's  
36 subparagraph 2:

37

38 Mr. Dziekanski's breathing became abnormally  
39 shallow shortly before or about the time he  
40 lost consciousness, yet he maintained a  
41 normal pulse.

42

43 So I just want to ask a few questions in terms of  
44 evidence of some of the witnesses and whether that  
45 is consistent with your understanding of shallow  
46 breathing.

47

The first is the evidence of one of the RCMP

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1 officers who was indeed the RCMP officer who  
2 called for the Code 3, and that's Constable Bill  
3 Bentley. He described the breathing of Mr.  
4 Dziekanski in that sort of immediate period in the  
5 aftermath as follows, and I'm reading from page  
6 95, line 29. He was asked to describe the  
7 breathing. He said:

8  
9 It's a loud breathing like when you go out  
10 for a hard run, you exhaust yourself  
11 physically, trying to catch your breath.  
12

13 Is that description consistent with what your  
14 understanding of the facts were of shallow  
15 breathing?

16 A No. Let me clarify my report, which is not  
17 exhaustive. My understanding of what I read - and  
18 I think it's outlined in the circumstances  
19 document - is that initially his breathing was  
20 described as hard, and then -- and the precise  
21 description, I think, has varied as I've heard it.  
22 But my understanding is that that was for the  
23 first few moments, and I don't know if it was a  
24 minute, but the impression I got reading the  
25 circumstances document is that initially he had  
26 quite obvious -- Mr. Dziekanski had quite obvious  
27 breathing. But after a period of time, it was --  
28 his breathing was more shallow. And if you read  
29 Mr. Enchelmaier's testimony - and that's the only  
30 testimony I've read in detail - it seems that he  
31 really had to work to determine that Mr.  
32 Dziekanski was breathing later on during the  
33 course of the circumstances.

34 So I would say that my point number 2 is not  
35 inaccurate but it's not comprehensive. It leaves  
36 out the fact that the breathing was louder and  
37 quite more obvious, as if he were short of breath  
38 and recovering from exertion in the struggle with  
39 the RCMP in the early phase. But later on I  
40 think -- so my comment number 2 really focuses on  
41 the description later on of the breathing. And I  
42 believe also in the circumstances report there's a  
43 brief mention of one of the RCMP officers saying  
44 that the breathing was relatively shallow later  
45 on. I could pull that up if you need me to do  
46 that.

47 Q So in terms of that, it's really just a comment as

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Cross-exam by Mr. Stewart (for Vancouver Airport Authority)

1 to at the point where it was described to be  
2 shallow, that would at that point raise a concern  
3 with respect to the respiratory acidosis?

4 THE COMMISSIONER: Well, I hesitate --

5 A Now, early on --

6 MR. STEWART: Sorry, Mr. Commissioner?

7 A I'm sorry. Are you --

8 THE COMMISSIONER: Well, I was just going to interrupt.  
9 That's exactly what you said.

10 A I apologize, Mr. Commissioner. I --

11 THE COMMISSIONER: I say that's exactly what you said.

12 I don't know quite what counsel's getting at.

13 It says "abnormally shallow shortly before or  
14 about the time he lost consciousness..."

15 MR. STEWART: Mr. Commissioner, that's the point I'm  
16 getting to. It's that this expert is commenting  
17 on the description of shallow breathing in  
18 reference to a physical condition, but we have  
19 different evidence in terms of what the  
20 observations of breathing were over the course of  
21 those seven to nine minutes. And he didn't focus  
22 in on those descriptions of the breathing.

23 A Mr. Stewart, let me see if I can clarify this.  
24 First I'd like to say that the precise description  
25 of breathing is not completely critical to my  
26 report. And I would say if I -- and I -- you may  
27 not know this, but Mr. Vertlieb had written me a  
28 letter asking me to appear from the Commission,  
29 and that letter never arrived to me, and it was  
30 only a day or two before my report was due that I  
31 found out I had to write it. So I did all this in  
32 one day. And I think if I had to -- if I had had  
33 enough time to proofread this, I might have  
34 revised the writing here.

35 But I think a fair statement would be this.  
36 For several minutes before he had his cardiac  
37 arrest, Mr. Enchelmaier and at least one other  
38 RCMP officer noted that the breathing was shallow.  
39 I don't address the fact that early on his  
40 breathing wasn't shallow, and so maybe a better --  
41 maybe it would have been better if I had phrased  
42 it, instead of saying "shortly before he lost  
43 consciousness," "at some point after he lost  
44 consciousness his breathing was shallow," and that  
45 right around the time he lost consciousness, I  
46 think you're correct that his breathing was  
47 described as louder. And that's a misstatement on

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1           my part that -- it's an error I apologize for, but  
2           it's not really substantive in the key parts of my  
3           points I was asked to testify on.

4       MR. STEWART:    Thank you, sir.  Those are my only  
5           questions.

6       MR. VERTLIEB:  Dr. Swerdlow, it's Art Vertlieb again.

7

8       RE-EXAMINATION BY MR. VERTLIEB:

9

10       Q     You were sent a letter from the Commission dated  
11           April 7, 2009, and it was a letter under my  
12           signature asking you to provide an opinion  
13           respecting the cause of Mr. Dziekanski's death,  
14           including what role, if any, the conducted energy  
15           weapon may have played in the death.  That's the  
16           letter you're speaking of, correct, sir?

17       A     It's hard to explain why it didn't arrive.  You  
18           have my correct address.  I can't make any -- I  
19           usually get the mail.  I get a lot of mail every  
20           day.  I don't know what happened, but I never  
21           received your letter, Mr. Vertlieb.

22       Q     No, that's fine.  But I'm going to have that  
23           letter marked so we've got it clear on the record  
24           what you were requested to do and also clear on  
25           the record the information that you were provided.

26       MR. VERTLIEB:  So if that could be marked as an  
27           exhibit.

28       Q     And in that letter we refer to a document, "Robert  
29           Dziekanski - Circumstances," which has been marked  
30           as an exhibit, and you recall seeing that, a  
31           12-page document from the Commission outlining  
32           certain facts?  You remember seeing that?

33       A     Yes, I do, and I have it in front of me.

34       Q     And at the end of that outline there were  
35           supporting documents.  There was a translation of  
36           his Polish health records.  You remember that?

37       A     I reviewed that.

38       Q     And there was a copy of the Canada Immigration  
39           health records, right?

40       A     That's correct.

41       Q     You saw the video, the Pritchard video, which was  
42           taken by the bystander?

43       A     I saw -- I saw -- yes, I saw a video that was sent  
44           to me.

45       Q     And from our office, the Commission office, you  
46           were sent a translation of that video?

47       A     I was sent a translation.  I didn't actually read

1 the translation but I was sent it.  
2 Q You were sent the autopsy report and the  
3 toxicology report and a printout from the  
4 defibrillator?  
5 A That's correct.  
6 Q Now, I want to clear up a discussion you had with  
7 Mr. Neave. It's a bit confusing to me anyway.  
8 Mr. Neave asked you if you had communicated with  
9 him about the report before it was completed, and  
10 we're talking about the report dated April 22, and  
11 your answer was no. Do you remember giving that  
12 answer?  
13 A I do.  
14 Q Now, there was an e-mail discussion, though,  
15 between yourself and Mr. Neave and Ms. Spencer and  
16 Dr. Panescu and a Dr. Kroll about this case prior  
17 to the writing of your report; is that not  
18 correct?  
19 A I have sent all those folks -- I have sent e-mails  
20 to different people involved. I have sent e-mails.  
21 I don't recall that they had anything to do with  
22 the specifics of this [word(s) dropped in  
23 transmission].  
24 Q Specifics of what, sir?  
25 A I don't think they had to do with the specifics of  
26 this report.  
27 Q Okay. Let me help you, because you've been very  
28 kind in sending us information from your office.  
29 Just to help refresh your memory, October 14, 2009  
30 (sic) Dr. Dorin Panescu -- that's Dr. Panescu,  
31 right, Dorin Panescu?  
32 A I'm sorry, which date, sir?  
33 Q April 14, 2009.  
34 A Yeah.  
35 Q 9:13 in the evening. Now, he writes: "Hi, Mark  
36 and Chuck." Chuck is you?  
37 A Yes.  
38 Q And who's Mark?  
39 A I think it's Mark -- Mark Kroll, I believe.  
40 Q And Mark Kroll, is he part of TASER?  
41 A [word(s) dropped in transmission] medical  
42 scientific advisory board at TASER.  
43 Q Okay. So Panescu writes to you:  
44  
45 This is the ECG strip recording from the AED  
46 in the Dziekanski case. I marked two  
47 potential P waves that, if real, seem to

