

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

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

May 20, 2008

PROCEEDINGS AT
HEARING (DAY 11)

ORIGINAL

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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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1
Dr. Charles Kerr (Medical presenter)
Questions by Mr. Vertlieb

1 Vancouver, B.C.
2 May 20, 2008
3

4 THE COMMISSIONER: Good morning, counsel. Good
5 morning, sir. Yes, counsel.

6 MR. VERTLIEB: Thank you, Mr. Commissioner. We are on
7 track, Mr. Commissioner. Everything's going as
8 scheduled and we expect the balance of the week to
9 go as scheduled. Nothing has arisen that's going
10 to cause us to change any of that. And we will be
11 able to conclude Friday probably by midday for
12 this session and then resume with some further
13 presentations that we talked about on day one.

14 So Mr. Commissioner, to start this morning,
15 we have with us, and he's present, unfortunately
16 in what can only be called the witness box, but
17 maybe we'll try to call it --

18 THE COMMISSIONER: Yes, sir. We didn't mean to be this
19 formal but this is all we could acquire.

20 DR. KERR: I understand.

21 THE COMMISSIONER: I hope you can relax there.

22 MR. VERTLIEB: So Mr. Commissioner, with us this
23 morning is Dr. Charles Kerr, and Dr. Kerr is a
24 cardiologist and electrophysiologist.
25

26 DR. CHARLES KERR, a Medical
27 presenter.
28

29 What I'd like to do, as we've done with everybody
30 else, Dr. Kerr, is just take you through a bit of
31 your background and then we can have you embark on
32 your presentation.
33

34 QUESTIONS BY MR. VERTLIEB:
35

36 Q So by way of background, tell us about your
37 education, starting in university. Where did you
38 commence your postsecondary studies, and take us
39 through that?

40 A I'm Vancouver raised and went to the University of
41 British Columbia for my postgraduate degree
42 following high school. I then went into medical
43 school at the University of British Columbia and
44 graduated in 1973. I spent two years in England
45 studying internal medicine, came back here,
46 finished my studies in internal medicine, and from
47 1977 to 1979, studied cardiology at the University

1 of British Columbia. At that stage the very early
2 development of the field of cardiac
3 electrophysiology took place and I went to Durham,
4 North Carolina, to Duke University, where I spent
5 two years doing some basic research as well as
6 clinical training in the field of cardiac
7 electrophysiology, and completed that in 1981,
8 obtaining along the way my fellowship in
9 cardiology and internal medicine. I then started
10 practising here in Vancouver.

11 Q What year did you start in Vancouver, in your
12 practice?

13 A I started in 1981.

14 Q And you are in private practice. You see people.
15 That's the focus of your work?

16 A Yes. I'm a full professor of the University of
17 British Columbia, Department of Medicine, and I
18 therefore do receive university support and
19 salary, protected time, but I also work and do
20 private medical practice in a hospital-based
21 situation. I started at Vancouver General
22 Hospital and then I went to University Hospital
23 and I've been at St. Paul's Hospital now for 12
24 years, where my current practice of cardiology and
25 cardiac electrophysiology takes place.

26 Q Tell us about how you became a full professor of
27 medicine, what that involved to achieve that
28 position and what you do as a professor of
29 medicine.

30 A Well, you need to have an interest in academic
31 medicine. You have a responsibility for teaching
32 and performing research. I started academic
33 employment as an assistant professor in 1981 and
34 after five years was promoted to associate
35 professor, which is the next rank up from that,
36 and then five years later appointed to the rank of
37 professor, which I've held since, I think, 1991 or
38 '92. Also along the way, as well as teaching and
39 research, I had a very large administrative role.
40 I was head of the Division of Cardiology at the
41 University of British Columbia for close to 15
42 years and I was head of the Division of Cardiology
43 at University Hospital, then at St. Paul's
44 Hospital, finally relinquishing those posts,
45 thankfully, about five years ago.

46 Q Tell our Commissioner about your teaching duties
47 in the field of cardiology and electrophysiology.

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- 1 A Well, a lot of teaching is informal. I give
2 formal lectures, or formal bedside teaching,
3 rather. I have given lectures. But a lot of our
4 teaching that we do is what we call informal
5 patient-related teaching. At any one time we will
6 often have medical residents who are doing their
7 general internal medicine training. We have a
8 very large cardiology training program to train
9 specialists in cardiology, and then we have also
10 an electrophysiology fellowship program. So that
11 would be a person who's already become a
12 cardiologist and wants to train for another two
13 years to learn cardiac electrophysiology. So
14 we're exposed to all of these residents who see
15 patients with us and are taught with us at the
16 bedside as well as in seminar types of
17 presentations, academic half day, we call it, when
18 we teach residents in the cardiology program. So
19 there's a constant role in teaching in that area.
- 20 Q And the people you're teaching are already people
21 who have come a long way in the study of
22 cardiology?
- 23 A Some of them are. I teach first-year medical
24 students too. But a lot of the people I train are
25 people who are well into their cardiology training
26 program and then they will do what we call a
27 rotation in electrophysiology for three months, so
28 they'll have been one year into a three-year
29 cardiology training program. And then I teach
30 people who are more senior than that, people who
31 have completed their cardiology certification and
32 then come back and want to expand that further, go
33 into this very highly specialized area.
- 34 Q It sounds as though the late '70s when you were
35 expanding your knowledge by going to Duke
36 University, that this was an emerging and new
37 field in medicine. Tell the Commissioner about
38 the field you're in, because it's a relatively new
39 discipline. Is that --
- 40 A Well, relatively new, yes. I think I was the
41 first person doing what we call invasive
42 electrophysiology in western Canada. There were
43 other people who were interested in arrhythmias
44 but I actually trained in a situation where you
45 use catheter-based techniques of passing
46 electrical wires up through the veins into the
47 heart and stimulating the heart by putting

1 electrical currents into little wires that touch
2 the heart muscle and bring on abnormal heart
3 rhythms. So that area was just getting going in
4 1979 when I went to Duke, and Duke was one of the
5 epicentres of the world in terms of training at
6 that time. Now it's a very mainstream field
7 that's growing very dramatically.

8 We do a variety of different areas in
9 treating. Electrophysiology is the treatment of
10 people with abnormal heart rhythms, whether it be
11 too fast or too slow. So we do a lot of clinical
12 assessment, run clinics, see people who have
13 symptoms of abnormal rhythm such as palpitations
14 or heart racing or blacking out. We do
15 electrophysiology studies, which is where we try
16 and bring on rhythms in a controlled environment
17 so we can characterize them. Often these rhythms
18 are due to abnormal circuits in the heart where
19 electricity goes around an abnormal circuit. So
20 we can actually bring those rhythms on and
21 sometimes map out where they come from. And more
22 recently, over the last 12 to 15 years, is the
23 whole area of what we call interventional
24 electrophysiology, where you can isolate where
25 these extra strands of tissue are and actually
26 cauterize them and cure these arrhythmias. So
27 it's a very exciting field.

28 The other areas we deal with are electrical
29 devices. Pacemakers have been around for 40 years
30 now, but more recently, over the last 20 years,
31 we've seen the burgeoning use of cardiac
32 defibrillators, implantable cardiac defibrillators
33 or ICDs, which are life-saving devices that can be
34 put in like a pacemaker with a wire down into the
35 heart so that if a person develops a life-
36 threatening arrhythmia that might be fatal, it
37 will either pace the heart very rapidly and stop
38 it or shock the heart and bring the rhythm back to
39 normal. We have now put in about 450 of those at
40 our heart programs here in Vancouver. So it's a
41 very common -- and we put them in now for what we
42 call primary prevention. These are people who we
43 think are at high risk of having an arrhythmic
44 death, people who have had big heart attacks in
45 the past, have a lot of scar tissue on their
46 heart. And so those we put in for primary
47 prevention because we know that over the course of

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1 a year or two, that 4 or 5 percent of those people
2 will be unfortunate enough to sustain sudden
3 cardiac death, and these have been shown in trials
4 to be very life-saving. So it's quite a broad
5 spectrum of dealing with people with abnormal
6 heart rhythms that we deal with, a very exciting
7 field.

8 THE COMMISSIONER: I would think so.

9 MR. VERTLIEB:

10 Q And so as part of this field, you would in your
11 practice be stopping people's hearts and
12 controlling the heart rate? Do I have that
13 correctly?

14 A Yes, we do. Some of the rhythms we bring on are
15 benign. They're not highly dangerous, but they're
16 very symptomatic. So when we do these
17 electrophysiology tests, we actually put in extra
18 beats and pace the heart very rapidly to try and
19 bring on these very rapid heart rhythms. We can
20 also bring on ventricular fibrillation in
21 susceptible individuals. You might ask why we do
22 that. Well, we do that because we're trying to
23 identify if a person's at risk. We'd rather them
24 have ventricular fibrillation in our
25 electrophysiology lab where there's two doctors
26 and three nurses that can treat it rather than
27 have it out on the street. So that's why we do
28 that.

29 The other -- where we do it virtually every
30 working day is during implantation of
31 defibrillators and ICDs. Part of the methodology
32 of doing this is to be sure that they work. You
33 don't want to put an expensive and life-saving
34 device in if it doesn't work. So we actually
35 intentionally bring on ventricular fibrillation in
36 individuals during the implantation of an ICD to
37 make sure that it actually works. We have pads on
38 the outside of the chest in case it doesn't work.
39 So what we do is we put in little tiny shocks
40 right on the vulnerable period of the cardiac
41 cycle, and that usually is quite effective in
42 bringing on ventricular fibrillation. The
43 defibrillator will then sense it. What it does,
44 it says -- it has to be 16 beats over 200 beats a
45 minute, and if that's the case, then it recognizes
46 is as ventricular fibrillation. It charges up the
47 capacitors to considerably higher energy than is

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1 given to induce ventricular fibrillation and then
2 it shocks and will terminate it. So we do this
3 every day. It's a little frightening at first but
4 you sort of get used to it.

5 Q You said something just now that may be of
6 interest to the Commissioner in terms of this
7 inquiry into the Taser. You talked about
8 ventricular fibrillation and susceptible
9 individuals. Just help the Commissioner with a
10 bit more information on that statement.

11 A Yes. A normal, healthy person in a normal resting
12 state is probably unlikely that they will develop
13 ventricular fibrillation. There are certain
14 things that make a person more susceptible to
15 that. Probably the foremost in the general
16 population would be somebody who has underlying
17 structural heart disease. The commonest form of
18 structural heart disease that would cause a
19 problem would be somebody who's had old heart
20 attacks and has a lot of scar tissue on the heart.
21 Other problems are people with what we call
22 cardiomyopathies or primary disease of the heart
23 muscle where the heart gets enlarged and doesn't
24 contract well. And there are other circumstances
25 where the heart can get very, very thick. They're
26 what we call hypertropic cardiomyopathy or those
27 other congenital forms of heart disease, and those
28 people can also be very prone to developing
29 abnormal heart rhythms.

30 What happens in those circumstances, if a
31 stimulus is introduced at a particular part of the
32 cardiac cycle, the electrical signal cannot go one
33 way around the heart but goes the other way and
34 then it circles around the scar tissue and creates
35 a very fast circular motion around those scars,
36 and that leads to ventricular fibrillation, which
37 is an extremely fast heart rhythm, usually 300
38 beats a minute or more, in which the heart cannot
39 effectively contract - it just quivers - and leads
40 to imminent death unless immediately resuscitated.

41 There are other factors that can contribute,
42 and I think the one thing that I can't underscore
43 enough is the influence of the sympathetic nervous
44 system that can occur in situations of stress or
45 anxiety. We do this in the electrophysiology
46 laboratory where a patient is very heavily sedated
47 so they aren't in that state where their

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1 sympathetic nervous system is fired up. So we
2 actually give them an infusion of an adrenaline-
3 like drug to simulate activity, and often that
4 will allow us to precipitate these rhythms.

