

From the Chief Medical Officer
Dr Michael McBride



Department of
**Health, Social Services
and Public Safety**

www.dhsspsni.gov.uk

AN ROINN

**Sláinte, Seirbhísí Sóisialta
agus Sábháilteachta Poiblí**

MÄNNYSTRIE O

**Poustie, Resydènter Heisin
an Fowk Siccar**

Castle Buildings
Stormont Estate
Belfast BT4 3SQ
Tel: 028 9052 0563
Fax: 028 9052 0574
Email: michael.mcbride@dhsspsni.gov.uk

HSS(MD)2/2008

Medical Director NIAS for cascade to *ambulance crews*

All General Practitioners for cascade to
staff including sessional doctors

Medical Directors of HSC Trusts for cascade to
Clinical Directors, A&E Units

Directors of Primary Care for cascade to
Out-of-Hours Services

Chief Executives of HSC Trusts
Chief Executives of HSS Boards
Directors of Public Health HSS Boards

Regulation and Quality Improvement Authority

Your Ref:
Our Ref: HSS(MD)2/2008
Date: 1 February 2008

Dear Colleague

Introduction of Taser Technology by PSNI

The Police Service of Northern Ireland (PSNI) have introduced the use of Taser technology as a less lethal option for use by specialist firearms officers from 25 January 2008. Taser is a conductive energy device which is used to temporarily incapacitate a subject through the application of an electrical current.

It is possible that healthcare professionals will be requested to remove Taser darts which are barbed and may imbed in the skin, or treat injuries caused as a result of fall or collapse due to the Taser use. Guidance has been produced by the Association of Chief Police Officers (ACPO) and by the Joint Royal Colleges Ambulance Liaison Committee. I have attached these for your information.

Yours sincerely

DR M MCBRIDE
Chief Medical Officer

This letter is available at www.dhsspsni.gov.uk and also on the DHSSPS Extranet which can be accessed directly at <http://extranet.dhsspsni.gov.uk> or by going through the HPSS Web at <http://www.n-i.nhs.uk> and clicking on DHSSPS.



Association of Chief Police Officers – Operational deployment of Taser

Information leaflet for persons upon whom a Taser has been used.

You have been subjected to the effects of a Taser. The Taser passed short pulses of electricity into your body. The electricity made your muscles contract. You may have lost balance and fallen to the ground.

The device was used by a specially trained police officer.

During, or shortly after the use of the Taser, you may have experienced the following:

- Being dazed for several minutes;
- Muscle twitches;
- Loss of memory of the event;
- Unsteadiness, and a spinning sensation;
- Temporary tingling;
- Weakness in the limbs;
- Local aches and pains, and tissue swelling.

These sensations are normal effects of the Taser.

If any of these effects are still present a day later, see a doctor. You may have two small marks (like bee stings) in your skin. These are small puncture wounds from the short needles used to inject the electricity directly into your skin. There may be small burns similar to sunburn around these marks. These should return to normal in a few days. If they do not and there is pain and swelling, you may have a local infection – see a doctor. If the probes only stuck in your clothing, you may still have two small areas of skin underneath that look sunburned.



Association of Chief Police Officers – Operational deployment of Taser

Information for General Practitioners

Introduction

The Police have commenced the operational deployment of Taser and are undertaking an extended operational trial in this area. This equipment has been made available to specially trained officers only.

Tasers are hand-held devices that fire two barbs at an individual. The barbs are intended to attach to the skin or clothing on the torso and/or lower limbs. The barbs are attached to the Taser handset by thin wires. A sequence of very short duration high voltage current pulses passes through wires connecting the handset to the barbs. The current flows into the body and results in a loss of muscular control and in pain. The device also enables direct contact of the Taser handset to the surface of an individual; two closely spaced fixed electrodes pass the current pulses into the subject. This manner of application is usually classed as use in “stun” or “probe” mode; pain is the principal local physiological effect.

The police use X26 and M26 (26 watt) Tasers, which have been available operationally within the UK since 2003 and in use on volunteers and operationally for several years before that in the US and Canada. Prior to this, lower power Tasers were used in North America for about 20 years.

The medical implications of use of the Taser, in the operational trial by the Police, have been reviewed by an independent panel of clinicians, and their statement was part of the evidence considered by Government prior to the decision to authorise the adoption of Taser by the police and for this extended trial.