1                   indicate AV dissociation or some level of AV  
2                   block, a condition that would have been pre-  
3                   existent as it could not be induced by  
4                   external electricity flow. However --  
5

6                   Then he says:

7  
8                   -- I am not sure whether I see more than  
9                   there actually is to be seen. Mike suggested  
10                  I contact you for expert opinion.  
11

12                  Who's Mike?

13                  A     I don't know who Mike is.

14                  Q     Michael Brave?

15                  A     Could be. You'd have to ask --

16                  Q     Who's Michael Brave?

17                  A     -- Dr. Panescu. But I -- let me --

18                  Q     No, who's --

19                  A     I do remember this e-mail now --

20                  Q     Okay. Let me just finish it. Let me just finish  
21                  it then to help you.  
22

23                  Mike suggested I contact you for expert  
24                  opinion.  
25

26                  Then he says:

27  
28                  David Neave believes this rhythm is not real,  
29                  just CPR artifact. He indicated that there  
30                  was confirmation from paramedics that first  
31                  rhythm was asystole. I do not have that  
32                  document though. I would appreciate your  
33                  thoughts about this rhythm. If you could  
34                  reply by tomorrow, that would be great. I  
35                  have to file my report on Thu.  
36

37                  Thanks,  
38                  Dorin  
39

40                  So that was e-mail between you, Panescu and Mark,  
41                  Mark Kröll, concerning this case. You remember  
42                  that now, don't you?

43                  A     Yes, I do remember that and I don't -- Mr.  
44                  Vertlieb, I don't consider that had anything to do  
45                  with my making a report. That had to do with -- I  
46                  mean, I'm not splitting hairs here. I didn't  
47                  really think about that. Dorin Panescu was

1 writing a report for this commission. As you  
2 know, Dr. Panescu is an electrical engineer. I'm  
3 a cardiac electrophysiologist. He was asking my  
4 opinion about the details of -- he was asking my  
5 opinion about the electrocardiographic recording  
6 in this case, and I sent him back an e-mail and I  
7 remember staring at it, being confused for a while  
8 till I -- till I was convinced that the recording  
9 that he was looking at was CPR.

10 Q And so then you answered that e-mail the next day,  
11 April 15, early in the morning. You wrote to  
12 Panescu, Kroll and Michael Brave. So it's your  
13 e-mail to Brave, Michael Brave. Who is that?

14 A It must be that I -- I hit "reply all" to  
15 the -- you know, one of the dangers of e-mail,  
16 when people send you e-mails, is when you hit --  
17 you know, hit "reply all," and whoever Dorin  
18 Panescu had copied on his e-mail would be the same  
19 people who would be copied on my response.

20 Q So you write to Mike, Mark and Dorin: "Do you  
21 have any EMS or RCMP narratives of this case you  
22 could share?" And then you say, "Chuck." That's  
23 your e-mail, right?

24 A Yes. That sounds like -- I'd have to pull it, but  
25 that sounds like -- that sounds like what I would  
26 have written.

27 Q And the next in the line you sent us, about an  
28 hour and a half later, is an e-mail from Michael  
29 Brave, whoever that gentleman is.

30 A Mike is TASER's counsel.

31 Q Okay. Thank you. I didn't know that. I've never  
32 heard the name. And there's an e-mail from  
33 Michael Brave to Jennifer Spencer, David Neave,  
34 carbon copy Charles Swerdlow, Mark Kroll, Dorin  
35 Panescu. The subject is "Please assist with Dr.  
36 Swerdlow's question below," and it's:

37  
38 Jennifer - please assist with Dr. Swerdlow's  
39 question below.

40 Thanks!

41 Have a superb day!

42  
43 The point is that -- and nothing wrong with this.  
44 You were getting information at your request from  
45 the TASER lawyers.

46 A Yeah, this is before -- so Mr. Vertlieb, you have  
47 to understand, this was before I had any idea you

1           were going to ask me to testify here. Right? I  
2           mean, I didn't find out I was supposed to testify  
3           until something like April 20.

4           Q     Well, I realize you didn't have it. Just so you  
5           know, the letter, April 7, did say:

6  
7                     At the request of counsel for TASER  
8                     International, your name has been added to  
9                     the witness list.

10  
11           But I realize, according to what you're telling  
12           us, you didn't have that letter.

13           A     If I'd received your letter, I would have  
14           responded.

15           Q     So just continuing with this e-mail and the  
16           request you had and the answer, someone asking  
17           Jennifer to help you: "Please assist with Dr.  
18           Swerdlow's question..." This is your question  
19           about asking for EMS or RCMP narratives of this  
20           case. You remember asking for that?

21           A     That's correct.

22           Q     And then you did get an answer. You were given an  
23           answer in response to that by Ms. Spencer, April  
24           15, 9:00 in the morning? Do you remember that?

25           A     I mean, I remember -- Mr. Vertlieb, I remember the  
26           general e-mail sequence. I can open up my e-mail  
27           if you want me to follow it with you.

28           Q     Well, you sent this to us. If you want to open  
29           it, you can, but I can read it to you because  
30           we're just about -- we've gone through some of  
31           this. Let me just keep going. This is an e-mail  
32           from Ms. Spencer:

33  
34                     Thanks for your work on the Dziekanski matter  
35                     -- we really appreciate it. I have pulled  
36                     the following material together which I think  
37                     may be of use to you and copies are attached:

38  
39           And then there's a number, perhaps seven or eight  
40           documents. There's a First Responders report, a  
41           Richmond Fire AED report, a B.C. Ambulance report,  
42           a number of B.C. Ambulance reports, a pre-hospital  
43           cardiac arrest report. That was information sent  
44           to you over and above what we sent in our facts  
45           and circumstances, correct, sir?

46           A     (No audible response).

47           Q     And then there was a reference:

1                   ...there are transcripts available on-line of  
2                   the evidence of the RCMP and paramedics.  
3                   They are organized by last name...

4  
5                   And a reference to the inquiry. And then Ms.  
6                   Spencer says:

7  
8                   I've ordered the key witnesses in our  
9                   perceived order of relevance to the cardiac  
10                  arrest:

11  
12                  And then she outlines the paramedics' names - Van  
13                  Houten, Egli, Maciak, Randell, et cetera. You  
14                  remember getting all this information, don't you?

15                  A     I do.

16                  Q     And then that was Ms. Spencer trying to help you  
17                  with your request, I presume. And then you wrote  
18                  about an hour and three-quarters later. This is  
19                  your e-mail to Jennifer Spencer, Mark Kroll,  
20                  Michael Brave again, Dorin Panescu, David Neave.  
21                  And then you say, "Dear all." Do you remember  
22                  this e-mail, sir? This is April 15.

23                  A     I mean -- I remember the -- Mr. Vertlieb, I  
24                  remember the general e-mail conversations. I send  
25                  a lot of e-mails and I don't remember the -- you  
26                  know, you'll have to read it to me, but I'm  
27                  sure -- I mean, it sounds like the e-mail I wrote,  
28                  but no, I don't remember the exact wording of it.

29                  Q     And this is April 15 before your report, which is  
30                  dated April 22.

31                  A     It's before I was aware that I was going to  
32                  provide you with a report.

33                  Q     So then to save you looking it up on your computer  
34                  there, what you sent to us: "Dear all" -- and of  
35                  course this is your e-mail to Jennifer Spencer,  
36                  Kroll, Brave, Panescu and Neave.