5 So when people have pain, anxiety, distress,
6 they will have an outpouring of their central
7 nervous system, what we call the sympathetic
8 nervous system, that stimulates the heart.

9 There's also an outpouring from the adrenal glands
10 of adrenaline and other compounds like adrenaline,
11 and they also directly stimulate the heart. They
12 cause the heart to go faster, they cause the blood
13 pressure to go up, and they also alter the
14 electrical properties of heart muscle cells by
15 changing the voltages across the cell membranes
16 that make them more prone to developing dangerous
17 arrhythmias.

18 You can also make that worse by making
19 somebody what we'll call hypoxic, low oxygen
20 levels in their blood. You can do it by dropping
21 the pH of the blood, making them what we call
22 acidotic. We don't do that experimentally in our
23 patients electively, but certainly that can make
24 people more prone to developing abnormal rhythms.

25 So if you have structural heart disease and
26 then you superimpose other factors on it, then
27 that makes a person more vulnerable to the
28 development of arrhythmias, and often, even in
29 spontaneous sudden death, occurs at times when
30 there is sudden sympathetic discharge -- first
31 getting up in the morning or doing something,
32 shovelling snow, things like that where you're
33 doing a lot of stress.

34 Q So you've explained the susceptible individual,
35 somebody who has, it might be any number of
36 factors that make somebody susceptible. You don't
37 need to have all those factors that you were
38 outlining to the Commissioner to be susceptible?

39 A No, you wouldn't need all of them. In fact, if
40 you've got structural heart disease, you don't
41 need anything else. You need an extra beat to
42 kick in, which almost everybody gets some. But I
43 think the more of those factors you have, the more
44 susceptible you are to developing dangerous heart
45 rhythms.

46 Q So leaving out for a moment the person who has had
47 some heart history, just leave that category of

1 people aside. Take the person who's perhaps
2 dehydrated for any number of reasons, either
3 exercise or being in an environment where they
4 haven't been getting fluids properly, and becomes
5 an excited person. Is that the kind of
6 susceptibility you would be concerned about in
7 terms of a ventricular fibrillation?

8 A Well, I think you would have to be -- it would
9 have to be pretty intensive stimulation. I think
10 you'd have to have a situation where -- I don't
11 know about dehydration except that it would lead
12 to probably increasing your adrenaline levels.
13 But you need some situation where you have a lot
14 of adrenaline circulating and possibly some of the
15 other factors I mentioned.

16 We know that the more benign arrhythmias,
17 because people live to tell you about them, can
18 occur under situations of stress. Another rhythm
19 called atrial fibrillation in the upper chamber of
20 the heart we know can come on in situations where
21 people are overtired, under tremendous stimulation
22 from other things, have had too much alcohol the
23 day before -- things like that can stimulate
24 atrial fibrillation. But they don't die. They
25 come in and tell you, "Gee, my heart was going all
26 crazy for a couple of hours last night." So we
27 know in that circumstance that can come on in a
28 person with an otherwise normal heart under that
29 type of stimulation.

30 Q Tell the Commissioner how it is that someone who's
31 got this adrenaline pumping can be at greater
32 significant risk of VF. Just explain how, if that
33 was a patient you were trying to explain what
34 happened to them, someone who had not died,
35 someone you've been able to save or had been
36 defibrillated, and they said, "Tell me, doc, what
37 happened? How did all this happen?" Just tell
38 the Commissioner the medicine around that.

39 A Well, sympathetic stimulation and high adrenaline
40 levels do a variety of things. They'll speed your
41 heart rate up and they enhance the heart's
42 naturally occurring pacemakers, and that can be
43 normal pacemakers, which we call your sinus node.
44 So it can accelerate sinus rhythm but it can also
45 speed up secondary pacemakers, which include
46 secondary pacemakers in all areas of the heart,
47 and that can make the heart more prone to firing

1 off extra beats. Any time your heart goes into a
2 fast irregular rhythm, it needs an extra beat to
3 stimulate it. And under the stress of sympathetic
4 stimulation and adrenaline, you will get more what
5 we call ventricular premature beats, which can act
6 as triggers. The adrenaline also will alter the
7 characteristics of the cells in the heart and make
8 them more prone to developing -- and accelerate
9 conduction through various areas of the heart.

10 Also the sympathetic nervous system affects
11 different parts of the heart to different degrees.
12 So you can have one part of the ventricle of the
13 heart affected more than the other part, and that
14 can lead to electrical -- what we call
15 inhomogeneity where one part of the heart is
16 different than the other, and that can in turn
17 lead to circular abnormal rhythms. It also can
18 raise your blood pressure, which puts more strain
19 on the wall of the heart. When your blood
20 pressure is higher, your heart has to work more.
21 The stress that -- the heart has to contract
22 because the blood pressure is higher, has to beat
23 more forcefully. So it does a lot of things to
24 the heart that could in the right circumstances
25 lead to or facilitate the development of abnormal
26 heart rhythms.

27 Q And just one last thing before we move on to the
28 specific reason that you're here. To cause VF and
29 then to defibrillate, what's the level of
30 electrical energy requirement to start a VF and
31 then to actually do the defibrillation?

32 A It depends how you do it. If you do it with a
33 defibrillator, you're doing it right inside the
34 heart, and you can usually put a -- if you put
35 what we call an R-on-T shock, you shock on top of
36 the T-wave, which is the vulnerable part of the
37 cardiac cycle, you can put somebody into
38 ventricular fibrillation with as little as
39 0.5 joules or even down to 0.2 joules, which is a
40 measure of energy. And it takes probably --
41 10 joules would be an average what we call
42 defibrillation threshold, and that is the shock
43 delivered. So the ratio is probably well over
44 10 to 1. If you shock somebody externally, you're
45 going to need energies of something like 200
46 joules to terminate the ventricular fibrillation
47 and probably 5 go 10 joules to bring on

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1 ventricular fibrillation. So it's at least a
2 tenfold difference in the energy that's required
3 to defibrillate compared with fibrillate.

4 MR. VERTLIEB: Well, Dr. Kerr, with that background
5 about what you do as a cardiologist and
6 electrophysiologist, perhaps you would like to
7 take the Commissioner through the paper you've
8 prepared titled "The Use of Neuromuscular
9 Incapacitating Devices (Taser) and the Risk of
10 Sudden Death."

11 THE COMMISSIONER: Yes, please.

12
13 PRESENTATION BY DR. KERR:

14
15 A A lot of it's been talked about and I'm sure, I'm
16 just seeing in the press, a lot of it you've
17 probably heard before, but I'll try and go through
18 it reasonably.

19 The first part of this just discusses what
20 the basic electrical function of the heart is.
21 Essentially the heart won't beat if there's no
22 electricity. The electrical signals flow from the
23 top part of the heart through the electrical
24 conduction system into the lower chamber of the
25 heart, and then they race down -- it's a special
26 sort of electrical wiring system in the lower
27 chamber of the heart, and finally the electrical
28 signals spread into the heart muscle cells
29 themselves and that causes the heart muscle to
30 contract.

31 Normally this is a very coordinated, fluid
32 way that the heart contracts to allow the heart to
33 pump efficiently. Abnormal rhythms in the heart
34 can arise due to, as I mentioned earlier, abnormal
35 circuits where there's scar on the heart or even
36 just the way the heart cells align themselves.
37 They can go around in circles and create very fast
38 rhythms, and that probably accounts for the
39 majority of abnormal heart rhythms. There also
40 can be circumstances where the pacemaker cells in
41 the heart fire off very rapidly and
42 inappropriately rather than this other type of re-
43 entrant circuit.

44 After the heart is what we call depolarized -
45 that's when the electricity flows through the
46 heart - there's a period of time when the heart
47 muscle cells cannot be activated, and we call that

1 the refractory period. Cells then begin to
2 recover and again are susceptible to being
3 electrically activated. And that inscribes a
4 signal on the electrocardiogram we call a T-wave,
5 and I'm sure you've heard that as well. Now,
6 what's interesting about the T-wave is it's a
7 broad wave, and that implies that different areas
8 of the heart muscle are recovering at different
9 times, and that's a particularly important concept
10 in electrophysiology because that means that that
11 heart then becomes vulnerable to abnormal rhythms.
12 So if you actually stimulate on the T-wave, that's
13 considered the vulnerable period.

14 There have been some studies. There was an
15 excellent study done back in the earlier days of
16 defibrillators where investigators looked at human
17 volunteers and scanned the cardiac cycle and found
18 they could induce ventricular fibrillation for a
19 period of about 50 milliseconds, so that's
20 about -- if a person's heart rate is 60 beats a
21 minute, that's about 5 percent of the cardiac
22 cycle is in the vulnerable period, and other
23 estimates have been somewhere in the 3 to 5
24 percent range. So if you've got a heart beating
25 at 60 beats a minute, that's 1,000 milliseconds
26 for the cycle, and about 50 milliseconds of that
27 cycle make up the vulnerable period. They then
28 found if you put the shock right on the very, very
29 middle of that vulnerable period, you can induce
30 ventricular fibrillation in the majority of hearts
31 with 0.2 joules, which is a very low energy, but
32 enough to induce ventricular fibrillation.

33 So ventricular fibrillation, as I mentioned
34 earlier, is an extremely rapid heart rhythm in the
35 lower chambers of the heart, the left and the
36 right ventricle. And it depends on the
37 definition. Some people say 200 beats a minute,
38 some say 300 beats a minute. But it's very
39 chaotic, irregular beating of the lower chamber in
40 which there is ineffective pump function of the
41 heart and the person will collapse. They'll lose
42 their blood pressure and collapse within a matter
43 usually of seconds, say five to ten seconds. The
44 brain is exquisitely sensitive to absent oxygen.
45 It only takes about five to six seconds of
46 deprivation of oxygen to the brain for a patient
47 to lose consciousness. So it's a very rapid

1 onset.

2 Ventricular tachycardia is a sister
3 arrhythmia but it's a more organized abnormal
4 rhythm and it usually involves a circular motion
5 around scars but a bigger and more organized
6 circuit. So a person's heart may be going 150 to
7 200 beats a minute. The patient may lose
8 consciousness and might die, but also they might
9 be able to sustain consciousness and get to a
10 hospital even for hours in that sort of an
11 abnormal rhythm.

12 Now, what are examples of the R-on-T
13 phenomenon occurring and induction to ventricular
14 fibrillation? There is one example that is very
15 unfortunate and tragic when it occurs but you hear
16 about it sort of once a year in the paper where
17 often a young person whose sternum is still
18 soft - and you can push in the sternum because
19 it's still not fully what we call ossified or the
20 bone is not fully formed - and often -- I mean,
21 stories of when somebody gets hit with a hockey
22 puck, gets hit with a baseball or the butt of a
23 stick or something hits them there and they just
24 drop dead. And that's got a special name called
25 commotio cordis, and what is felt to happen is
26 that the trauma actually induces an electrical
27 signal right on the T-wave which in turn leads to
28 ventricular fibrillation. We've known for a long
29 time that you can traumatize the heart by even a
30 flick of your finger and it will cause extra
31 beats. That was actually described by William
32 Harvey back 400 years ago, which is interesting.
33 So the mechanical jolt from a blow on the T-wave
34 can bring that on.

35 Then I've discussed with you the other ways
36 that we see it. We do it in the electrophysiology
37 laboratory when we put in extra beats to try and
38 induce these arrhythmias. I've told you about the
39 defibrillators and what we do with them and how
40 generally easy it is to bring on ventricular
41 fibrillation and then how we terminate it.

42 The next part of my brief goes into again the
43 stimulation of the sympathetic nervous system and
44 how we model that in our electrophysiology
45 laboratory. But I can't understate the importance
46 of sympathetic nervous stimulation in a context of
47 the induction of arrhythmias. I think the

1 potential is dramatically enhanced by that.