Classification of injuries

Unintended adverse effects from the use of Tasers may be classed thus:

- Primary: immediate or delayed consequences of electrophysiological phenomena resulting directly from the current flow in the body; it is surmised from the known effects of electric fields and currents on the body (for example, lightning, electric fence controllers) that the organ of principal concern is the heart;

- Secondary: physical trauma directly associated with Taser use, principally injuries from falls; the head is the principal area at risk;
- Coincidental: injuries received in the incident not directly related to Taser use e.g. baton use, self-inflicted wounds, gunshot wounds.

Life-threatening and serious injuries

The risk of life-threatening injuries and of other serious injuries, such as the loss of an eye, is considered to be very low. The intuitive high risk of serious head injury from an uncontrolled collapse is not manifested in practice; most subjects apparently collapse in a semi-controlled manner. A number of deaths have occurred in the North America during (or after) the use of Tasers; the deaths were principally attributed to illegal drugs consumed by the subjects, or to physiological manifestations of severe exercise and restraint, frequently compounded by drug use or cardiac disease. There has not been a death unequivocally attributable to the primary effects of a Taser.

Other effects

Falls may result in abrasions, scratches, minor lacerations, swellings and areas of redness on the skin. Minor secondary trauma from the penetration of the skin by the barbs will occur. Some of the barb penetrations will exhibit small circular burns; areas of skin where current has entered the body from barbs retained in clothing may also exhibit burns. These burns are likely to resolve within a few days, without complications. The barbs will have been removed by medical staff; they were 8 mm in length with a 1 mm high barb about 3 mm from the tip. They were not “fish-hooked” in shape.

There is no evidence of any long-term clinical effect of Taser use.

Pacemakers

The evidence for the damage or disturbance to implanted electrical equipment such as pacemakers is limited and equivocal - be aware of the potential risk of damage to the device.

Use in Great Britain

Up to the end of December 2006, over 200 persons had been subjected to the Taser in GB. There were no serious or unexpected medical consequences. All uses of Taser are reviewed by the independent medical panel.

**For additional information
Please Contact**

***PSNI Operational Support Department
Chief Inspector, Conflict Management Development
Unit
Telephone: 028 9065 0222 Extension 21021***



Association of Chief Police Officers – Operational deployment of Taser

Information for hospitals regarding the medical implications of the use of the Taser on subjects

Introduction

The Police have commenced the operational deployment of Taser and are undertaking an extended trial in this area. This equipment has been made available to specially trained officers only.

Tasers are hand-held devices that propel two barbs at an individual. The barbs are intended to attach to the skin or clothing on the torso and/or lower limbs. The barbs are attached to the Taser handset by thin wires. A sequence of very short duration high voltage current pulses passes through wires connecting the handset to the barbs. The current flows into the body and results in a loss of muscular control and in pain. The device also enables direct contact of the Taser handset to the surface of an individual; two closely spaced fixed electrodes pass the current pulses into the subject. This manner of application is usually classed as use in “stun” or “probe” mode; pain is the principal local physiological effect.

Tasers have been classed as “low-power” (5-7 Watt) or “high-power” (14-26 Watt). Tasers have been in use for over 20 years, principally in the US. High-power Tasers have been available and in use on volunteers and operationally for several years in the US and Canada; the Tasers in use in the UK are classed as high-power and are principally the type X26¹.

The medical implications of use of the Taser, in the initial operational trial by the Police have been reviewed by an independent panel of clinicians, and their statement was part of the evidence considered by Government prior to the decision to authorise the adoption of Taser by police and for this extended trial.

The independent panel of clinicians has also reviewed all cases of use of the Taser since the commencement of operational use by Specialist Firearms Officers in April 2004.

¹ www.taser.com

Classification of injuries

Unintended adverse effects from the use of Tasers may be classed thus:

- Primary: immediate or delayed consequences of electrophysiological phenomena resulting directly from the current flow in the body; it is surmised from the known effects of electric fields and currents on the body (for example, lightning, electric fence controllers) that the organ of principal concern is the heart;
- Secondary: physical trauma directly associated with Taser use, principally injuries from falls; the head is the principal area at risk;
- Coincidental: injuries received in the incident not directly related to Taser use e.g. baton use, self-inflicted wounds, gunshot wounds.