37  
38                  Dear all,  
39                  I misinterpreted the tracing I referred to in  
40                  my last e-mail. It seems from these reports  
41                  that the Ambulance Service used an automated  
42                  CPR unit that provides mechanically identical  
43                  compressions at 120 per minute, the rate seen  
44                  on the recorder. Is that right? I have no  
45                  experience with these units. Assuming that  
46                  is the case, I cannot see an initial rhythm  
47                  recorded before the end of page 3. It seems

1 to be recorded on P 10 and again on P 16. But  
2 the recording on page 1 seems to me to be CPR  
3 artifact prior to any ECG. In other word  
4 they did mechanical CPR first and then  
5 checked for a rhythm. This is just fine as  
6 protocol goes. The rhythm on the bottom of  
7 page 3 - top of page 4 is asystole. There  
8 may also be asystole on top p 3, but there  
9 are many lead switches, and it is confusing.

10  
11 Sorry for not understanding this recording.

12  
13 Chuck.

14  
15 That's your e-mail, sir?

16 A Sounds like it.

17 Q Yeah. I just wanted to be clear. You did  
18 have -- and I don't criticize you for this, but  
19 you did have communication with the lawyers for  
20 TASER before you wrote the report to the  
21 Commission dated April 22 of 2009.

22 A Mr. Vertlieb, I'm a little confused about this  
23 line of questioning, but let me see if I can  
24 answer because I am under oath here, and it's  
25 important that you and the Commissioner understand  
26 that I'm telling you folks the truth. When David  
27 Neave a few minutes ago asked me had I discussed  
28 my report with him in any way before I sent it,  
29 from the time I received an e-mail -- or fished an  
30 e-mail, I believe, from Catherine -- I apologize  
31 for not getting her last name right. It begins  
32 with an S, but one of your Commission  
33 representatives. She sent me an e-mail sometime  
34 in the week of the 15th or 18th and it went to my  
35 junk mail file, and sometime over the weekend of  
36 roughly April 20th, I found this as I was going  
37 through my junk mail referring to a letter you  
38 sent me on the 7th saying I needed to testify on  
39 the 22nd and my report was due. And I said, whoa,  
40 this is the first time I've heard about this.

41 After that I wrote a report. I didn't send  
42 that report to Mr. Neave or Ms. Spencer and I  
43 didn't communicate any of the report findings I  
44 had till after I sent the report to you. Now,  
45 before I knew I had to write a report - and I  
46 wasn't really considering this - it is absolutely  
47 true that in preparing his report to you, Dorin

1 Panescu sent me an e-mail and said, "Chuck, can  
2 you help me understand the electrocardiographic  
3 tracing?" And in particular, I found the tracings  
4 confusing. I didn't have the tracings. Dorin  
5 didn't send them to me so I asked TASER's counsel  
6 to send them to me so I could review them and help  
7 Dorin in preparing my -- preparing his -- you  
8 know, in accurately describing the tracings. And  
9 I think that's where the confusion lies, and I  
10 don't -- I mean, and I didn't really consider when  
11 Mr. Neave asked me about preparing my report. I  
12 thought he was simply discussing, you know,  
13 preparation of my report.

14 But the facts are, I didn't know about having  
15 to write a report for you until I found an e-mail  
16 sitting in my junk mail file. That was long after  
17 I had this conversation with Dorin Panescu. And  
18 even if I were [word(s) dropped in transmission]  
19 Dorin Panescu, and I think that's the difference  
20 in the -- you know, I mean, I think -- I think  
21 that explains the circumstances the best I can  
22 explain them.

23 MR. VERTLIEB: Mr. Commissioner, just to restate. So  
24 the letter of April 7, 2009, to Dr. Swerdlow under  
25 my signature, I've asked that that be marked as an  
26 exhibit. And again, I apologize for my back being  
27 to you, Mr. Commissioner.

28 THE REGISTRAR: That will be marked as Exhibit 106.

29  
30 EXHIBIT 106: Copy - Commission Counsel  
31 letter to Dr. Swerdlow dated April 7, 2009  
32

33 MR. VERTLIEB: And then the series of e-mails that were  
34 read out, and it starts with the one April 22 to  
35 Ms. Stooshnov. May that be the next exhibit,  
36 please?

37 THE REGISTRAR: 107.

38  
39 EXHIBIT 107: Copy - Swerdlow e-mail to  
40 C. Stooshnov dated April 22, 2009  
41

42 MR. VERTLIEB: Thank you.

43 THE COMMISSIONER: Yes, that's fine.

44 MR. VERTLIEB: Mr. Commissioner, that's all I have for  
45 this person. Thank you.

46 MR. NEAVE: I have some questions arising. Dr.  
47 Swerdlow, it's David Neave.

1 CROSS-EXAMINATION BY MR. NEAVE ON BEHALF OF TASER  
2 INTERNATIONAL, continuing:  
3

4 Q The question I asked was with respect to your  
5 report. Can you tell the Commissioner what role,  
6 if any, Mr. Panescu, Mr. Brave, myself or Jennifer  
7 Spencer had with respect to the contents of your  
8 report.

9 A None.

10 Q And what influence, if any, did Mark Kroll, Dorin  
11 Panescu, Michael Brave, myself or Jennifer Spencer  
12 have on any opinions that you reach in that  
13 report?

14 A None.

15 Q And indeed -- and this Mr. Vertlieb did not read  
16 to you, this passage from Jennifer Spencer's  
17 e-mail, and I want to clarify that for the purpose  
18 of the record. On the 15th of April 2009, Ms.  
19 Spencer provided you with certain exhibits in this  
20 proceeding, and I'm going to run through the list:

21  
22 The First Responders (Richmond Fire) Incident  
23 Report (Exhibit 13).

24  
25 You were provided with that, correct?

26 A Yes.

27 Q  
28 The Richmond Fire AED Report (Exhibit 15) -  
29 rhythm strips included here.

30  
31 You were given that?

32 A Yes.

33 Q The B.C. Ambulance CPR Report (Exhibit 75).

34  
35 Correct?

36 A That's correct.

37 Q  
38 The B.C. Ambulance Service Continuous  
39 Complete Report (Exhibit 68), including  
40 rhythm information

41  
42 A Yes.

43 Q  
44 The B.C. Ambulance Event Log

45  
46 A Yes.

47 Q Which was Exhibit 69 at the time in this

Charles Swerdlow

Cross-exam by Mr. Neave (for TASER International),  
cont'd

1 proceeding.

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The B.C. Ambulance/Emergency Health Services  
Commission Occurrence Report (Paramedic Mike  
Egli) (Exhibit 71)

Correct?

A [Word(s) dropped in transmission].

Q The next document that you were provided with was:

The B.C. Ambulance/Emergency Health Services  
Commission Occurrence Report (Advanced Life  
Support Paramedic Van Houten) (Exhibit 72)

Correct?

A Correct.

Q

The Pre Hospital Cardiac Arrest Report  
(Exhibit 73)

A Yes, I'm just checking all these off on my  
computer. This is the list that I was provided  
with.

Q Yes. And finally, the Emergency Health Services  
Crew Report, which by that time had been marked as  
an exhibit in the proceedings as number 74,  
correct?

A Yes, that's correct.

Q Now, Ms. Spencer then goes on to say this:

Also, there are transcripts available on-line  
of the evidence of the RCMP and paramedics.  
They are organized by last name here --

And she provides you with the website of the  
Braidwood Inquiry hearing transcripts, correct?

A Yeah.

Q And then she says:

I've ordered the key witnesses in our  
perceived order of relevance to the cardiac  
arrest.

And then she provides you with a list, and the  
list is as follows:

The paramedics are Van --

Charles Swerdlow

Cross-exam by Mr. Neave (for TASER International),  
cont'd

1           And before I go through the list, did you have any  
2           idea, without reviewing the entirety of the  
3           transcripts, any of the witnesses that could touch  
4           upon the cardiac arrest issue upon which  
5           Commission counsel asked you to opine?

6           A     I'm sorry, Mr. Neave. I don't -- I probably  
7           should understand your question but I just don't  
8           quite follow it. Sorry.