2 And I think people can have absolutely
3 amazing intensification of their sympathetic
4 nervous system under stressful situations. People
5 can jack their heart rates up to 180, 200 beats a
6 minute in a tense environment. Their blood
7 pressures can go up to 200, 240 millimetres of
8 mercury sometimes in these kinds of environments.
9 And the intense stimulation that that causes the
10 heart I don't think can be underestimated.

11 So again, we're going on to the issue of the
12 Tasers. I'm not an expert in Tasers. I've done a
13 lot of reading about it. I actually developed an
14 interest in it when I started hearing some of
15 these reports, and obviously preparing for this
16 I've done a lot more homework. So I understand a
17 little bit about how they work and I understand
18 too that very high voltage, 50,000 volts -- that
19 is really the drive that's trying to push current
20 through, but because the barbs are quite small, it
21 doesn't push a lot of current through. I read in
22 one paper there were -- 36 milliamps is a report
23 in one of the emergency medicine journals. And
24 put that in context, though. To pace the heart
25 you only need 1 or 2 milliamps, so that certainly,
26 if it was long enough duration, could pace the
27 heart. The pulse durations are very short,
28 however, and that limits the amount of energy
29 that's delivered. And again, reading the two
30 Taser models that are reported deliver -- either
31 about 1.7 joules or 0.36 joules were the two
32 quoted numbers that I read in the literature.

33 So theoretically the very short pulse
34 durations make it less likely to deliver
35 sufficient current to capture the heart and
36 potentially induce ventricular fibrillation, and I
37 think this is the theoretical issue surrounding
38 the supposed safety of the devices.

39 Moving on to some of the animal studies that
40 I've read about -- first of all there's quite a
41 few papers and many of them are sort of
42 theoretical papers looking at what the normal
43 heart membrane voltage is and applying theoretical
44 arguments as to what it would take to deliver, and
45 then modelling those back to how much energy
46 actually is delivered by a Taser discharge. And
47 some have suggested that a very wide what you call

1 safety margin, that is the amount of energy
2 required is much greater than the Taser would
3 deliver to the heart.

4 However, there's two studies that I've found
5 most compelling. They were done independent of
6 one another and they were independently funded
7 research. The first one is from Dr. Nanthakumar
8 and his senior colleague, Paul Dorian, out of
9 Toronto, who are excellent researchers. This was
10 published in one of the best peer-reviewed
11 cardiology journals, the *Journal of the American*
12 *College of Cardiology*. And they used a pig model
13 and discharged the two models of the Taser with
14 barbs across the chest, and they actually recorded
15 electrical capture. Capture means you get enough
16 electricity going into the heart to make it
17 contract. And one of the problems with the Taser
18 is that it puts out such a huge electrical field
19 that it swamps most recording devices, so you
20 can't actually see what's happening while the
21 Taser discharge is going on. They specially
22 insulated their recording devices and were able to
23 show that you could actually see that the heart
24 was being stimulated in the majority of swine.
25 They then actually gave adrenaline, which again
26 simulates the stressful circumstance, and they
27 actually induced ventricular fibrillation in one
28 pig and they induced ventricular tachycardia in
29 the other.

30 And so I think this was a pretty independent
31 demonstration that there is the capability, if the
32 darts get close enough to the heart, to be able to
33 induce ventricular fibrillation. Now, a lot of
34 argument going on that this is not the same as in
35 man, and it probably isn't, and that it is an
36 artificial situation. The counter-argument to
37 that is these were anaesthetized swine and if they
38 had been in a more stimulated state, they might
39 have even been more prone to developing
40 arrhythmias.

41 The second was the study by Webster, a
42 biomedical engineer. And they tried to simulate
43 more a human model because the pig has a very
44 thick fat and muscle pad in the front of the chest
45 and they reflected that back and then placed the
46 darts at various distances from the heart. And
47 they found that they could cause fibrillation in

1 the majority -- well, in all animals depending on
2 the distance of the dart. They found that if the
3 dart that the current flowed out of was average
4 17 millimetres from the heart that you could
5 induce ventricular fibrillation, and that distance
6 varied between 10 and 24 millimetres. It didn't
7 matter where the second dart was, so as long as
8 the first one was close enough and the second one
9 travelled through that, then it would be potential
10 to fibrillate the heart. So the distance of that
11 barb is critically important from the studies they
12 found.

13 I must say also that Paul Dorian's group did
14 also put shocks across the abdomen and they found
15 that there was no capture of the heart across the
16 abdomen. So it seems to be absolutely critical
17 that to consider that there be ventricular
18 capture, that the darts are across the
19 direction -- that the current traverses the area
20 where the heart is.

21 So that's the pig model. And so the question
22 is, can you get a dart that close to a human
23 heart? Dr. Webster's group actually did
24 echocardiography with patients in the upright
25 position and found that the distance from the
26 front of the skin to the heart varied between 10
27 and 57 millimetres. The distance is greater in a
28 bigger person. So that would make a lot of sense.
29 But they also found that -- I mean, also remember
30 that that dart, which is about 9 millimetres long,
31 could be deeper into the chest wall in between the
32 ribs and therefore theoretically could get close
33 enough to the heart to be within that distance
34 that Dr. Webster found was important.

35 They did some modelling and found, looking at
36 the distance and -- this is using the pig model.
37 They did sort of a mathematical modelling looking
38 at the probability of the dart landing in the
39 right spot, delivering the right current at the
40 right time in the cardiac cycle. And they
41 estimated that the potential to bring on
42 ventricular fibrillation is really quite low,
43 which is, I guess, because all those things have
44 to align. But again, to remember that his
45 experiments were all in anaesthetized animals
46 which were unstimulated, then again coming back to
47 that continuing theme.

1 So I think these studies suggest that the
2 Taser, with the right circumstance and the darts
3 in the right place, with the right timing of the
4 cardiac cycle, I think certainly suggests that
5 there is the potential to activate the heart and
6 to induce ventricular arrhythmias.

7 So can we do this in man? I don't think we
8 know. We're never going to have experiments done
9 where you tase people with a dart embedded into
10 your chest wall. We're not going to see that.
11 And I think the odds of us actually getting a
12 recording of somebody while they're being tased is
13 also fairly remote because it's usually an
14 unpredictable event. There have been studies done
15 in volunteers, usually police officers, but almost
16 all of those have been where the Taser is deployed
17 in the back. And there is certainly no surprise
18 to me at all that those did not bring on any
19 dangerous arrhythmias. So those studies have
20 really have not been helpful because you wouldn't
21 really expect them, based on the animal studies,
22 to be able to bring on ventricular fibrillation.

23 There was one interesting report of a
24 pacemaker. And I bring this up because it is
25 interesting that -- there are a lot of people out
26 there with pacemakers and there's more and more
27 people with defibrillators. We probably have now,
28 I'm guessing somewhere around three to five
29 thousand people in British Columbia with cardiac
30 defibrillators and probably ten times that number
31 with cardiac pacemakers. So there's not an
32 insignificant number of people out there.

33 And the case report where a person had a
34 pacemaker when he was Tasered, and it showed --
35 pacemakers have a storage capability where you can
36 actually store electrical signals, and so it
37 detects a very fast heart rhythm. It goes into a
38 data log, and you can punch in the programmer and
39 interrogate it and the pacemaker will tell you and
40 actually give you an electrical recording of what
41 happened at that particular time. And during the
42 discharge of the Taser, one could see that there
43 was very rapid stimulation compatible with the
44 Taser, about 19 shocks per second, but you could
45 very distinctly see that the heart was paced
46 during that at a much more rapid rate.

47 Now, that's an interesting phenomenon, and

1 whether it means that that Taser actually
2 stimulated the heart directly is unclear because
3 what can happen is if you have a wire in the
4 heart, it can do what we call induce electrical
5 current. The shock can then collect in the wire
6 and go down that wire and stimulate the heart. So
7 whether it could have stimulated the heart
8 directly, we don't know, or whether it was due to
9 that wire in the heart. But I think it is an
10 interesting thing to bear in mind that we do have
11 probably a good demonstration in man that in that
12 particular circumstance the heart can be paced
13 abnormally during discharge of a Taser.

14 One of the other interesting things, I was
15 reading a report about one of the studies using
16 Tasers to shock police officers, and these were
17 using the X26, which I guess is the lower energy
18 device, and they didn't cause any arrhythmias as
19 we would expect. But what was interesting is the
20 heart rates of these officers. These were people
21 who were presumably prepared for this, and the
22 average heart rate was 122 before the shock and
23 137 after the shock. So even presumably people
24 who are well - these were not people in training;
25 these were police officers - have an obvious
26 anxiety and stress that jacked their heart rates
27 up to this sort of level. And I think it's just
28 an example. And of those, eight had heart rates
29 greater and 150 before and 15 had rates of 150
30 after receiving the Taser discharge. And they
31 were for short durations. They didn't go for the
32 whole five seconds in the majority of times. They
33 were often shorter applications.

34 So again, I use that as an example of what
35 effects the sympathetic nervous system can have on
36 the heart in a situation. So if you compound that
37 with somebody who may be delusional or in a very
38 excited state and with psychiatric disturbance,
39 somebody who's taken some drugs of other sorts,
40 amphetamines and things, that they may be even
41 more prone to -- their heart rates would
42 potentially be even higher. I think the Taser
43 itself causes pain. We know that. And that
44 certainly, even in those police officers,
45 increased the heart rate quite substantially after
46 the discharge. So I think the pain itself would
47 compound on top of all the other external factors

1 that are likely present during this incident.

2 So what's my opinion? My opinion is that
3 there is a small possibility that an electrical
4 discharge from a Taser dart could directly capture
5 the heart and possibly induce ventricular
6 fibrillation. The probability is, I think, low
7 for any given discharge, given the necessity for
8 the combination of things, of having the dart
9 penetrate, a specific distance from the heart.

10 I do, however, continue to underscore the
11 potential importance of the agitated state, high
12 circulating adrenaline levels. They also cause
13 muscle contraction and there may be, as a result,
14 an intense muscle contraction in an individual who
15 has already probably been very active physically
16 and the muscles are probably in a state --
17 remember, they're fatigued; they produce lactic
18 acid, drops the pH in the blood. So all of these
19 things could also contribute to the potential
20 susceptibility.

21 The cases that I've seen of people dying
22 after receiving Taser discharge are often delayed.
23 Somebody who actually is ventricular fibrillation
24 induced will go down immediately. They don't go
25 down in ten minutes. And there's relatively
26 little to suggest that there would be a lasting
27 effect of the Taser shock in the ability to induce
28 the arrhythmia, except that it will intensify the,
29 what we'll call, hyperadrenergic state, the very,
30 very high sympathetic tone, and then that might
31 further down the road produce ongoing problems.

32 But the one thing I think is clear is that
33 people have had cardiac arrests, and the majority
34 of times there's no obvious structural heart
35 disease or other cause of death, no bleeding or
36 head trauma. And if somebody dies suddenly and no
37 obvious cause, that is almost certainly an
38 arrhythmia, an abnormal heart rhythm, either an
39 excessively fast abnormal heart rhythm or a slow
40 one.

41 THE COMMISSIONER: Yes. One of the other presenters
42 here was explaining to us that if in the autopsy
43 you couldn't find anything at all, it was almost
44 certainly a ventricular --

45 A Yes, that's true. Yes. You know, we don't
46 fortunately have a huge volume of people who had
47 monitors on while they died. But arrhythmic

1 deaths can be slow or can be fast rhythms, or they
2 can be fast and then they become slow, with a
3 variety of combinations in the middle.

4 So I think that it's clear that during
5 situations where a Taser is discharged, I think
6 there is the potential of sudden cardiac death.
7 Whether it's the direct effect of the Taser on the
8 heart or whether it's all the secondary factors
9 that I've tried to emphasize, I think that that
10 circumstance does have the potential of sudden
11 cardiac death.