It is notable that in two surveys from law-enforcement agencies in North America, more than half of the number of people confronted with the Taser were impaired by alcohol, drugs or mental illness. Some drugs and the metabolic consequences of muscular activity are believed to increase the susceptibility of the heart to potentially life-threatening arrhythmias. Experience in Great Britain also confirms that a significant proportion of subjects are intoxicated by illegal drugs or alcohol.

Deaths

Over the period of use of low-power Tasers, there were a small number of deaths associated with a large number of operational uses. Kornblum and Reedy discuss 16 deaths over a 4-year period in Los Angeles². Other factors such as pre-existing heart disease and drug use were implicated in these deaths. The time interval between Taser application and death ranged from 15 min. to 3 days; 5 deaths occurred at 15 min., 3 at 30 min. and 3 at 45 min. On the available evidence, it is considered extremely unlikely that a death from primary injuries has been caused by a low-power Taser.

With regard to the high-power X26 and M26 Tasers, the risk of death from primary injury is low and in common with low-power Tasers, is certainly very much lower than that from conventional firearms. A small number of deaths has been reported to be associated with (but not necessarily caused directly by) use of the X26 and M26 Tasers. A report in 2004 by Amnesty International discusses deaths associated with Taser use³.

² Kornblum RH, Reedy SK (1991). Effects of the Taser in fatalities involving police confrontation. *J Forensic Sci.* Vol 36, 434-448. For a rebuttal of some of the conclusions of this paper, see Allen TB (1992). Discussion of "Effects of the Taser in fatalities involving police confrontation". Letter to Editor. *J Forensic Sci.* Vol 37, 956-958.

³ [http://web.amnesty.org/library/pdf/AMR511392004ENGLISH/\\$File/AMR5113904.pdf](http://web.amnesty.org/library/pdf/AMR511392004ENGLISH/$File/AMR5113904.pdf)

There is considerable debate on the cause of death in fatalities arising during or subsequent to restraint and arrest in incidents involving Taser application. Although this is disputed in some quarters, the deaths are principally attributed by medical examiners to illegal drugs consumed by the subjects, or to physiological manifestations of severe exercise and restraint, frequently compounded by drug use or cardiac disease. The view of the independent medical panel in the UK is that there has not been a death unequivocally attributable to the primary effects of a Taser.

Deaths arising from the secondary consequences of Taser use have not been reported.

Life-threatening and serious injuries

The risk of life-threatening injuries and of other serious injuries, such as the loss of an eye, is very low. The probability of impact of a barb on the surface of the eye is considered to be low. The impact of barbs on the head has occurred operationally; non-operational evaluation trials on targets have also resulted in head impacts.

The intuitive high risk of serious head injury from an uncontrolled collapse is not manifested in practice; most subjects apparently collapse in a semi-controlled manner.

Other effects

Falls may result in abrasions, scratches, minor lacerations, swellings and areas of redness on the skin. Minor secondary trauma from the penetration of the skin by the barbs will occur. Some of the barb penetrations will exhibit small circular burns; areas of skin where current has entered the body from barbs retained in clothing may also exhibit burns. These burns are likely to resolve within a few days, without complications.

Barb removal

The current injection needles are 8 mm in length and have a 1 mm high barb about 3 mm from the tip. They are not “fish-hooked” in shape. It is believed that the normal practice in the US for removal of a barb from torso and limbs is to support the skin around the barb with fingers and withdraw the barb by gentle traction. Removal of barbs from areas such as the face and eye may require advice from appropriate clinical specialists.

Use on drug and cardiac impaired individuals

It is believed that drugs such as cocaine and pre-existing heart disease may lower the threshold for cardiac arrhythmias. Many of the 16 fatalities associated with use of the low-power Tasers in the Los Angeles survey had also taken PCP (phencyclidine) prior to the incident. PCP is also thought to be pro-arrhythmogenic but is infrequently encountered as a substance of abuse in the UK.

There is no experimental evidence that the aforementioned pro-arrhythmic factors increase the susceptibility of the heart to low or high power Tasers specifically, sufficient to cause an arrhythmic event. Nevertheless, there is sufficient indication from the forensic data and the known electrophysiological characteristics of the heart (and the effects of certain drugs on this) to express a view that excited, intoxicated individuals or those with pre-existing heart disease could be more prone to adverse effects from the high power Taser, compared with unimpaired individuals.

Admission for observation may be advisable.