9           Q     Let me break it down. You were asked to opine by  
10          Commission counsel when you eventually received  
11          their document about your opinion, from a cardiac  
12          electropathology point of view, of the effects of  
13          the Taser device, correct?

14          A     Correct. That I understand.

15          Q     Did you have any idea which witnesses amongst the  
16          variety of witnesses that were tendered before  
17          this Commission, which of them might have given  
18          evidence with respect to cardiac issues?

19          A     No. On the website there's just -- you know,  
20          there's daily transcripts and there's hundreds  
21          [word(s) dropped in transmission].

22          Q     So what Ms. Spencer is identifying is the  
23          witnesses that have some evidence with respect to  
24          the relevance to the cardiac arrest. The first  
25          one she gives, the first line is:

26  
27                   The paramedics are Van Houten, Egli, Maciak,  
28                   Randell

29  
30                   Correct?

31          A     That's right. I didn't know the names of any of  
32          the relevant [word(s) dropped in transmission].

33          Q     The RCMP officers involved are Millington,  
34                   Robinson, Bentley and Rundel

35  
36  
37                   And she tells you that, correct?

38          A     [word(s) dropped in transmission]

39          Q     Then she says:

40  
41                   The first responders after the RCMP were  
42                   Richmond Firefighters: principally Duranleau  
43                   although Graeme, Cameron and Kopp were also  
44                   present.

45  
46                   She gives you those names.

47          A     That's correct.

Charles Swerdlow

Cross-exam by Mr. Neave (for TASER International),  
cont'd

1 Q Then she says:

2

3

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Trevor Enchelmaier was also a key first responder -- he's with the Airport Authority but a former paramedic from Australia. He was assessing Dziekanski alongside the RCMP before the firefighters and paramedics arrived.

You were informed of that information, correct?

A Yes.

Q And then she says this:

We have additional document disclosure that is subject to undertakings. If there is something you think is likely to exist that you need to review but don't have, please let us know and we'll see what else the Commission may be able to give you.

That was the information you were provided on that date, correct?

A That's right.

MR. NEAVE: I have no further questions. Thank you, Mr. Commissioner.

THE COMMISSIONER: That's everybody? Doctor, I very much appreciate the effort and time you've spent in this matter, and I want to thank you very much for that effort. I've also enjoyed the works of art behind you.

A Mr. Commissioner, it's a pleasure seeing you again. Good luck with your commission, sir.

THE COMMISSIONER: Thank you so much.

A All right.

THE REGISTRAR: Thank you very much, Doctor. We'll be closing off now.

(WITNESS EXCUSED)

THE COMMISSIONER: I'd like to raise something else for a moment. As everyone is aware, we're attempting to finish all of the evidence by May the 15th, and it does look as if that will be accomplished although it's still up in the air. I'm going to assume for a moment that it will be accomplished and then talk about something I raised earlier, namely the question of submissions.

Charles Swerdlow

Cross-exam by Mr. Neave (for TASER International),  
cont'd

Dorin Panescu

In chief by Mr. Vertlieb

1           Now, I would like to see submissions both in  
2           writing and orally, and I am suggesting that a  
3           week should be enough. In other words, we want to  
4           get on with this case and get it over with. And  
5           so May the 25th would be the commencement of  
6           argument. And I earlier talked about a half hour  
7           each, but maybe that's a little short, and I am  
8           going to suggest now that everyone have an hour  
9           except, because of the large burden that's on Mr.  
10          Kosteckyj, that he have two hours, but everybody  
11          else an hour. I wouldn't really think the City of  
12          Richmond and the Public Service Alliance would  
13          maybe need that much. And I too would like to see  
14          the written argument no more than 50 pages. Now,  
15          the Court of Appeal allows 30, so I thought that  
16          gave you ample.

17          So that is where I'm at with this and I  
18          thought I should identify that right away.

19                 All right, we'll adjourn for lunch.

20  
21                         (PROCEEDINGS ADJOURNED FOR NOON RECESS)

22                         (PROCEEDINGS RECONVENED)

23  
24          THE REGISTRAR: The hearing is now resumed. Good  
25                 afternoon sir. I'll affirm you now.

26  
27                                 DORIN PANESCU, a witness  
28                                 appearing via video link,  
29                                 affirmed.  
30

31          THE REGISTRAR: Would you state your full name, please.

32          A         Dorin Panescu.

33          THE REGISTRAR: Thank you. Counsel.

34          MR. VERTLIEB: Dr. Panescu, I am Commission counsel,  
35                 and you may recall we discussed this case last  
36                 year when you were giving some thoughts to the  
37                 Commissioner about conducted energy weapons. Do  
38                 you recall that?

39          A         Sure, I do. Hello, counsel.

40          MR. VERTLIEB: Hello, sir. Thank you for being with  
41                 us. Just out of curiosity, where are you right  
42                 now? I can't tell where you are.

43          A         In Santa Clara, California. I'm in my office.  
44

45          EXAMINATION IN CHIEF BY MR. VERTLIEB:

46  
47          Q         You've prepared an opinion. You know that we were

Dorin Panescu

In chief by Mr. Vertlieb

1 given your name for this case and this issue by  
2 TASER and we contacted you and asked you to  
3 provide an opinion for us?

4 A Of course, yeah.

5 Q And you did that and we thank you. You gave us an  
6 opinion dated April 16, 2009; that's correct, sir?

7 A That's correct, yes.

8 MR. VERTLIEB: I'd like that opinion marked as an  
9 exhibit, please, Mr. Commissioner.

10 THE COMMISSIONER: Yes, that will be the next exhibit.

11 THE REGISTRAR: That will be marked as Exhibit 108.

12

13 EXHIBIT 108: Copy - Dr. Dorin Panescu report  
14 dated April 16, 2009

15

16 MR. VERTLIEB:

17 Q And you kindly answered our request about your  
18 relationship with TASER International. You are an  
19 independent medical consultant to TASER?

20 A That's correct.

21 Q You say medical consultant. You're not a doctor;  
22 am I correct? You're not a medical doctor?

23 A No, I'm not.

24 Q No.

25 A I do have a PhD in electrical engineering with a  
26 specialty in biomedical engineering and biomedical  
27 devices.

28 Q Right. And you're not an employee of TASER?

29 A That's correct.

30 Q Now, in 2008, you were very kind to tell us that  
31 you were paid \$92,896 for consulting work, for  
32 preparing reports, depositions, speaking  
33 engagements for TASER; is that correct?

34 A Yes.

35 MR. VERTLIEB: The next exhibit, please, if it may, Mr.  
36 Commissioner, is the letter, April 26, 2009, from  
37 Dorin Panescu.

38 THE REGISTRAR: That will be marked as 109.

39

40 EXHIBIT 109: Copy - Dr. Dorin Panescu letter  
41 to Mr. Vertlieb dated April 26, 2009

42

43 MR. VERTLIEB: Thank you.

44 Q Just to help us understand, the \$92,800 for  
45 consulting, you say it includes preparing reports.  
46 What do you mean by that?

47 A Well, I was retained as an expert witness in a

- 1 number of cases during 2008, very much like you  
2 have retained me as an expert witness for this  
3 particular videoconference. And I have invoiced  
4 TASER for my time for preparing reports in those  
5 cases.
- 6 Q And then you say you're also paid for depositions.  
7 What sorts of depositions?
- 8 A Those that are listed in the letter.
- 9 Q I'm sorry?
- 10 A The four -- the three depositions which are listed  
11 in the letter.
- 12 Q Oh, I see. They were court cases, one in Georgia  
13 and one in Nevada, and where else -- one in Ohio?
- 14 A Yeah.
- 15 Q And then you mentioned as well you're paid to do  
16 speaking engagements. What does that mean?
- 17 A I think two or three times last year, TASER has  
18 requested me to go to meetings they held with  
19 chiefs of police departments in the United States  
20 to present to them basic concepts of cardiology  
21 and electricity so that they get a better  
22 understanding of the risks involved while facing  
23 certain suspects that might be chronic drug  
24 abusers and also understand what volts, amperes,  
25 the basics around electric current flow through  
26 the human body.
- 27 Q Maybe I'm mistaken. You're not a cardiologist,  
28 though?
- 29 A No. As I said, though, I have been working and  
30 have significant experience in biomedical devices,  
31 particularly in cardiac devices. So with that  
32 many years of experience, I have some basic  
33 knowledge about which are the four chambers of the  
34 heart, what its history of ventricular  
35 fibrillation means. Again, I've been presenting  
36 to laypeople and I was just offering some basic  
37 ground level definitions of medical terminology.
- 38 Q Okay, right. And when you travel around, your  
39 TASER affiliation covers the travel expenses, I  
40 presume?
- 41 A Yes.
- 42 Q Of course.
- 43 A I do want to state in my consulting jobs I have  
44 other clients and I'm invoicing everybody same  
45 rates and for the same items.
- 46 Q You don't see patients, then, of course? You're  
47 not treating people?