12 I'm not certainly into making policy or
13 decisions about the use of these devices, but what
14 it would seem to me is that there should be a
15 realization that that potential for sudden death
16 does exist. It should be appreciated by those
17 people involved in programs where they are used,
18 and policy should reflect that knowledge that
19 sudden death could ensue and that there be the
20 appropriate facility and equipment available to
21 mitigate that. And those to my mind would be that
22 in such circumstances there should be full CPR
23 training for these individuals. I don't know what
24 the training -- I imagine most do have CPR
25 training. I would think that would be pretty
26 clear. But there should be automatic external
27 defibrillators within reach, within a reasonable
28 distance, and that resuscitation should be
29 commenced forthwith in a circumstance where it
30 appears a person is not responsive. And I think
31 we need to realize that.

32 My final paragraph in here is the issue of
33 implantable cardioverter defibrillators and
34 pacemakers. I think that we're going to see more
35 and more of these around. We're putting in
36 probably -- we're targeting over the next few
37 years putting in as many as 800 to 1,000 a year in
38 the province of British Columbia. And the fact
39 that most of these people live for a fairly long
40 period of time afterwards means there's going to
41 be a lot of those around, and eventually some
42 people are going to receive discharges from these
43 kinds of devices. And I think that there's a
44 particular hazard in that circumstance. With
45 large electromagnetic fields, these devices can be
46 fooled to think that they're in ventricular
47 fibrillation and themselves deliver shocks into

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Presentation

1 the heart, which in turn could induce ventricular
2 arrhythmias rather than cure them. So I think
3 that that's something just to bear in mind as
4 another potential risk. So I'll stop there, sir.

5 THE COMMISSIONER: That's very interesting. In some of
6 these last scenarios you're putting forth, you
7 weren't assuming that the barb was near the heart.
8 It was more a question of, given certain
9 vulnerability, that the additional stimulation is
10 what could put one into this arrhythmia?

11 A Yes. And that wouldn't need to be near the heart
12 because it will induce muscle contraction if it's
13 shot somewhere else. The direct induction of
14 ventricular fibrillation would have to be very
15 close to the heart, but creating the metabolic
16 milieu that would be what we call arrhythmogenic
17 could be worsened by the pain, muscle contraction,
18 things that are caused by a Taser, from what I've
19 read.

20 THE COMMISSIONER: Yes. Well, that's very helpful.
21 Counsel, do you have any --

22 MR. VERTLIEB: No, Mr. Commissioner. It was most
23 helpful as he presented it, and we have no
24 questions.

25 THE COMMISSIONER: Doctor, I'm very appreciative of the
26 time and effort you've spent to come. Thank you
27 very much. It's very helpful.

28 A Well, thank you very much, Mr. Commissioner.

29 THE COMMISSIONER: We'll have ten minutes.

30
31 (PRESENTER EXCUSED)

32
33 (PROCEEDINGS ADJOURNED FOR MORNING RECESS)

34 (PROCEEDINGS RECONVENED)

35
36 MR. VERTLIEB: Mr. Commissioner, next is Dr. Michael
37 Janusz. I'm just going to ask him to sit here.

38 THE COMMISSIONER: We didn't want to quite make it this
39 formal but it's about the only premises we could
40 find. So thank you, and welcome. Yes, counsel.

41
42 DR. MICHAEL JANUSZ, a Medical
43 presenter.

44
45 MR. VERTLIEB: Thank you, Mr. Commissioner.
46
47

Dr. Michael Janusz (Medical presenter)
Questions by Mr. Vertlieb

1 QUESTIONS BY MR. VERTLIEB:
2

3 Q Dr. Janusz, please give the Commissioner your
4 background, commencing with your medical studies.
5 Take us through that, please.

6 A I have an M.D. from 1974, University of Manitoba;
7 an internship with Toronto General Hospital, 1974
8 to 1975; and did a general surgery residency at
9 UBC from 1976 to 1980; a cardiovascular surgery
10 residency at UBC, 1980 to '83; and a
11 cardiovascular surgery fellowship at Baylor
12 College of Medicine in Houston, 1983 to '84. And
13 I have specialist certificates in general surgery
14 by the Royal College of Physicians and Surgeons of
15 Canada and the American Board of Surgery, and a
16 specialist certificate in cardiovascular and
17 thoracic surgery from the Royal College of
18 Physicians and Surgeons of Canada the American
19 Board of Surgery.

20 THE COMMISSIONER: Quite extensive.

21 A I hold the academic rank of Clinical Professor of
22 Surgery at UBC.

23 MR. VERTLIEB:

24 Q A couple of things to discuss, Dr. Janusz. You
25 studied at Baylor. Was that under the world-
26 renowned Dr. DeBakey?

27 A That was Michael DeBakey's unit. I was actually
28 working with Stanley Crawford, who was an aortic
29 surgeon. He pioneered many of the techniques we
30 use today.

31 Q And in that era, where was Baylor in terms of the
32 repository of knowledge in the field of heart
33 surgery in North America?

34 A Well, it would have been one of the most
35 prestigious units in the world.

36 Q Tell the Commissioner why you're a professor of
37 medicine. How did you come to that standing and
38 what is it that you do as a professor of medicine
39 for UBC?

40 A Sorry, it's professor of surgery.

41 Q Yes.

42 A I've been on the UBC faculty since I commenced my
43 practice at Vancouver General Hospital in 1984 and
44 continue to work there till today. During the
45 course of that I would teach medical students and
46 residents, and practise cardiac and aortic
47 surgery. I would have some involvement in

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1 research as well.

2 Q Now, the field of Taser is something that is not
3 part of your regular medical duties at all; is
4 that a fair way of saying it?

5 A That's correct. I do of course have some
6 experience with cardiac pacing, which is part of
7 cardiac surgery, but we ordinarily wouldn't as
8 surgeons be asked to see somebody with respect to
9 a Taser problem.

10 Q Tell us about your practice. Tell the
11 Commissioner what you do in so far as the
12 relationship to the opinions you're going to give
13 the Commissioner. Tell us how your work fits into
14 this.

15 A Well, I treat heart disease surgically, so this
16 would include treating patients with coronary
17 artery disease, valvular heart disease and aortic
18 aneurisms, as well as patients with rhythm
19 disturbances requiring pacemakers. That would
20 include pre-operative assessment, performance of
21 the operation, and post-operative care, including
22 some amount of intensive care in the immediate
23 post-operative period. During the course of that,
24 we would certainly see all modes of heart failure
25 and cardiac rhythm disturbances.

26 MR. VERTLIEB: With that background, then, Dr. Janusz,
27 perhaps you could take the Commissioner through
28 the report you've prepared for his benefit.

29

30 PRESENTATION BY DR. JANUSZ:

31

32 A Thank you. Now, this submission is based on my
33 clinical knowledge and experience in treating
34 patients with heart disease and on review of some
35 documents forwarded to me by Mr. Vertlieb,
36 including a report by Kroll in 2008 entitled *The*
37 *Science and Medicine of TASER® Electronic Control*
38 *Devices*; a Victoria Police Department memorandum
39 of April 6, 2005, on the subject of Taser testing;
40 an editorial in the *CMAJ* in March 2008 by Truscott
41 called "A Knee in the Neck of Excited Delirium"; a
42 post mortem report from a Dr. Denton from the
43 Office of the Medical Examiner, Cook County,
44 Illinois, of February 2005; and the excerpt of the
45 proceedings to this Commission of the brief by Dr.
46 Tseng, from May 9th, 2008.

47

The items that I wish to address in the most

1 succinct manner possible, recognizing the very
2 detailed submission by Dr. Tseng and Dr. Kerr,
3 are, number one, can Tasers cause cardiac arrest;
4 number two, how often do Taser cause cardiac
5 arrest; what is the appropriate police first aid
6 care of someone who has been Tasered; and number
7 four, excited delirium.

8 Firstly, with respect to the question of can
9 Tasers cause cardiac arrest. Kroll claims that
10 the pulse width and energy of the Taser are too
11 low to disturb cardiac activity. The pulse width
12 in fact is reported as 0.1 millisecond, which is
13 about half of that used clinically in pacemakers,
14 implantable pacemakers which are very low energy
15 devices which usually function in the range of
16 0.2 to 0.3 milliseconds. The electrical energy
17 and current delivered by a Taser is certainly much
18 higher than that delivered by an implanted
19 pacemaker. Of course there's the issues of tissue
20 resistances and distances and so forth.

21 In his calculations, Kroll doesn't address
22 the issue of change in position of the heart with
23 respect to changes in body position and, most
24 importantly, does not discuss the ease of inducing
25 ventricular fibrillation in diseased hearts versus
26 normal hearts. Now, it is really quite difficult
27 to cause a normal heart to fibrillate. When we
28 have the chest open at surgery, you can pick the
29 heart up, look at the vessels on the back, touch
30 it with your hand, touch it with the cautery.
31 It'll have the odd extra beat but that doesn't
32 cause any problem. By contrast, in a really sick
33 heart, we are very cautious to avoid touching the
34 ventricle until we are on bypass so that it will
35 have the support of the circulation in case it
36 fibrillates.

37 Dr. Tseng has made a very clear and detailed
38 presentation to the Commission, and I'm in
39 complete agreement with his assertions. The only
40 proviso is that with respect to discussions of
41 late death after Taser exposure. This is clearly
42 beyond my field of expertise. In all other
43 respects, I'm comfortable in supporting his
44 contentions completely. I'll not repeat all that
45 detailed information here.

46 Suffice it to say that disturbances of
47 cardiac rhythm, rapid ventricular pacing, and

1 induction of ventricular fibrillation, have been
2 reproducibly demonstrated in a healthy pig model.
3 In humans, pacing devices, used therapeutically,
4 such as pacing system analyzers, external or
5 internal implanted pacemakers, usually carry a
6 warning about possible ventricular fibrillation if
7 they are set to pace at rates of 200 or more,
8 underscoring the hazards of rapid ventricular
9 pacing.

10 By the standards of evidence that we use in
11 the field of cardiac care, I would think most
12 physicians, or almost all physicians, would
13 conclude that Tasers can induce ventricular
14 fibrillation in humans. The risk of ventricular
15 fibrillation is particularly high in patients with
16 underlying heart disease. Unfortunately, patients
17 with underlying heart disease will also be the
18 most difficult to resuscitate after ventricular
19 fibrillation.

20 The post mortem report from Cook County in
21 2005 showed a patient with some heart disease,
22 left ventricular hypertrophy and coronary artery
23 disease, and the recorded dart positions would
24 have created a current path which could have
25 exposed the heart to electrical current.
26 Certainly one of the darts was very close to the
27 heart, right over the right ventricular
28 pericardium. So while the document doesn't give
29 an exact report of the chain of events surrounding
30 the death, the post mortem findings certainly are
31 suspicious for a Taser-induced arrhythmia.

32 In summary, then, Tasers almost certainly can
33 cause cardiac arrest in humans, particularly in
34 people with underlying heart disease. And as Dr.
35 Kerr mentioned, I don't think that it's ever going
36 to be ethically possible to conduct a human study
37 to disprove this. So I think that we really are
38 going to have to regard these devices as
39 potentially causing cardiac arrest and live with
40 that.

41 Of interest, the *Vancouver Sun* reported that
42 TASER International recently made a submission to
43 this commission wherein they stated their position
44 that Tasers could not cause cardiac arrest. If
45 accurately quoted by the *Sun*, this position is
46 clearly unrealistic. This creates a problem with
47 respect to credibility of the company and could

1 lead to difficulty in dealing with the company in
2 matters of safety standards and training
3 requirements.