Acidosis

Fish and Geddes⁴ discuss the metabolic consequences of Taser use and the metabolic status of agitated or intoxicated individuals on whom the Taser may be used. Specifically, metabolic acidosis arising from physical activity (or clinical conditions) may increase the potential for ventricular arrhythmias particularly in the presence of phencyclidine and cocaine. Although individuals in a quiescent, relaxed state after Taser use and exertion would be expected to compensate the metabolic acidosis quickly, those that remain agitated or are restrained in a way that could compromise normal breathing may remain vulnerable from potentially fatal quantities of ingested drugs. They recommend that the acid-base status of patients subjected to Taser should be checked if they are agitated or unwell, and steps should be taken to restore the normal status.

Pacemakers

The evidence for the damage or disturbance to implanted electrical equipment such as pacemakers is limited and equivocal – be aware of the potential risk of damage to the device.

Use in Great Britain

Up to the end of December 2006, over 200 persons had been subjected to the Taser in GB. There were no serious or unexpected medical consequences. All uses of Taser are reviewed by the independent medical panel.

**For additional information
Please Contact**

***PSNI Operational Support Department
Chief Inspector, Conflict Management Development Unit
Telephone: 028 9065 0222 Extension 21021***

⁴ Fish R, Geddes LA (2001). Effects of stun guns and tasers. Lancet; Vol 358; 687-689.

ASA

THE AMBULANCE SERVICE ASSOCIATION

POLICE TASER DEVICE

GUIDANCE FOR EMERGENCY CARE STAFF

How Tasers work, what happens and the correct procedure for Barb removal.



jrcalc
joint royal colleges ambulance
liaison committee

WHAT IS A TASER?

There are two models of Taser currently being used by the UK Police service. The original M26 Taser and the newer X26 Taser. Both devices are single shot and use the same cartridges which fire two probes and discharge an electrical current. *They aim to incapacitate rather than lethally injure.*



Both resemble a pistol but administer an electrical current that temporarily incapacitates an individual. They both use compressed nitrogen to fire two darts that trail wires back to the Taser.

The M26 Taser delivers an electrical current of 50,000volts / 26watts (1.76 joules per pulse at 25-38 pulses per second) over 5 seconds and the X26 delivers 50,000volts / 6watts (0.36 joules per pulse at 19 pulses per second) over 5 seconds, which temporarily incapacitates the victim by affecting the neuromuscular system.

Why Guidance for emergency care workers?

The use of Taser devices are becoming more widespread within Britain's police forces, and due to the nature of the action of the Taser, it is possible that people will suffer injury, either as a result of a fall or collapse, or that emergency care workers will be requested to remove the Taser darts, which are barbed and are likely to be embedded within the skin. Guidance is provided here to assist in the removal of Taser barb, but local arrangements/policies should be referred to where these are in place.

How does it work?

The Taser is laser-sighted and uses air cartridges attached to the end of the barrel. The cartridges project a pair of barbed darts, which attach to the skin or clothing and deliver an electrical charge in the form of a sequence of very high voltage pulses.



The Taser has an absolute maximum range of around 21 feet, this being the length of the wires carrying the current, and which attach the barbed darts to the weapon.

The Taser also has a 'touch stun' mode, where it can be operated without firing the barb. It is very effective while the charge is being applied and the electrical charge can be repeated if needed.

What does it do to someone?

The normal reaction of a person exposed to the discharge of a Taser is the temporary loss of voluntary muscle control resulting in the person falling to the ground or 'freezing' on the spot. The effect is not intended, nor is it likely to render a person into a state of unconsciousness. The device is meant to be an alternative to conventional firearms and is not intended to result in a fatal outcome. There are cases where people exposed to the discharge of a Taser have died some time after exposure, although the cause is unlikely to have been the Taser itself.

What happens afterwards?

The effects of the Taser are sudden and only last for as long as the charge is applied (usually 5 seconds). Recovery from the direct effects of the Taser should be almost instantaneous.

Advice for emergency care workers

Protective examination gloves should be worn.

The barbs are designed to penetrate the clothing or skin and direct injuries caused by Taser barb entering the skin are usually minor. Ordinarily, the copper wire attached to the skin should be cut close to the barb so as to avoid trailing wires. The wires are easily cut using paramedic shears, but particular care should be taken to avoid pulling on the wires with the barb still attached to the skin.

Produced by:

Mark E Cooke
National Clinical Effectiveness Manager
Ambulance Service Association
London

Sergeant Simon Williams
Firearms and Public Order Unit
Northamptonshire Police Force HQ
(on behalf of ACPO)



Barb Removal

Please refer to local arrangements/policies if these are already in place.