1 A No, I do not.

2 Q Not at all, right?

3 A Not at all.

4 Q No. And you're not licensed in first aid or any  
5 resuscitation, of course, correct?

6 A No.

7 Q No, okay. In your report, which is now marked as  
8 an exhibit - and it's very clear and we thank you  
9 for providing that - in the very last paragraph,  
10 paragraph 14, you say:

11  
12 With a high degree of scientific certitude,  
13 it is my opinion that Mr. Dziekanski's death  
14 was not caused by, and not contributed by,  
15 the use of a TASER X26 CEW.  
16

17 Do you remember writing that here in this case?

18 A Yeah.

19 Q Is that similar to opinions you've held in other  
20 cases?

21 A Well, to some extent. There have been indeed  
22 cases which are similar to this case. There have  
23 been cases where there were just injuries. So  
24 yeah, I think similar to opinions in some of the  
25 cases that I was involved but not all of them.

26 Q Right. This is a unique case, though, in that  
27 there's a death by someone who didn't have any  
28 alcohol or drugs, right?

29 A Yeah.

30 Q When you say scientific certitude, what does that  
31 mean to you as an engineer?

32 A Well, looking at, as I presented in opinions 1  
33 through 13, looking at the distribution of  
34 currents through Mr. Dziekanski's body and based  
35 on my knowledge of biomedical engineering and the  
36 effects of current flow through human tissues, it  
37 became apparent to me that the current that may  
38 have travelled through Mr. Dziekanski's body  
39 during his confrontation with the police officers  
40 were very unlikely to have contributed to  
41 initiating ventricular fibrillation or causing any  
42 other fatal cardiac rhythms.

43 Q You say unlikely.

44 A Well, yeah. Nothing in life is hundred percent  
45 sure. Ventricular fibrillation or other  
46 arrhythmias are known to happen in people that  
47 have no medical devices in them. There is a

- 1 concept of sudden death that could happen to all  
2 of us, even now, right? So there is nothing  
3 hundred percent in life.
- 4 Q Right.
- 5 A So I cannot say hundred percent because -- but if  
6 you want to talk about probabilities, I would be  
7 happy to expand on that. And if you read my  
8 opinion 13, we can discuss probabilities with  
9 regards to induction of ventricular fibrillation  
10 or other potentially fatal rhythms that medical  
11 devices may have. And the Taser device is by far  
12 by an order of 2,500 times safer than devices  
13 which are approved for medical use in the United  
14 States or in Canada.
- 15 Q So your view is you don't think the Taser  
16 contributed to Mr. Dziekanski's death?
- 17 A That's correct.
- 18 Q You realize that others may disagree with you,  
19 medical doctors in particular?
- 20 A Of course. Yeah.
- 21 Q Okay.
- 22 A That's, you know, the nature of expressing  
23 opinions. They may have their reasons, but I  
24 think I have done my due diligence here and my  
25 finite element analyses and studied potential  
26 electrical current flows, and I arrived to this  
27 particular opinion. I have not seen other  
28 opinions and I have not seen other work that would  
29 back those opinions to the fact that the Taser  
30 could have produced any fatal arrhythmias in Mr.  
31 Dziekanski. If you have such opinions and such  
32 work and if you want me to review it, I will be  
33 happy to do so. But at this point in time I have  
34 not seen any such work.
- 35 Q I just looked at page 5 of your report and the  
36 material considered. That's a thorough list of  
37 everything you considered to prepare your report,  
38 correct? Starting at page 5 and it goes to  
39 page 7.
- 40 A Yeah.
- 41 Q I see that you don't have any information from an  
42 Officer Baltzer, who did the Taser downloads. You  
43 don't know anything about that, do you?
- 44 A It has not been provided to me.
- 45 MR. VERTLIEB: All right. Thanks very much.
- 46 A In terms of Taser downloads, in the document which  
47 your office has provided to me, which is number 1

Dorin Panescu

In chief by Mr. Vertlieb

Cross-exam by Mr. Kosteckyj (for Zofia Cisowski)

1           on the list called "Circumstances," in that  
2           document you're listing the number of deployments  
3           and the duration of each deployment. So I took  
4           whatever information was provided there and I used  
5           it.

6           MR. VERTLIEB: Great. Thank you very much, Dr.  
7           Panescu.

8           THE COMMISSIONER: All right. Now we'll have the next  
9           lawyer.

10          MR. KOSTECKYJ: Mr. Panescu, my name is Walter  
11          Kosteckyj. I'm the lawyer for Zofia Cisowski.

12          A        Okay. Hello.

13          MR. KOSTECKYJ: Hi.

14

15          CROSS-EXAMINATION BY MR. KOSTECKYJ ON BEHALF OF ZOFIA  
16          CISOWSKI:

17

18          Q        You were talking about the fact that the Taser is  
19          safer than medical devices which are approved for  
20          use in Canada and the United States, correct?

21          A        Yeah. The exact wording that I used was the --  
22          per the research that I have conducted, it seemed  
23          that the probability of induction of ventricular  
24          fibrillation with a Taser is 2,500 times less than  
25          the ventricular fibrillation risk which is  
26          accepted by regulatory agencies in the United  
27          States or in Canada.

28          Q        But the Taser is not regulated by any agency in  
29          Canada or the United States, is it?

30          A        That's correct.

31          Q        And there are no standards set for regulation of  
32          the Taser by any --

33          A        That's true.

34          Q        -- national body in the United States or Canada?

35          A        That's correct.

36          Q        Now, you indicated that you're an engineer. But  
37          sir, you do not belong to any professional  
38          engineering society, do you, in any state? Are  
39          you licensed in any state in the United States or  
40          Canada, any province, as an engineer?

41          A        I am not licensed as a professional engineer.

42          Q        And you've never taken --

43          A        I do belong to a number of organizations like the  
44          I-triple-E, Engineering in Medicine and Biology  
45          Society, the (indiscernible), a number of  
46          electrical biomedical engineering associations in  
47          the United States and other countries, but I'm not

1 a licensed professional engineer.

2 Q And you've never written a professional  
3 engineering test to be allowed to call yourself a  
4 professional engineer in either the United States  
5 or Canada?

6 A I have not taken those kind of tests. No, I  
7 didn't.

8 Q All right. Now, in point 4 of your letter, sir,  
9 you indicated that:

10

11 With a high degree of scientific and  
12 electrical engineering probability, the first  
13 deployment of TASER X26 did not induce  
14 ventricular fibrillation in Mr. Dziekanski  
15 nor did it capture his heart.

16

17 Correct?

18 A Yeah.

19 Q What do you mean by "capture his heart"?

20 A By capturing the heart, what I meant is to pace  
21 the heart. So if the heart resting rate is, let's  
22 say, so many beats per minute, by pace capturing  
23 it the heart can be driven to the frequency of the  
24 pacing stimuli.

25 Q Now, you saw the video of Mr. Dziekanski being  
26 tasered, did you not, sir?

27 A Yes, I did. Yeah.

28 Q Did you see after the initial Taser jolt that he  
29 was holding his chest and screaming in pain?

30 A Yes, I did. Yeah.

31 Q Well, sir, when someone's in pain, you know that  
32 their heart rate is affected because they breathe  
33 harder and faster. Their heart pumps faster,  
34 correct?