4 Now, how often do Tasers cause cardiac
5 arrests? Well, Dr. Tseng gave some useful
6 insights in his submission, in which he quoted a
7 1.4 percent mortality for individuals subdued by
8 police using a Taser. To put that in perspective
9 as we would see it as physicians, this is similar
10 to the mortality risk, for example, of a coronary
11 artery bypass operation. We don't know how many
12 of these deaths were due to the Taser itself, but
13 one could conclude that the risk of death from a
14 Taser is small but not insignificant.

15 Further information perhaps could be obtained
16 by reviewing cases of death in which a Taser had
17 been used, but the exact details and time
18 sequences, including the precise details of the
19 victim's condition, would have to have been
20 carefully recorded in order to provide useful
21 data.

22 I'd like to move on to what is appropriate
23 police first aid for someone who has been Tasered.
24 Now, a falling level of consciousness is a medical
25 emergency. If someone becomes unresponsive - and
26 that's unresponsive to voice and to painful
27 stimuli - something is very seriously amiss.

28 THE COMMISSIONER: That's someone who's still
29 conscious?

30 A Once someone becomes unresponsive - so they don't
31 do anything to voice, you cannot elicit a
32 withdrawal to pain - something very seriously is
33 amiss, and this is a crisis.

34 The situation must be diagnosed and
35 appropriate treatment commenced immediately.
36 Immediate examination and documentation should
37 include response to stimuli, pupil size and
38 reactivity to light, pulse rate and regularity,
39 respiratory rate and depth. From this, it would
40 be obvious if a person has had a cardiac arrest or
41 is having breathing difficulties.

42 If someone is Tasered in the front of the
43 chest and immediately falls to the ground and is
44 unresponsive, it is almost certainly ventricular
45 fibrillation, and cardiopulmonary resuscitation
46 and defibrillation are required.

47 In other situations, the presence of cardiac

1 arrest may not be so obvious due to the presence
2 of a brief period of seizure activity or the
3 presence of an agonal gasping reflex in the first
4 few minutes after a cardiac arrest. So the victim
5 appears to be moving, and if he's not checked
6 carefully, they may not realize until several
7 minutes have passed that in fact the heart has
8 stopped.

9 In any case, it is imperative that the victim
10 be examined carefully immediately upon becoming
11 unresponsive. Police should have thorough first
12 aid training which includes CPR and defibrillator
13 devices.

14 Excited delirium. The Taser literature
15 frequently includes a discussion of the diagnosis
16 of excited delirium. This is beyond my usual
17 scope of practice, and hence I have questions
18 rather than answers. The recent article by
19 Truscott in the *CMAJ* has raised concerns that most
20 physicians can share. I believe that most medical
21 practitioners are uncomfortable with a condition
22 that is only recognized by some psychiatrists and
23 pathologists. In every other condition in
24 medicine, where there are "hits," there are also
25 "near misses" which can be recognized. What is the
26 experience in the fields of emergency medicine or
27 critical care with an agitated delirious state
28 that causes cardiac arrest? What is the heart
29 rhythm sequence or sequence of rhythms in such a
30 cardiac arrest, as Dr. Kerr had mentioned? Is
31 this ventricular fibrillation, heart block,
32 asystole or pulseless electrical activity? These
33 patients are said to be hyperthermic. What range
34 of temperatures are seen? What are the associated
35 metabolic abnormalities: blood gases, acid base
36 balance, blood electrolytes, enzymes and other
37 biochemical markers?

38 Hearts don't simply stop. They may have an
39 underlying disease or injury which causes cardiac
40 arrest, and this would usually be diagnosed at
41 autopsy. Alternatively, they may have been
42 deprived of oxygen due to asphyxia or massive
43 blood loss. Another cause of cardiac arrest would
44 be exposure to severe metabolic abnormalities such
45 as acidosis or very high or low potassium or a
46 response to an administered drug or toxin. There
47 must be a physical or chemical cause of cardiac

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1 arrest in agitated delirium. This has to be
2 delineated in order for this diagnosis to be
3 accepted by most physicians.

4 Summary. Tasers must be regarded as being
5 capable of causing cardiac arrest. The device
6 appears safer to all concerned, including
7 bystanders, than guns or clubs, but its
8 consequences are not trivial. Police should be
9 cognizant of this hazard and be prepared to deal
10 immediately and effectively with the possible
11 consequences of its use. This will require a
12 mindset of providing immediate, thorough and
13 meticulous care of critically injured patients.

14 Thank you.

15 THE COMMISSIONER: Well, that's very succinct.

16 A Yes.

17 THE COMMISSIONER: Counsel, do you have any comments or
18 questions?

19 MR. VERTLIEB: I just wanted a couple of things
20 clarified, Mr. Commissioner.

21
22 QUESTIONS BY MR. VERTLIEB, continuing:
23

24 Q The last page of your presentation, you mention --
25 I'll just read the sentence. "In other
26 situations, the presence of cardiac arrest may not
27 be as obvious, due to the presence of a brief
28 period of seizure activity or the presence of an
29 agonal --

30 A Agonal.

31 Q -- agonal gasping reflex in the first few minutes
32 after a cardiac arrest." Just what do you mean by
33 that? What is that?

34 A Well, in the usual case of ventricular
35 fibrillation, the person just drops and is
36 motionless. If this were, for example, preceded
37 by a period of some other arrhythmia, ventricular
38 tachycardia, which can degenerate into ventricular
39 fibrillation, there is a some cardiac output but
40 it's low. And an acute condition where you have a
41 low cardiac output and a low blood pressure, so a
42 partially perfused brain, will often cause
43 seizures. That won't go on all that long after
44 the condition proceeds to ventricular fibrillation
45 because all cerebral activity will stop within a
46 minute or so. But you'll see a patient, or a
47 victim, lying on the ground thrashing around and

1 may not recognize that the heart has stopped
2 because he's still moving. Agonal gasping reflex
3 is something that's present frequently or
4 universally after cessation of flow to the brain
5 and it's a trigger in the brain stem that causes
6 an attempt to take a big breath. So that if you
7 observe somebody who has just expired and watch
8 for a minute or two or three or five minutes, you
9 will see every so often an attempt at a large
10 breath. And if you had someone lying on the
11 ground and he wasn't really being examined
12 carefully and they saw a respiratory effort from
13 time to time, they might conclude that he was
14 breathing, whereas in fact the cardiac arrest had
15 occurred a few minutes before.

16 Q In the paragraph on excited delirium, you ask a
17 number of questions in that paragraph. You refer
18 to "hits" and "near misses" in medicine. What is
19 it in that paragraph that's concerning you that
20 you're trying to bring to the assistance of the
21 Commissioner?

22 A This diagnosis of excited delirium is raised as an
23 alternative to a Taser-induced arrhythmia, at
24 least in some publications. And as Dr. Kerr,
25 mentioned, however it happens, at some point if
26 there's no other cause of death, an arrhythmia has
27 occurred. Now, if there is something other than
28 the Taser that's driving this, you should be able
29 to identify it if you had a near miss, a patient
30 who was getting into some difficulty and was in a
31 hospital and had the opportunity to see the heart
32 rhythm on a monitor to have some chemical work
33 done, would have the physical condition recorded.
34 So the question raised in the *CMAJ* is, is excited
35 delirium really asphyxia, positional asphyxia? Is
36 it an arrhythmia from some other cause? Is, in
37 fact, the Taser implicated in some of these? And
38 I think this is important. I think a diagnosis,
39 something that causes cardiac arrest, has got to
40 have a cause. People with serious heart disease
41 are at risk of abrupt cardiac arrest, and at
42 autopsy they can almost always see the underlying
43 heart disease. But for a healthy heart to have an
44 arrest, there has to be something pretty profound
45 that's gone wrong, and that should be diagnosable.
46 Now, if the patient goes on to die out of
47 hospital, after the fact it may be very hard to

Dr. Michael Janusz (Medical presenter)

Questions by Mr. Vertlieb (cont'd)

S/Sgt. Joseph Spindor (Law enforcement presenter)

1 determine that unless you found a toxic level of a
2 drug or something. But if you had somebody -- as
3 I say, if there were hits, there must be near
4 misses. So what do these look like? What are we
5 seeing here? Is there a single disease entity
6 that's going on here or is this -- some are Taser-
7 induced arrhythmias, some are asphyxia, some are
8 something else.

9 MR. VERTLIEB: Thank you very much, Dr. Janusz.

10 THE COMMISSIONER: Dr. Janusz, you've obviously put a
11 lot of thought into this, and I must say you've
12 summarized an awful lot of difficult problems very
13 succinctly, and I will find that a great deal of
14 help. I want to thank you very much.

15 A Thank you.

16

17

(PRESENTER EXCUSED)

18

19

THE COMMISSIONER: Now, how do we stand?

20

MR. VERTLIEB: We're right on track for the morning.

21

We're finished for the morning presenters who have
22 been scheduled. So this afternoon at two o'clock
23 with Sergeant Spindor from New West Police
24 Department.

22

23

24

25

THE COMMISSIONER: All right. Two o'clock, then.

26

27

(PROCEEDINGS ADJOURNED FOR NOON RECESS)

28

(PROCEEDINGS RECONVENED)

29

30

THE COMMISSIONER: Good afternoon, all. Yes, counsel.

31

MR. MCGOWAN: Thank you, Mr. Commissioner. The next
32 presenter is Staff Sergeant Joseph Spindor from
33 the New Westminster Police Department.

32

33

34

THE COMMISSIONER: Yes, Staff Sergeant, we've met
35 before.

35

36

A Yes, hi.

37

38

STAFF SERGEANT JOSEPH SPINDOR,
39 a Law enforcement presenter.

39

40

41

MR. MCGOWAN: Welcome. Thank you for coming. Before
42 we send you off on your presentation, as we've
43 done with all of our presenters I'm going to spend
44 just a couple of minutes taking you through your
45 background and experience.

42

43

44

45

46

47

S/Sgt. Joseph Spindor (Law enforcement presenter)
Questions by Mr. McGowan

1 QUESTIONS BY MR. MCGOWAN:
2

3 Q You were born and raised in Maple Ridge?

4 A That's correct.

5 Q You graduated high school there?

6 A Yes.

7 Q Following which you spent a couple of years at
8 Douglas College?

9 A Yes.

10 Q And after that you went to Simon Fraser University
11 where you were working on your Bachelor of Arts?

12 A That's correct.

13 Q And you started with the police force just a short
14 time before you were finished but ultimately you
15 completed your Bachelor of Arts with a major in
16 criminology?

17 A That's correct.

18 Q You joined the New West Police Department in 1984,
19 was it?

20 A Yes, that's correct.

21 Q And you've been with them continuously since that
22 time?

23 A That's right.

24 Q Your current rank is as a staff sergeant?

25 A Yes.

26 Q And your current position, I understand, is
27 supervisor in charge of training and
28 administration?

29 A Yes, that's true.

30 Q And that means, I take it, you're in charge of all
31 officer training in the New West police force?

32 A Yes.

33 Q Does that include firearms training and Taser
34 training?

35 A Yes.

36 Q Perhaps you could just briefly give the
37 Commissioner an overview of your career with the
38 force.

39 A Okay. As part of my presentation, Commissioner,
40 I'll be going through that as I begin.

41 THE COMMISSIONER: Oh, well, go ahead and do that.

42 A If it's comfortable, I'd like to read the
43 presentation I've given and if there's any
44 questions, I welcome anybody to ask questions.

45 THE COMMISSIONER: Yes, certainly.
46
47

1 PRESENTATION BY S/SGT. SPINDOR:
2

3 A I'd like to begin with saying good afternoon, sir,
4 Commissioner Braidwood, Commission counsel, ladies
5 and gentlemen. I am a staff sergeant with the New
6 Westminster Police Service. My name is Joe
7 Spindor. My current position with our police
8 service is as supervisor in charge of training and
9 administration.