Where barbs are attached to clothing (with no penetration of the skin) they may gently be removed by pulling on the barbs.

Barb penetration to the eyes, face or genitalia should not have occurred, but if this is the case no attempt should be made to remove the barbs. These patients will require specialist removal at a hospital.

Removal of barbs from the skin of other body areas can be achieved by supporting the body with one hand placed away from the barb being removed then using the other hand, gently but swiftly pull on the shaft of the barb to remove.

NOTE:

In all cases where a Taser is used and the person is brought to custody, it is normal practice for the patient to be examined by the police surgeon. Alternatively, if there are any other factors which may indicate that the person is at higher risk then they are likely to be taken directly to hospital still under arrest where the barbs would be removed.

The patient might endure slight discomfort during the process of barb removal and witnessed verbal consent (by a police officer) should be obtained, making note of the police officer's identification number on the supporting patient report form.

Where a patient refuses treatment then normal procedures for patient refusal should be followed.

In cases where the barbs have already been removed, they should be treated as a biohazard and should be treated as any other 'sharp', taking note of where they have been stored**, as they are likely to be required as evidence.

****Barbs should be removed in the presence of a police officer, who should also provide a small evidence container for the sharps to be deposited in.**

If a Taser has been used on a patient with a pacemaker/ICD or other implanted device, then referral to hospital may be necessary. In this case information should be provided to the police officer. Information relating to any device implant site and distance to barb placement should be recorded on the patient report form.

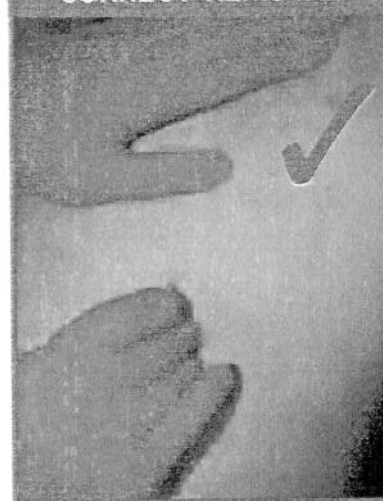
Has it been medically assessed?

The Defence Science and Technology Laboratory (DSTL) have undertaken a programme of medical assessment. An independent body called the Defence Scientific Advisory Council's Sub-Committee on the Medical Implications of Less Lethal technologies has considered the results of both these assessments.

Who will use the Taser?

Tasers are only currently used by authorised firearms officers, although the use of Tasers might become more widespread as time progresses.

CORRECT REMOVAL



INCORRECT REMOVAL



Risks

The Taser should only be aimed at the body area, but there is a specific risk of injury to the eye through penetration of a barb.

Penetration of a barb to other areas of the head and neck, and genital areas may also increase the level of injury (see notes on barb removal).

Sources:

ACPO - Operational Use of Taser / Operational Guidance
BBC News Website - How the stun gun works
<http://news.bbc.co.uk/1/hi/uk/1468188.stm>
Thames Valley Police Website/ Information Service
www.thamesvalley.police.uk/news_info/departments/Taser/

Acknowledgment:

North East Ambulance Service NHS Trust

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joint royal colleges ambulance
liaison committee



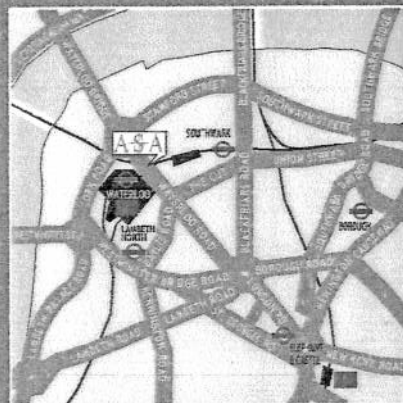
POLICE TASER DEVICE



GUIDANCE FOR EMERGENCY CARE STAFF

The Ambulance
Service Association
Capital House
91 Waterloo Road
London SE1 8XP

Telephone: 020 7928 9620
Facsimile: 020 7928 9502
Email: reception@asa.uk.net
Internet: www.asa.uk.net



Mark Cooke
National Clinical Effectiveness
Programme Manager

Email: mark.cooke@asa.uk.net

Telephone: 020 7928 9620
Facsimile: 020 7928 9502

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THE AMBULANCE SERVICE ASSOCIATION