35 A That could be true or could not be true. That  
36 doesn't mean that the electricity is capturing  
37 their hearts. That might be an emotional  
38 circumstance. It's like taking the SAT exam, your  
39 heart may be racing a little bit due to, you know,  
40 the emotional, or some other analogy. But I do  
41 not think that the Taser has in fact induced the  
42 fast rhythm in Mr. Dziekanski.

43 Q But it's induced pain in Mr. Dziekanski. You can  
44 tell that, can you not, sir?

45 A Yeah. That is probably true, yeah.

46 Q And you have no way of measuring how much pain it  
47 induces, do you?

Dorin Panescu

Cross-exam by Mr. Kosteckyj (for Zofia Cisowski)

1 A No, I have not focused on pain in my report.

2 Q No. And there's no measure for pain, that you're  
3 aware of?

4 A Well, actually there are some tests for pain which  
5 are subjective tests or qualitative type of tests  
6 where subjects are given a certain scale where  
7 they rate the pain from 1 to 10.

8 Q All right. But in any event, there is no test  
9 that you performed and no consideration given to  
10 the pain that was inflicted on Mr. Dziekanski in  
11 your report?

12 A No. I did not focus on the pain that he may have  
13 suffered.

14 Q And did you notice that after he went to the  
15 ground that he was holding his chest and he went  
16 in a circle around on the floor screaming, and  
17 again in pain?

18 A Yes, I did notice that he was rolling on the  
19 floor. At that time I suspect that the Taser wire  
20 became broken.

21 Q Now, once again, while he was in pain, from your  
22 biomedical background, doesn't that indicate to  
23 you that his heart rate would have been greatened  
24 or made greater, that his heart rate would have  
25 been faster, that his breathing would have been  
26 harder, more laboured?

27 A Again, that could be true or could not be true.  
28 I do not know. But that does for sure not imply  
29 that the Taser directly induced a faster rate.

30 Q Well, if he was shot with a Taser and it was --

31 A He could have had that kind of a rate even if he  
32 physically fought the officers. If he engaged  
33 them physically with no other weapons involved, he  
34 could have had probably the same kind of a rate.

35 MR. KOSTECKYJ: Those are my questions. Thank you.

36 THE COMMISSIONER: Doctor, thank you very much for your  
37 attention to this -- oh, I'm sorry, Mr. Neave. I  
38 didn't see you get up.

39 MR. NEAVE: I apologize, Mr. Commissioner.

40 A Thank you.

41 MR. NEAVE: Mr. Commissioner, for the purposes of the  
42 record, David Neave for TASER International.

43 Before I commence, Mr. Commissioner, I don't  
44 believe that Dr. Panescu has been qualified. Do  
45 you want me to go through that process or are you  
46 satisfied with his qualifications from his CV?

47 THE COMMISSIONER: I would just like to state the area

Dorin Panescu

Cross-exam by Mr. Kosteckyj (for Zofia Cisowski)

Ruling on qualifications

1 of the expertise.

2 MR. NEAVE: The area of expertise would be with respect  
3 to conducted energy weapons and their electrical  
4 effect on the heart from an electrical and  
5 bioelectrical perspective.

6 MR. KOSTECKYJ: To my knowledge, I don't know that this  
7 gentleman has ever conducted any independent tests  
8 apart from information he's received from TASER.  
9 If my friend can clear that up, maybe we can move  
10 on. But to my understanding, he has never  
11 conducted any independent research. He's peer-  
12 reviewed other people's material. He's been  
13 provided with information by TASER as to the use  
14 of the gun. But if there's independent testing  
15 that he's done, then it's fine by me.

16 THE COMMISSIONER: I will accept that as his area of  
17 expertise.

18 MR. VERTLIEB: And I was going to add to that, Mr.  
19 Commissioner. This gentleman, Dr. Panescu, was  
20 with us a year ago --

21 THE COMMISSIONER: Yes.

22 MR. VERTLIEB: -- and it was clear that he had  
23 knowledge of the subject and was well qualified.  
24 So there's never been any issue from Commission  
25 counsel's perspective that he's not qualified, Mr.  
26 Neave, if that helps you.

27 MR. NEAVE: No. And I appreciate that, Mr. Vertlieb.

28 MR. VERTLIEB: You're welcome.

29 MR. NEAVE: For the purposes of the record, I want to  
30 make it clear where we are.

31 MR. VERTLIEB: No, that's fine. We understand. Thank  
32 you.

33 MR. NEAVE: Thank you, Mr. Commissioner.

34  
35 CROSS-EXAMINATION BY MR. NEAVE ON BEHALF OF TASER  
36 INTERNATIONAL:

37  
38 Q Dr. Panescu, before I turn to your report, my  
39 colleague, Mr. Kosteckyj, asked you a question  
40 about capture, electrical capture. I'm wondering  
41 if you could inform the Commissioner what  
42 electrical capture is and what the result of  
43 electrical capture is on the heart in particular.

44 A Yes. So the electrical capture is defined where a  
45 certain electrical stimuli applied to any kind of  
46 cell makes the transmembrane voltage of that  
47 particular cell exceed a certain threshold,

1           thereby invoking a -- evoke response from that  
2           cell. So in the case of the heart, the cell would  
3           be the myocardial cell and the electrical stimuli,  
4           if it has significant strength to it, would cause  
5           the myocardial cells to initiate the cardiac  
6           contraction.

7           So that is the definition of pace capture.  
8           So the frequency of the stimuli would be equal to  
9           the frequency of the mechanical contraction of the  
10          heart which is initiated by those electrical  
11          stimuli. So if a stimuli were -- if a stimulus is  
12          applied to the heart by the stimulus  
13          (indiscernible - accent) small frequency and the  
14          heart beats at a different frequency, then by  
15          definition that stimulus has not captured the  
16          heart.

17          Conversely, if that stimulus is shown to come  
18          at the same point in time with respect to the  
19          electrocardiogram of that particular heart and the  
20          frequency of the stimulus and the frequency of the  
21          heart contraction are equal, then one can say that  
22          that stimulus is capturing the heart and it is  
23          initiating its mechanical contractions.

24        Q       Thank you, Doctor. Now, when I turn to your  
25                report, if we can commence, please, at page 1  
26                under paragraph 1.1, you say:

27  
28                    The intent of my report is to provide  
29                    opinions regarding to the probable  
30                    distribution of electrical currents produced  
31                    by TASER conducted energy weapons...in the  
32                    human body and whether Taser electrical  
33                    currents have had a causal role in the death  
34                    of Mr. Robert Dziekanski.

35  
36                That's the opinion that you've been asked to  
37                provide, correct?

38        A       Yes.

39        Q       And you were asked to provide that by Commission  
40                counsel, Mr. Vertlieb?

41        A       Yes.

42        Q       And in so doing, amongst other documents that were  
43                provided was the 12-page document entitled  
44                "Circumstances," correct?

45        A       That's correct, yes.

46        Q       Now, based on the information that you reviewed  
47                and based on your review of the academic

1 literature that you've outlined at pages 5 through  
2 7 of your opinion, you reached 14 separate  
3 conclusions; is that fair?

4 A I do want to add to your statement and also  
5 address one comment which was made a few seconds  
6 ago. In addition to reviewing literature and the  
7 information that was provided to me, I have  
8 conducted my own testing. However, this testing  
9 isn't measuring the electrical current and the  
10 electrical voltage. This testing consists of  
11 finite element modelling, which is an accepted  
12 technique, accepted by the FDA, accepted by  
13 Canadian regulatory agencies to be used to  
14 determine the effects of electrical current flow  
15 through human tissues.

16 When I was invited to Vancouver back in June  
17 of last year, I had provided more background about  
18 finite element analyses. So I have used that  
19 finite element analysis, which is my own kind of  
20 independent testing, and that has not been  
21 borrowed by anyone. It has been conducted for  
22 this particular case to arrive to these  
23 conclusions in addition to reviewing the  
24 literature that has been provided to me.

25 Q And the modelling that you're speaking about is  
26 depicted in the attachments to your report; is  
27 that correct?