10 My qualifications: I am a 24-year veteran of
11 our police service. I graduated in criminology at
12 Simon Fraser University. Prior to policing I
13 worked four years in the provincial corrections as
14 a correctional officer in a minimum security
15 setting in the Maple Ridge area.

16 I began my career, as most officers in our
17 patrol division, as a constable on patrol. At
18 three years of service, I was transferred to the
19 drug section, where I began what has turned out to
20 be the majority of my career in specialty sections
21 like drugs, street crime and major crime. These
22 positions were my primary assignments.

23 I joined our emergency response team in 1991
24 as a part-time additional position and remained in
25 ERT until 2004. Over my 13 years in ERT, was in a
26 leadership role for eight of them and retired
27 after three years of being the team leader. This
28 experience gave me the opportunity to learn and
29 then later instruct in many of the disciplines in
30 ERT techniques and force options. In 2000, I took
31 over as the supervisor in charge of firearms -
32 this was an additional part-time role - and
33 eventually took on the responsibility also of
34 force options as well in 2004.

35 By part-time roles, what I'm talking about,
36 Commissioner, is my full-time roles were as an
37 investigator in different areas of our police
38 service, but we didn't have the ability and luxury
39 of having full-time training, so we were doing
40 that as an addition to our full-time duties, ERT
41 and different training things.

42 I have been an instructor in MP5 submachine
43 gun, chemical munitions including OC spray and CS
44 and CN gas, active shooter and rapid deployment.
45 I am currently an instructor in police supervisor
46 training, pistol firearms, less lethal beanbag,
47 high risk vehicle stops, and I'm a master

1 instructor in Taser M26 and X26.

2 In January 2007, I made a proposal to have a
3 full-time instructor training position for our
4 police service to meet the ever increasing
5 training demands that we were finding from our
6 part-time roles. In May 2007, Acting Sgt. Junglas
7 was awarded this position. In October 2007, the
8 administrative supervisor's position was reviewed
9 and changed to a training supervisor's position,
10 which is the role I am in now.

11 I received my original Taser instructor's
12 course from Sgt. Darren Lauer of the Victoria
13 Police Department at the Justice Institute of
14 British Columbia in 2000. In May 2006, I became a
15 master instructor in Taser at a program hosted and
16 taught by TASER International. I have instructed
17 all of the members of our service that are
18 currently qualified to carry a Taser. I have
19 instructed over 30 classes of Taser use and
20 tactics. I have been Tasered by both the M26 and
21 the X26 Tasers and have operationally deployed the
22 Taser as well. I have served on the provincial
23 Use of Force Working Group in 2006 and 2007, which
24 is led by Joel Johnston. Acting Sgt. Junglas
25 currently represents our service in this group.

26 Our Taser program began in 2000. Myself and
27 two other members of our police service were
28 qualified as instructors and thus our program
29 began. Another member, Cst. Quaglia, spearheaded
30 the beginning of our program then. He developed
31 policy and our first training programs for users.
32 The user program was taken from the training
33 programs from TASER International recommended for
34 our users' course. The ERT was the first and only
35 group originally trained that first year.

36 We began with three M26 Tasers and at the
37 time we had no holster system of carrying the
38 Taser with us. In the next few years, our patrol
39 members were gradually being trained on a
40 voluntary basis or level of interest. The program
41 was not yet being delivered to everyone. Cst.
42 Quaglia had left our service and went to
43 Abbotsford Police, and the Taser program became my
44 responsibility.

45 In December 2003, we purchased six new X26
46 Tasers with the exoskeleton holster system. This
47 brought our total number of Taser inventory to

1 nine. Members that were trained were able to sign
2 out a Taser on a first-come, first-served basis.
3 The member would return the Taser to his locker
4 after their tour of duty was complete to enable
5 another member from the ongoing shift to have
6 access. As members became familiar with the X26
7 Taser system and holster, the M26 was very seldom
8 being signed out. The X26 was smaller, lighter
9 and easier to carry on your duty belt, whereas the
10 M26 still did not have a holster system.

11 By now the majority of our members were
12 trained in the use of Taser and qualified to carry
13 a Taser. In 2005, we purchased nine more X26
14 Tasers and holsters to be available for members'
15 use. This brought our total inventory to 18
16 Tasers, but for all intents and purposes nobody
17 was using the M26 Tasers and they were eventually
18 phased out.

19 In 2008, we now still have 15 X26 Tasers
20 available on a sign-out basis and every member is
21 issued their own cross-draw holster system to
22 mount secure on their equipment belt. All members
23 of our service are trained in Taser now as they
24 join, much the same as all of their force options.

25 Our original program began with the
26 recommendation given by TASER that the front end
27 user course be a four-hour course. The material
28 and content was provided by TASER International
29 with a recommendation of requalifying every one or
30 two years, whichever each agency chose. I believe
31 we began with a requalification every two years at
32 the start.

33 In 2003, we did a transition recertification
34 for all TASER-trained members for the change to
35 the new X26 model and holster system. In 2005, we
36 altered our users' course to what TASER
37 International had recommended as a minimum of six
38 hours for first-time users. We added two more
39 hours to the recommended program to make our
40 front-end user course an eight-hour training day.
41 We added more practical and tactical situational
42 based training to the Taser course.

43 In 2003, we began recertifying on an annual
44 basis. At the same time, we did our re-
45 certifications for our control tactics, such as
46 arresting control tactics, pepper spray and
47 expandable baton. In 2004, in addition to our

1 recertification tests, for each control tactic
2 discipline we conducted an entire day of reality
3 scenario-based patrol situation where officers may
4 be faced with a force option choice. This became
5 a very valuable tool for us in advancing our
6 training standards.

7 In 2005, additional roll call training was
8 given to all members about the importance of
9 aftercare and follow-up with subjects after they
10 have been Tasered and may have been in some stage
11 or symptom of emotional distress and/or mental
12 health or drug-related difficulty.

13 In 2006, our users' course again changed a
14 little. We were still using TASER International
15 training program and slide show, but we added more
16 reality-based training scenarios to our training
17 programs. This became very valuable in assisting
18 with all the things we had learned about Taser
19 deployments over the years as well as the subjects
20 we are now facing in our daily duties.

21 Today in New Westminster Police, our first-
22 time users' program is a full eight-hour day that
23 includes the TASER International users' course
24 accompanied by our own reality-based training
25 scenarios and practical applications. We still
26 recertify all members on an annual basis at the
27 same time as all our other force options
28 recertification is done.

29 I myself try to keep informed of any new
30 trend or training needs on Tasers and their
31 deployments and, as needed, update our members at
32 roll call training sessions.

33 In early 2007, our police service
34 transitioned our reporting practices to a PRIME
35 subject behaviour reporting system that was
36 approved by the provincial Use of Force Working
37 Group in an attempt to standardize our reporting
38 practices. This new report at the outset appeared
39 to be a little more cumbersome than the previous
40 document we were using. I trained our police
41 service in how these documents were to be
42 completed and why and for what level of force.

43 Any level of force over and above compliant
44 handcuffing was to be reported on this PRIME
45 document. Since we began with these forms, I have
46 found it necessary to hold three additional
47 training sessions to remind and express the

1 importance of these reporting practices. The most
2 recent was the entire police service on one of our
3 annual training days that we just completed in
4 April this year. Our reporting practices are
5 improving. I've seen a very big improvement in
6 the past few months.

7 When a subject behaviour report is completed,
8 there is a few things that occur. Number one, a
9 hard copy is forwarded to Acting Sgt. Junglas.
10 What's called a notify, which is part of our PRIME
11 documentation, how we do the computer processing
12 of our files, a notify of the file is sent to my
13 PRIME handle, which is essentially sending me an
14 electronic version from the shift supervisor. So
15 in addition to a hard copy going to Acting Sgt.
16 Junglas, I get an automated electronic copy. In
17 addition to that, if there is any -- and all these
18 PRIME documents are reviewed by the supervisor,
19 the staff sergeant, on each watch. If there is
20 anything that the supervisor thinks may not have
21 been done appropriately, they are instructed to
22 forward the report to the division manager, which
23 is the inspector in charge of that division, who
24 then forwards it to myself and Sgt. Junglas for a
25 force options review.

26 Prior to this reporting format, we would
27 report on a form known as a control tactics form.
28 It was a very short form with a summary of what
29 had occurred. The downfall that we found with
30 that format was that there was no checks and
31 balances to insure that they were being completed.

32 Our new subject behaviour reporting format
33 combined with the review processes that Sgt.
34 Junglas and I carry out, I truly believe that we
35 are much better at addressing any training need or
36 deficiency in a consistent and timely manner.

37 Where Taser fits in with New Westminster
38 Police. Taser is in the area of intermediate
39 weapon on our level of force options. Taser is
40 approved in the presence of active resistant
41 people where there is an imminent need to control
42 this subject and less intrusive options have been
43 ineffective or are inappropriate based on the
44 totality of the circumstances.

45 All of our force options have a potential to
46 escalate and/or de-escalate based on the response
47 and conduct of the subject, the officers dealing

1 with and the circumstances surrounding each event.

2 In all of our force options instruction and
3 scenario-based training, we spend the majority of
4 our time on what is our most valuable tool in all
5 of the options available to us as police officers,
6 our ability to communicate. We teach that
7 communication never ends regardless of where the
8 situation has taken us. That constant attempt to
9 gain compliance, calm a situation down or have a
10 subject maybe all of a sudden become comfortable
11 is always what we are seeking.

12 In summary, Commissioner, we have been using
13 Tasers for eight years and there have been no
14 injuries more significant than a cut or scrape
15 from a fall during any Taser incident in New
16 Westminster. Our program has evolved greatly from
17 where it began in 2000. I am proud of what our
18 officers do and what we teach. We are never
19 satisfied. We always have much work to do. We
20 will continue to evaluate all of our force options
21 training and endeavour to make it more realistic
22 and valuable to our members so that we can meet
23 the goals that we all share to preserve life and
24 keep the peace. Thank you.

25 THE COMMISSIONER: Could you just elaborate a little
26 bit on what you mean by active resistance.

27 A Active resistance is a situation that we may be
28 faced with. It depends on the circumstances.
29 It's very situational based, Commissioner.

30 THE COMMISSIONER: Of course.

31 A When a person may be -- it depends on what they're
32 producing or portraying to a police officer. It
33 could be something as simple as blading their
34 stance, getting into a fighting stance, clenching
35 their fists, puffing out their chest, breathing
36 heavily, and you know, getting into a fighting
37 stance with us. That could be an active resistant
38 person. A person that's non-compliant and being
39 very aggressive and showing pre-assaultive cues,
40 you know, advising the police officer that they're
41 going to fight, they're not going to be
42 handcuffed, you're not taking me without a fight.
43 There's many, many situations, Commissioner. It's
44 based basically on situational circumstances that
45 a police officer faces.

46 THE COMMISSIONER: All right. Counsel, do you have
47 some questions?

S/Sgt. Joseph Spindor (Law enforcement presenter)
Questions by Mr. McGowan (cont'd)

1 MR. MCGOWAN: I do, Mr. Commissioner.
2

3 QUESTIONS BY MR. MCGOWAN, continuing:
4

5 Q Is running away active resistance?

6 A On its own?

7 Q Yes.

8 A Every situation has to be evaluated from the
9 totality of the circumstances. A person running,
10 just running -- you've got to have some more
11 circumstances than that to determine whether
12 that's --

13 Q You have lawful grounds to arrest them. You've
14 advised them they're under arrest. They're
15 running away. There's no other relevant factors.
16 Is that active resistance?

17 A Yes, that would be active resistance for sure.

18 Q You've advised them they're under arrest. They
19 lay on the ground and turtle. Is that active
20 resistance?

21 A Well, it depends if they're going to put their
22 hands behind their back. If they're just turtling
23 and lying there and nobody's trying to handcuff
24 them -- if you're forcing them to be handcuffed,
25 you maybe have a situation where you have two
26 officers struggling at both arms to try and get
27 their hands behind their back, I would consider
28 that active resistance.