28 A Well, that's correct. It's also included in  
29 section 3.3 starting on page 12 of the report, and  
30 those are in fact relevant to this case because  
31 they address specifics of this case. What I have  
32 in the appendixes, it's more general knowledge  
33 about effects of electrical current flow through  
34 human tissues. But section 3.3 addresses specific  
35 circumstances to Mr. Dziekanski's case.

36 Q Then, Dr. Panescu, why don't we just turn to that  
37 section. And would you kindly inform the  
38 Commissioner what you did with respect to section  
39 3.3. And that's entitled, "Taser X26 CEW voltages  
40 and currents were safe when applied to Mr.  
41 Dziekanski's frontal, left, central chest or to  
42 his dorsum." And if you'll provide Mr.  
43 Commissioner with a summary of that information  
44 and the conclusions that you've reached following  
45 your modelling.

46 A I would be happy to do so. So the general finite  
47 element model that I used is shown in figure 2 on

1 page 12. That has certain physical dimensions  
2 which approximate the dimensions provided to me  
3 for Mr. Dziekanski: about 176 centimetres length,  
4 neck to feet; about 44 centimetres shoulder width.  
5 The finite element model includes electrical  
6 resistivities for the tissues which are listed in  
7 that section - muscle, bone, heart, lungs, skin,  
8 fat and abdomen - and then simulates using  
9 mathematical apparatus the electrical current  
10 flow, current distributions, voltage distributions  
11 and energy distributions through that finite  
12 element model.

13 If we go to table 2, that's a summary of the  
14 results which showed the maximum current density  
15 in the volume that approximates the heart in this  
16 particular model. You can see that the worst case  
17 scenario which I have made it very clear per the  
18 information provided to me and per the autopsy  
19 report, that worst case scenario in terms of  
20 electrode placement has not occurred in Mr.  
21 Dziekanski's case. Nevertheless, I have provided  
22 it just as an educational point to show which  
23 would be the worst case scenario, although that  
24 worst case scenario has not taken place in this  
25 particular situation.

26 So with the electrodes right over the chest,  
27 right over the heart, both electrodes right over  
28 the heart, the safety margin to induction of VF,  
29 ventricular fibrillation, in this model that  
30 approximates Mr. Dziekanski's case, would be 33  
31 times. What does that mean? It means that the  
32 Taser would have had to deliver 33 times more  
33 current and 33 times more voltage than the  
34 standard devices that are on the market.

35 Of course, there is a lot of independent  
36 testing that's being done on those voltages and  
37 currents delivered by Taser devices, including by  
38 groups in Canada. None of those groups came even  
39 close to measuring 33 times the specified voltage  
40 and current for Taser X26.

41 If we go to the other three locations which  
42 are simulated which are closer to what has been  
43 presented in the autopsy report and also in the  
44 document that I received from counsel titled  
45 "Circumstances," so the last three electrode  
46 placements that I labelled left chest, central  
47 chest and dorsum, those are closer to what

1 happened in Mr. Dziekanski's case. You can see  
2 that the safety margins for VF exceed 300 times,  
3 so that means the Taser device had to be 300 times  
4 more electrically powerful to have chances of  
5 inducing ventricular fibrillation. It had to be  
6 about 18 times or more, 18, 36 or 69 times more  
7 powerful to even have a chance to capture the  
8 heart.

9 As we all know from the independent testing  
10 done in Canada, these devices don't come even  
11 close to -- maybe they were 10, 20 percent more  
12 powerful than specified, but not 18 times.  
13 Eighteen times means about 1,800 percent more  
14 powerful.

15 The figures 3(a), (b), (c) and (d) show the  
16 voltage distribution is that to have occurred on  
17 Mr. Dziekanski's body under the particular  
18 electrode placement which are assumed in those  
19 cases. Figures 4(a), (b), (c) and (d) show the  
20 current density distribution through a cross-  
21 section taken at the heart level in that model.  
22 The heart level is shown in a wide outline, the  
23 heart volume. And as you can see, by the time the  
24 current reaches down to the heart, volume is  
25 attenuated significantly, so the numbers are  
26 significantly less that can be measured the  
27 location of the electrodes. Again, the current  
28 density we have discussed and they were listed in  
29 table 2.

30 So based on this work, I have concluded that  
31 it's highly likely from an electrical engineering  
32 perspective that none of the five Taser trigger  
33 pulls have had a chance to actually either pace  
34 capture or induce ventricular fibrillation in Mr.  
35 Dziekanski's heart.

36 Q And Doctor, just staying with table 2 on page 13,  
37 perhaps I'm stating the obvious, but if the spread  
38 between the probes is greater than the 5 or 8  
39 inches that you've referred to in lines 2, 3 and  
40 4, it's greater than the 8 inches or the 5 inches,  
41 what is the effect of the safety margin both with  
42 respect to the VF threshold and with respect to  
43 the capture threshold?

44 A Well, it depends. The distance between probes can  
45 definitely play a role because it increases the  
46 resistance that's seen by the device. Therefore  
47 it could further reduce the current density that's

1           seen in the heart. But to that point it's also  
2           important to think about the quality of the  
3           electrical contact. And in my understanding, the  
4           second probe could have been lodged, for example  
5           in Mr. Dziekanski's shirt, which -- that would  
6           imply that the electric contact was not of enough  
7           quality to sustain a good electrical flow through  
8           his body.

9           Q     So Doctor, I believe that, if I can take you back  
10           to page 3 of your report, item 7.

11          A     Yes.

12          Q     Is that summarizing what we've been speaking about  
13           with respect to section 3.3 of the table?

14          A     Well, actually item 7 of my opinion should be in  
15           addition to the things that we have discussed. So  
16           based on the information provided in the autopsy  
17           report, Mr. Dziekanski's body mass index is about  
18           27.5 kilograms per square meter. Based on certain  
19           models presented by Cleveland Clinic in peer-  
20           reviewed publications and also by John Webster  
21           from the University of Wisconsin in his work, at  
22           that particular body mass index, the distance  
23           between - the minimum distance, so it could be  
24           higher - but the minimum distance between the skin  
25           and the heart is about 31 millimetres or about 3.1  
26           centimetres. Per my computations and also Dr.  
27           Webster's computations, at that large of a  
28           distance, the probability of a Taser device's  
29           inducing ventricular fibrillation is -- I don't  
30           want to say zero, but mathematically it converges  
31           down to zero because that additional layer of  
32           tissue provides exponentially increasing  
33           attenuation to the electrical flow that would have  
34           been delivered by the Taser electrodes.

35                    But that kind of additional evidence that the  
36           likelihood is even lower because the skin-to-heart  
37           distance is higher than expected given the body  
38           mass index.

39          Q     Doctor, in your summary of your opinions under  
40           1.2, you provide opinions with respect to each of  
41           the Taser deployments and then with respect to  
42           them collectively. Would you kindly summarize  
43           your opinion for Mr. Commissioner, please.

44          A     Sure. So opinion number 4 discusses the first  
45           delivery and there were several reasons why I  
46           thought the first delivery of Taser -- the first  
47           trigger pull of the Taser device didn't induce VF

1 and did not capture Mr. Dziekanski's heart. And  
2 those reasons are related to the current density  
3 analysis which we have just discussed, are related  
4 to the effects of a series of Taser pulses on the  
5 heart, and that can be found in the same section,  
6 3.3, and based on the fact that on the video Mr.  
7 Dziekanski is clearly seen that he's still  
8 exerting physical effort during that particular  
9 delivery.

10 I have been working in implantable  
11 defibrillators for a significant part of my career  
12 and I do know that when patients are induced in  
13 ventricular fibrillation, they lose consciousness  
14 within a matter of a few seconds, perhaps four or  
15 five, maybe less than ten seconds. They certainly  
16 do not have any kind of physical ability to  
17 sustain a high degree of physical effort in  
18 ventricular fibrillation. So based on what I've  
19 seen in hospitals, that does not match what Mr.  
20 Dziekanski was doing when he was exerting his  
21 physical effort in the encounter with police  
22 during the first Taser delivery.

23 Going to opinion number 5, during the second  
24 Taser delivery, Mr. Dziekanski is seen on the  
25 video rolling on the floor. And based on the  
26 electrical engineering analyses that we have  
27 discussed, it seems to me that he didn't  
28 have -- he was not in ventricular fibrillation.  
29 In ventricular fibrillation he would not have been  
30 able to control his body orientation to the degree  
31 that he was doing while rolling on the floor  
32 during the second delivery of Taser energy.

33 Going to point number 6 --

34 Q And just --

35 A -- that refers to evidence that was provided to me  
36 by counsel in the document titled "Circumstances,"  
37 where one of the police officers it's cited that  
38 he heard the Taser device making a loud noise. If  
39 we go to section 3.5 of my report, I explain there  
40 the electrical engineering background and  
41 information of when a Taser device is making a  
42 loud noise and why. A Taser device is making a  
43 loud noise when it's attempting to deliver  
44 electricity in a so-called open circuit. That's  
45 when the air gap is being ionized and the  
46 ionization of the air gap is producing the loud  
47 noise. Therefore, per the document provided to me

1 by counsel and the evidence provided by the police  
2 officer stating that the Taser was making a loud  
3 noise, it's highly likely, from an electrical  
4 engineering perspective, that the Taser device was  
5 delivering energy into an open circuit.

6 So what could have happened? What could have  
7 happened, in my opinion, is that while Mr.  
8 Dziekanski was rolling on the floor during the  
9 second delivery, either one of the probes came  
10 loose and probably that's why it has not been  
11 found on his body, or the wire connecting to it  
12 was broken. As such, part of the second delivery  
13 and the third delivery were ineffective because no  
14 electricity probably flowed through Mr.  
15 Dziekanski's body.

16 Going to, I believe, opinion number 6, the  
17 document received from counsel, the document  
18 called "Circumstances," states that the fourth and  
19 fifth deployments were delivered in drive stun  
20 mode on Mr. Dziekanski's shoulder area. Also that  
21 document states that continuous contact was not  
22 achieved throughout the entirety of those last two  
23 deliveries. So if we didn't have continuous  
24 contact, the shoulder area, that's known to have a  
25 large mass of bone. The bone is not a good  
26 electrical conductor, so that shoulder area and  
27 the skeletal structure associated with it would  
28 have provided a lot more attenuation to the  
29 electrical current from Taser devices, a lot more  
30 than I have estimated in my models.

31 Therefore, corroborated with the evidence  
32 provided by the officers, which stated that Mr.  
33 Dziekanski was not reacting to those deliveries  
34 and the lack of continuous electrical contact,  
35 made me opine that the fourth and fifth  
36 deployments were ineffective. Therefore they  
37 could not have induced ventricular fibrillation or  
38 captured Mr. Dziekanski's heart.

39 Q Doctor, at opinion number 10 you refer to a  
40 concept of delayed VF. Can you inform Mr.  
41 Commissioner what you mean by that and expand on  
42 opinion 10, please.

43 A Yeah. If you go to my list of references, the  
44 particular reference which I used in this  
45 particular case is - just give me one second  
46 here - reference number 40, a study by Drs.  
47 Blackwell and Hayllar, where they assessed 212

Dorin Panescu

Cross-exam by Mr. Neave (for TASER International)

Cross-exam by Mr. Hira (for Cst. Kwesi Millington)

1 patients that have presented to emergency  
2 departments after electrical injury. So they have  
3 studied the electrical and the cardiac rhythms in  
4 212 presentations at the emergency departments,  
5 and in none, zero, of these cases they found  
6 delayed ventricular fibrillation. So in certain  
7 of these cases, ventricular fibrillation did occur  
8 but it occurred immediately after the electrical  
9 injury. In none of these 212 cases ventricular  
10 fibrillation developed after a certain amount of  
11 time after the electrical injury, and that is  
12 their conclusion. That particular article is  
13 discussed in section 3.7 of my report, starting on  
14 page 23.

15 And again, I do want to state that that  
16 indeed is not my own work. It is work that I have  
17 read in peer-reviewed literature about, and I do  
18 subscribe to it.

19 MR. NEAVE: Thank you, Doctor. Those are my questions.

20 MR. HIRA: I have one question, Mr. Commissioner.

21 Doctor, my name is Ravi Hira and I represent  
22 Officer Kwesi Millington.

23

24 CROSS-EXAMINATION BY MR. HIRA ON BEHALF OF CONSTABLE  
25 KWESI MILLINGTON:

26

27 Q With respect to the last exchange that you had  
28 with Mr. Neave, counsel for TASER, you were at 3.7  
29 or page 23 of 29 of your report.

30 A Yes.

31 Q And you opine there that:

32

33 Consequently, with a high degree of  
34 scientific probability and consistent with  
35 the post-mortem examination report, it is  
36 very likely that due to his dilated  
37 cardiomyopathy condition, Mr. Dziekanski's  
38 heart gave up while exerting a "great deal of  
39 strength" in fighting RCMP officers.

40

41 What do you base that opinion on?

42 A First of all, I -- maybe the fighting RCMP  
43 officers might have not be the best choice of  
44 words. What I meant here is -- perhaps I should  
45 have stopped the phrase right there after "a great  
46 deal of strength." What I meant was that in my  
47 opinion, reviewing all this information, knowing

1           that per the medical examiner's opinion Mr.  
2           Dziekanski had a dilated heart -- I have worked in  
3           heart field designing implantable devices to treat  
4           heart failure for about four years of my career.  
5           So based on that information, it seemed to me that  
6           Mr. Dziekanski had a pre-existing condition and he  
7           exerted, per the circumstances document received  
8           from counsel, a great deal of strength. By that I  
9           imply a great deal of effort. To me it's known  
10          that patients that have dilated cardiomyopathy or  
11          even mild forms of heart failures, they cannot  
12          sustain a great deal of strength, a great deal of  
13          physical effort. They don't do -- their body  
14          gives up at some point, and that's what I meant.  
15          So the degree of physical effort that Mr.  
16          Dziekanski by his own choice decided to sustain, I  
17          think that's more likely to -- based on the  
18          background of dilated cardiomyopathy, is more  
19          likely to have caused his body to give up.

20       MR. HIRA: Thank you, Doctor. Those are my questions.

21       THE COMMISSIONER: Is that everyone? I was a little  
22          premature there, Doctor. But now, thank you very  
23          much. You've been very helpful. That's all the  
24          questions we have. Thank you for your time.

25       A       Thank you very much.

26       THE REGISTRAR: Thank you, Doctor. We'll be closing  
27          off now.

28       A       All right. Thank you.

29  
30                       (WITNESS EXCUSED)

31  
32       MR. VERTLIEB: We have Dr. Butt tomorrow, and we've  
33          just scheduled him because we know we were quite a  
34          long time with Dr. Lee, the pathologist. And Dr.  
35          Butt is a pathologist, so out of an abundance of  
36          caution, he's the only witness scheduled for  
37          tomorrow. But we will need to complete him  
38          tomorrow to get through the people lined up for  
39          Thursday.

40       MR. NEAVE: Mr. Commissioner, I'm informed by Dr. Ho  
41          that he has a conflict with his scheduled time on  
42          Thursday that cannot be moved. I'm informed that  
43          there is -- as you know, he's a practising  
44          physician in the United States and there's an  
45          issue that he can simply not reschedule, although  
46          in fairness to my friend, that time was arranged.  
47          I understand now that that's a real problem for

1           him, and I'm in your hands with respect to  
2           accommodation with respect to time. But I'm  
3           informed that Thursday he's simply not available.  
4    THE COMMISSIONER: Well, Mr. Neave, I'd like to leave  
5           that between counsel.  
6    MR. NEAVE: Thank you.  
7    THE COMMISSIONER: I don't really want to get involved  
8           in scheduling.  
9    MR. NEAVE: Thank you.  
10   THE COMMISSIONER: Ten o'clock tomorrow.  
11   THE REGISTRAR: The hearing is now adjourned until ten  
12           o'clock tomorrow morning.

13  
14                           (PROCEEDINGS ADJOURNED TO APRIL 29, 2009, AT  
15                           10:00 A.M.)  
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