29 Q So on your understanding of the policy, your
30 policy, that would entitle you to deploy the Taser
31 in those circumstances?

32 A Yes.

33 Q I've got a copy of your policy in front of me,
34 officer, and I don't see the words "active
35 resistance" or "active resistant" in the policy.
36 Have I got the current copy of your policy,
37 revised May 2007?

38 A Yes. Our current policy, I have it in front of me
39 as well. And under number 2 and number 3, the
40 descriptors that are in number 2 and number 3 of
41 our policy are the descriptors of what I would
42 consider to be someone in the active resistance.

43 Q Do you see --

44 A If I may, we don't use the wording "active
45 resistant."

46 Q Let me read number 2:
47

1 The Taser may be used by an officer who has
2 reasonable and probable grounds to believe
3 that a dangerous or violent subject who is a
4 danger to himself or others requires
5 immediate control.
6

7 A Correct.

8 Q So how is it that a person simply running away
9 meets that criteria?

10 A Well, they don't automatically meet that criteria.
11 But again, we teach active resistance in our
12 training. The word "active resistance" isn't in
13 our policy, but we teach that.

14 Q So is your teaching inconsistent with your policy?

15 A Well, I think the words "active resistance" could
16 be in the policy to make it a little more clear.
17 But again, as I mentioned to the Commissioner on
18 his first question about active resistance, it's
19 got such a broad scope. We try to teach more
20 scenario-based situations where if a person --
21 that's why when you first mentioned if a person's
22 running away, would that be active resistance.
23 There's more to just running away. We can't just
24 Taser someone just because they're running. There
25 has to be a totality of circumstances that the
26 police officer is faced with, and we try to --
27 I've tried to keep our policy so we train our
28 police officers and give them all the tools
29 available to make those decisions themselves and
30 not just -- if we try to pigeonhole things in
31 every little area, I think our policy would be
32 quite large if -- for every situation.

33 Q So you teach active resistance; you don't teach
34 dangerous or violent subject who is a danger to
35 himself or others?

36 A That's one part of it. There's a second part
37 there that kind of captures a little less --

38 Q The second part says: "reasonable grounds to
39 believe the subject acts or potential acts of
40 violence may be danger to himself or others."

41 A I was talking about number 3 where "The Taser can
42 be" --

43 Q That's what I'm reading.

44 A

45 The Taser can be utilized when a member has
46 reasonable probable grounds to believe that
47 subject acts or potential acts of violence

1 may be danger to himself or others, and the
2 members believe that lesser force options
3 would be insufficient to control the subject,
4 greater force options are not justified.
5

6 As I had mentioned earlier.

7 Q So when you're teaching active resistance, you're
8 teaching a broader spectrum of behaviour than is
9 allowed for in your policy?

10 A Yes.

11 Q Your training sessions started off as four hours;
12 they're now up to eight hours?

13 A Yes.

14 Q How much of that training session is devoted to
15 teaching about the potential dangers or negative
16 outcomes which could arise from a Taser, if
17 any?

18 A I wouldn't be able to say in a timeframe exactly.
19 The whole program, we talk about dangers of a
20 person after they've been -- how you conduct
21 yourself after a person's been Tasered, to do with
22 aftercare of a person who may have some emotional
23 distress or mental health issues or alcohol and
24 drugs on board. There was a report that came out
25 from the B.C. Complaints Commission - I believe it
26 was in 2005 - where we did some additional
27 training with our members because it talked about
28 aftercare of subjects after -- in those situations
29 and how we dealt with them. So that's included in
30 our program. And as a timeframe, and in every
31 scenario we always remind people, you know, when
32 you're dealing with somebody, what you deal with
33 them -- you know, what you observe after they've
34 been Tasered. You know, the things that happen
35 with the person prior to them being Tasered comes
36 into play as well because those things might add
37 some contributing factors of what you may do with
38 them in your aftercare.

39 Q Do you teach your members that one of the possible
40 outcomes from the Taser is injury or death,
41 separate and apart from falling down?

42 A Yes.

43 Q You do?

44 A Yes.

45 Q Okay. And when did that start?

46 A It started when we started -- I don't know
47 exactly, but when we started -- I can't recall

- 1 when the training started to change, when we
2 started talking about a phenomenon known as
3 excited delirium, or what I prefer to call, you
4 know, a person who could be having some emotional
5 and mental health issues to do with drug and/or
6 alcohol-related symptoms, that a person could be
7 caused some serious injury or death. That is
8 taught to people because the stages of those signs
9 and symptoms that the person is experiencing could
10 cause them injury or death, and that's why it's
11 very important for us after the person's been
12 subjected to the Taser, or any kind of -- it's
13 not -- we don't just limit that to Taser. We
14 include that in all of our force options because
15 whenever we deploy any kind of a force on a
16 person, whether it's an impact weapon or any kind
17 of hand control, if a person's in those same
18 situations or circumstances, they could also, you
19 know, have those difficulties that could lead to
20 death, and we have to monitor that on a continual
21 basis to make sure that the person's kept safe.
- 22 Q So it's clear in the training that you give your
23 members that one of the potential outcomes they
24 have to weigh when deciding to use the Taser is
25 its potential as a contributing factor towards
26 death?
- 27 A I don't -- I don't teach it that way. What I
28 teach is when a person -- when you're choosing a
29 force option, including Taser, you have to be
30 aware of what the results could be with the
31 person, meaning that -- you know, the aftercare of
32 a person is very, very important and getting
33 control of a person. But all of our force
34 options, the person has to make an evaluation
35 based on what they're faced with and what they
36 choose to do. If the force option is chosen to be
37 a Taser and the person is having some difficulty,
38 we definitely have to get them some help right
39 away.
- 40 Q What information are you given -- your initial
41 training packages came from the manufacturer?
- 42 A Yes.
- 43 Q What has the manufacturer told you about the
44 safety of the device?
- 45 A The information --
- 46 Q Either through its material or from personal
47 contacts?

1 A Yeah. The information we've received from TASER
2 International has always been that it's safe and
3 that it -- you know, it's a safe tool to be used
4 on subjects, and that's what we conduct.
5 Q Do you pass on that same information to your
6 trainees?
7 A Yes, I do.
8 Q We had a cardiologist here this morning, officer,
9 as well as a heart surgeon. The heart surgeon
10 told the Commissioner, and I'm quoting from his
11 document: "Tasers must be regarded as capable of
12 causing cardiac arrest." That's not information
13 that you pass on?
14 A No.
15 Q That's not something you've heard before?
16 A No. I've actually heard the opposite from TASER
17 in my instruction.
18 Q I take it if you were provided with a body of
19 information and opinion to this effect, would you
20 be open to training differently?
21 A Absolutely.
22 Q Now, one of the things you've done - and I should
23 say you've been quite cooperative - is you've
24 gathered together some information about your
25 training incidents for us and some numbers.
26 A Yes.
27 Q And so far you've been able to go back and figure
28 out how many Taser incidents New Westminster
29 had during 2006 and 2007.
30 A That's correct.
31 Q And you're currently working on compiling numbers
32 for the years going back further.
33 A Yes.
34 Q How many Taser incidents, let's say, in 2006 and
35 2007?
36 A In 2006, we had a total of -- and our Taser
37 incidents, what I'm describing are a combination
38 between where probes were deployed and where only
39 a touch-stun was deployed, or also when the weapon
40 was drawn and displayed only. In 2006, we had 43
41 total incidents. Out of that total incidents, 23
42 were the probes were deployed, 18 where it was a
43 touch-stun deployed only, and two were only draw-
44 and-display. In 2007, we had a total of 54. We
45 had 21 probes deployed only, and we also had 15
46 where it was touch-stun only. We had 18 where it
47 was draw-and-display only.

1 I'd like to explain those statistics for a
2 second. One of the things that was asked by the
3 researchers for your commission, Mr. Braidwood,
4 was to advise whether it was touch-stun and probe
5 deployment. I didn't give those numbers because I
6 didn't want to add numbers to the total. Each
7 incident I kept -- like if it was just drive-stun
8 or touch-stun, then it was classified as a touch-
9 stun. If there was probes and touch-stun, I kept
10 that in the probe category, being that that was
11 specifically probes. And one of the things I want
12 to mention, as I said, when we were first asked
13 for our numbers for the review here, I went back
14 to 2006 because I thought going back two years was
15 suitable. And when I looked at our numbers I was
16 curious of why we only had two draw-and-display in
17 2006 and we had 18 in 2007, and one of the factors
18 that I can address or contribute (sic) that to is
19 the new subject behaviour reporting system we've
20 gone to. The old control tactics report was very
21 -- it didn't have an area to tick off if you did a
22 draw-and-display. In any force option we have, if
23 there's -- you know, sometimes you have an
24 opportunity to give a warning. A draw-and-display
25 of a Taser is a warning, and if a person's
26 compliant, that's magic. We've accomplished our
27 goal. So I was very happy to see that we've
28 increased our draw-and-display, but that is
29 probably attributed somewhat to the fact that our
30 subject behaviour report has that area to make
31 that report. So I think it's helpful for that
32 report and I want to give that report some
33 recognition because it was spearheaded by Joel
34 Johnston to get consistent reporting throughout
35 all of the users of PRIME, which is including all
36 the municipal agencies and the RCMP. And it has
37 been helpful for us so far.

38 THE COMMISSIONER: From that point of view, the use of
39 the Taser did not really go up between 2006 and
40 2007.

41 A No, it did not.

42 MR. MCGOWAN:

43 Q Now, prior to us making this -- these statistics
44 you're giving us, these were all compiled in
45 response to a request from the Commission?

46 A Yes.

47 Q You weren't tracking any statistics prior to us

1 asking?

2 A Not on the statistical number basis. We track our
3 actual applications on an every application basis,
4 whether it's Taser, whether it's a knee strike or
5 a baton strike. We track those for training
6 reviews of any kind of an incident that happens.
7 So if there's something that looks a bit dodgy
8 from a report, then we'll have the member in and
9 talk about it. If there's more training that
10 needs to be done, we'll do some more training.

11 Q How difficult was it for you to compile these
12 statistics for 2006 and 2007, two years' worth of
13 counting up the number of incidents?

14 A It wasn't that difficult. What I did was I pulled
15 our -- because we keep the old control tactics
16 reports. They're all saved. So I pulled all
17 those for 2006 and then I did a -- the difficulty
18 with the subject behaviour report, Commissioner,
19 is that it's not -- in our PRIME system we
20 could -- the PRIME people could, I can't. But the
21 PRIME people could plug in break-and-enter and
22 they would get a response to every break-and-enter
23 we've had. The PRIME situation so far -- and I
24 know Joel's working hard on having that changed
25 with people that provide the service of PRIME,
26 which is a company called Versadex, to have the
27 ability to sort of plug in "Taser" and get all the
28 reports on that.

29 Q You can't do that right now?

30 A You can't do that right now. So it's really
31 important, when we -- when I first started this
32 training, we began with these subject behaviour
33 reports in January of 2007. When we first began
34 with that it was very specific. There's a title
35 on each text document. One of them could be
36 police will-say, which is for a Crown report that
37 says what the police officer did. One could be
38 the narrative for a Crown counsel report. And we
39 were very specific. We had to be very specific
40 for the reporting of these PRIME templates, and
41 that was to put the title in of "subject behaviour
42 report" in its entirety, no abbreviations, because
43 what happens is I can tell our PRIME expert to do
44 a run on "subject behaviour reports." She'll do
45 that and what'll happen is she'll get all the
46 subject behaviour reports up until whenever I've
47 asked her to do it. And that's what I did. And

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- 1 then I went through every one to determine whether
2 it was a Taser deployment, and that's when I got
3 the numbers I've got. And then I went into each
4 file and reviewed them and printed copies and sent
5 to your --
- 6 Q Okay. So you went through essentially and did it
7 manually?
- 8 A Yes, I had to do it manually. It's unfortunate
9 that we're there.
- 10 Q Is it fair to say, then, the way that the forms
11 are being filled out and tracked right now doesn't
12 lend itself to tracking statistics about Taser use
13 in this province very well?
- 14 A No. It's a little bit tedious, and it has to do
15 with, again, the PRIME supplier. And I think it's
16 not that difficult, from what I've heard from some
17 experts. Again, I'm not an expert in PRIME, and I
18 know that Joel is actively working on getting that
19 part of the subject behaviour report organized so
20 we can track it a little easier as far as
21 statistics. Because the purpose of this report
22 when we first began with it, from the Use of Force
23 Working Group, was, one, to track statistics, two,
24 to track trends in what we do. So if we're doing
25 more Taser than we're doing OC spray, why is
26 that? Or if we're doing more of one than the
27 other, then maybe we need to provide more training
28 in that area. So that's what the whole purpose
29 was, to assist us in training and increasing the
30 value of what we do in our training.
- 31 Q You started using the Taser in 2000 in New West?
- 32 A Yes, we did.
- 33 Q Are you at all concerned that it's been in use in
34 your department for at least seven years now and
35 there's still not a tracking system in place from
36 which statistics can be easily compiled or
37 effectively compiled?
- 38 A I'm not concerned. There never was a real cause
39 for us to do that. What happens on an annual
40 basis, Police Services asks for us to provide the
41 number of events that go on, and I know that a
42 staff sergeant who's recently retired, S/Sgt.
43 Dehaas, was tasked with that. He was in charge of
44 our community service section and he was tasked
45 with providing those statistics. He did those on
46 a manual basis. They have to do with pistol
47 deployments, baton deployments, OC spray, Taser,

- 1 and I think less lethal beanbag. All of those
2 have to be reported on an annual basis to Police
3 Services. So Police Services will have a record.
4 And again, I just learned of that reporting
5 practice a few months ago because he's retired and
6 they asked me now to do it. So I found that out.
7 I didn't know that was going on. I knew they did
8 that with some of our prisoner -- people being
9 kept in jail, but they track that also. Police
10 Services will have all that information. It's
11 just one that we never gathered ourselves.
- 12 Q Does your force possess the software to download
13 the data from the Taser?
- 14 A No, we don't. The reason why, when we first began
15 with the M26s, I knew they had that software
16 available. I didn't purchase it at the time
17 because I thought, well, if we need to, if we have
18 an incident where someone's being challenged on
19 how many applications they had or if there was a
20 police complaint that came in, a complaint about a
21 police officer, then we would purchase the
22 software and use it at that time. And we never
23 had a reason or a complaint or any reason to
24 review multiple application or a complaint about a
25 Taser application, so we never did use the M26
26 software. We currently haven't bought the X26
27 software for a similar reason, but in addition, if
28 there was ever a death associated to a Taser
29 application, I would -- I would buy it if we
30 needed it. It's not that expensive but I haven't
31 seen the need to buy it. And any one of our
32 custody deaths are investigated by Integrated
33 Homicide Investigative Team and they have that
34 software and they would be seizing the Taser and
35 doing that part of the investigation. So I'm
36 comfortable to, if we needed it, buy it. I've got
37 no problem looking at that. I'm quite familiar
38 with what it does - it's part of my course that I
39 took - and the information it provides. I saw no
40 real desire or need to -- I mean, if we had a
41 complaint or an overuse by somebody, whether it
42 was an internal matter or a training matter, I
43 would definitely buy it and use it if we needed
44 it.
- 45 Q You're aware that one of the things the downloaded
46 data can be used for is to detect unreported
47 use --

1 A Yes.

2 Q -- by an officer?

3 A Yes.

4 Q Do you have a system in place currently to detect
5 unreported use?

6 A No, we don't, but -- the unreported use thing I
7 find a little difficult as well, because one of
8 the things we teach with the Taser is you're
9 supposed to spark test it on sometimes a daily
10 basis. When we instruct people -- what spark
11 testing is, I think I showed you in the office
12 when we met a few months ago.

13 Q Yes.

14 A When you take the Taser, the cartridge is out and
15 you turn it on to ensure that it's working. You
16 can turn it on and see from the back of the LCD
17 that it's cycling but you also see the Taser
18 sparking itself. And we're instructing our
19 members to do that on a regular basis. So that
20 shows up as an application. So when you're saying
21 that that can be used as a tool or method for
22 determining whether it's been used, or usage, I
23 find that difficult because a person could do
24 that -- I mean, I do that on a regular basis when
25 I go to check on the servicing of our Tasers. If
26 someone says one's not working properly, I mean,
27 I'll turn it on a few times. I'll maybe replace
28 the battery and turn it on a few more times. So
29 those will all show up as usages. So I don't know
30 how or who mentioned that to you as far as a
31 valuable tool for checking usage. I don't see
32 that being as a valuable tool. I think -- and
33 again, I rely on the professionalism of our police
34 officers to -- you know, to report that.

35 One of the problems, as I mentioned to you
36 before, was the reporting practices of all of our
37 use of force. If there's a police officer in New
38 Westminster out in Queensborough in the middle of
39 a Friday night and he has to aggressively put a
40 person to the ground that he's arresting and puts
41 him in handcuffs and goes back to the office and
42 does his report and the in-custody is done and the
43 person goes to court in the morning, and if they
44 omit to put a subject behaviour report in because
45 they put an arm bar on the person, I can see that
46 being missed because of an error or otherwise. I
47 think that's part of the role we teach our

1 supervisors, to try and pick that up. A Taser is
2 something -- something like a pursuit. When it
3 happens, pretty much everybody knows it's
4 happened. Supervisors are instructed and called.
5 So as far as not reported use, I would be very
6 disappointed if that ever happened. Again, I rely
7 on the professionalism of our police officers and
8 the supervisors monitoring to ensure that that
9 doesn't happen.

10 THE COMMISSIONER: In the probe mode, once the wires
11 come out, what happens to that piece? I know you
12 can disconnect it, but what happens to the piece
13 with the wires coming out?

14 A The cartridge? Yeah. What we do, part of our
15 policy is, or part of our practice is that we save
16 the cartridge once a person -- the probes have
17 been deployed. If the probes have been deployed,
18 part of the process is they're supposed to save
19 the cartridge, and it's saved for six months in
20 case there is some kind of an issue or complaint
21 that comes in. We save that. The probes we don't
22 save because there's no evidentiary value with the
23 probes, but the cartridge we save.

24 THE COMMISSIONER: You can detach the wires from the
25 cartridge?

26 A Yes. They're very flimsy wires. They're -- I
27 don't know the material off by heart, but they're
28 very flimsy wires. They're not like any wire
29 you'd think of, like in household wiring or
30 anything. It's flimsy and very lightweight
31 wiring. They break very easily. Sometimes when
32 you're providing an application on a subject and
33 they're rolling around, the wires break then. So
34 it happens.

35 MR. MCGOWAN:

36 Q How does an officer go about getting more
37 cartridges if they want them?

38 A They sign them out. When they sign out a Taser,
39 they sign it out through our watch commander's
40 office. We've taken them -- we had a locker
41 system before, but a few years ago we took them
42 out because not so much the Tasers -- the Tasers
43 were never a problem, but in the same lockers we
44 had, you know, tape recorders and other items that
45 are high priced items that we just can't issue to
46 every officer, and they were going missing. So we
47 took the Tasers -- the Tasers were never going

1 missing. But we took the locker system out
2 altogether, and what I did was I -- there's a
3 large drawer that's right behind the watch
4 commander's - which is a staff sergeant - right
5 behind his desk. All the Tasers are stored there,
6 all the cartridges are stored there. When a
7 police officer comes in to sign out a Taser, they
8 sign out a Taser and the amount of cartridges they
9 take with them. When they sign the Taser back in,
10 they sign the Taser back in with the amount of
11 cartridges that they sign back in as well. So if
12 they've signed out two for the night and they come
13 back with one, they have to -- well, there will
14 obviously be a report as well that they've used
15 that, and we replenish them as needed.

16 Q You've used the Taser in the field personally?
17 A Yes.

18 Q How many times?
19 A I believe probably half a dozen.

20 Q And were those out on the street, on patrol, or in
21 what circumstances?
22 A No, they were all in our cellblock area, because
23 since being a staff sergeant -- when I was a
24 sergeant and was -- part of my Taser instruction
25 -- I was, again, in major crime and some of those
26 positions where we're not dealing with people in a
27 first-hand basis; we're dealing with them after
28 the fact. And when I became a staff sergeant in
29 2003, one of the roles and responsibilities of a
30 staff sergeant is in charge of the subjects that
31 are in a jail cell, and those are the times when
32 I've had my Taser deployments, operationally.

33 Q So your force permits the use of the Taser in
34 cells?
35 A Yes, it does.

36 Q What proportion of the Taser deployments that your
37 force has had have been in cells --
38 A I'd say --
39 Q -- or do you know?
40 A Oh, I wouldn't know.

41 Q Roughly.
42 A Very minimal. I would hesitate to say that
43 probably I'm the only staff sergeant that has ever
44 done that, just because of my experience and
45 expertise. I know other members have. It's not a
46 common occurrence. I wouldn't -- I'd probably be
47 wrong if I guessed, but I'd say a very small

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1 percentage of them.

2 Q Your officers, are they trained in CPR?

3 A No.

4 Q Does your force possess an automatic external
5 defibrillator?

6 A No.

7 Q Do your officers receive any first aid training as
8 part of their basic training package?

9 A We used to, when I joined. Now they don't at the
10 Justice Institute any more. There's no -- people
11 don't have first aid training. Some members have
12 it as part of their additional stuff that they do
13 themselves on their own initiative. But members
14 aren't trained in first aid. I don't know what
15 the thinking of the Justice Institute or the
16 reason why we went away from that. I think it was
17 probably a difficult thing to keep up, so because
18 people were not being trained and kept the
19 situation up, I think that's kind of why it went
20 by.

21 MR. MCGOWAN: Those are the questions I have, Mr.
22 Commissioner.

23 THE COMMISSIONER: Staff Sergeant, thank you very much
24 for your time and your careful presentation.

25 A Thank you.

26 THE COMMISSIONER: It's been very helpful. Thank you
27 indeed.

28 A Thank you.

29 THE COMMISSIONER: What have we tomorrow, counsel?

30 MR. MCGOWAN: Tomorrow, Mr. Commissioner, we currently
31 have scheduled Dr. Vallance, who's a psychiatrist,
32 and Dr. Butt, who's a pathologist.

33 MR. VERTLIEB: And just before we conclude, just for
34 your benefit, Mr. Commissioner, this concludes our
35 presentation from members of the municipal forces
36 in our province. And as Mr. McGowan said, to a
37 person, all of the people from the municipal
38 forces have been extremely cooperative in every
39 way. They've been forthcoming with information
40 and met every request, and we're grateful to this
41 gentleman and all the others that came before.
42 The only police force left, just on the subject of
43 police and law enforcement, is on Thursday with
44 the RCMP, and we're hoping to have their
45 information tomorrow in terms of their
46 presentation and their statistics. We haven't
47 seen that yet.

50

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Questions by Mr. McGowan (cont'd)

1 THE COMMISSIONER: Staff Sergeant, once again, thank
2 you so much.

3 A Thank you, sir.

4

5 (PRESENTER EXCUSED)

6

7 THE COMMISSIONER: All right, tomorrow at 10:00.

8

9 (PROCEEDINGS ADJOURNED TO MAY 21, 2008, AT
10 10:00 A.M.)

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