

**DSAC Sub-committee on the Medical Implications of Less-lethal Weapons (DOMILL).**

Statement on the medical implications of M26 and X26 Taser use at incidents where firearms authority has not been granted.

**Background**

1. The DSAC<sup>1</sup> Sub-committee on the Medical Implications of Less-lethal Weapons (DOMILL) was requested by the Home Office to prepare this statement on the medical implications of the proposed extended use of M26 and X26 Tasers by Authorised Firearms Officers (AFOs) and by members of Specially Trained Units (STUs)<sup>2</sup>.
2. In 2003, a trial assessed the use of the M26 Taser as a less-lethal option alongside conventional firearms at incidents where firearms authority had been granted. The trial commenced in April 2003 and lasted for a period of 12 months. Prior to the commencement of the trial, DOMILL produced a statement for Ministers on the medical implications of the use of the M26 in this scenario<sup>3</sup>. Following independent evaluation, the Home Secretary authorised the M26 Taser for all police forces as a less-lethal option for police operations involving the deployment of AFOs with firearms authority.
3. DOMILL issued a second statement on the M26 Taser in July 2004<sup>4</sup>. This statement reviewed further research recommended by DOMILL and undertaken by the Defence Science and Technology Laboratory (DSTL). In March 2005, a third statement reviewed the medical implications of the use of the X26 Taser, a replacement for the M26 Taser<sup>5</sup>.
4. All statements to date have addressed use of the Taser solely by AFOs at incidents where firearms authority had been granted.
5. The Association of Chief Police Officers (ACPO) examined all uses of the Tasers and concluded that an extension would be appropriate to other conflict management situations where the criteria to authorise the issue of firearms were not met. A submission was presented to the Home Office seeking an extension to the operational deployment of Tasers outside the firearms criteria at incidents involving violence, or threats of violence, of such severity that officers would need to use force to protect the public, themselves or the subject.
6. It is proposed that two groups of police officers would be authorised to use Tasers in non-firearms incidents: AFOs and members of STUs. Policy and Guidance have been written for use of the Taser by each group at incidents involving violence, or threats of violence, of such severity that officers would need to use force outside firearms authority to control the situation.
7. This statement presents the view of DOMILL on the medical implications of the proposed extended Taser use and is based on the evidence presented to it by DSTL.

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<sup>1</sup> Defence Scientific Advisory Council – a non-departmental public body of the Ministry of Defence.

<sup>2</sup> "Specially Trained Units" comprise police officers who are selected and trained in the use of Tasers at non-firearms incidents, within the relevant Policy and Guidance. The unit may or may not contain Authorised Firearms Officers.

<sup>3</sup> DSAC Sub-committee on the Medical Implications of Less-lethal Weapons (DOMILL). Statement on the medical implications of the use of the M26 Advanced Taser. DSTL/CBS/BTP/PAT-ACPO/MAN/REP/4 dated 9 Dec 02.

<sup>4</sup> DSAC Sub-committee on the Medical Implications of Less-lethal Weapons (DOMILL). Second statement on the medical implications of the use of the M26 Advanced Taser (July 2004). DSTL/CBS/BTP/PAT-ACPO/MAN/REP/4 dated 27 Jul 04.

<sup>5</sup> DSAC Sub-committee on the Medical Implications of Less-lethal Weapons (DOMILL). Statement on the comparative medical implications of the use of the X26 Taser and the M26 Advanced Taser. DSTL/BSC/DOC/803 dated 7 Mar 05.

## Technical approach

8. DOMILL has reviewed:
  - a. the two draft Policy and Guidance documents for AFOs and STUs;
  - b. the scope of the Taser training modules for the STUs, and their alignment to those applicable to AFOs;
  - c. advice from ACPO on the criteria for selection of officers for membership of the STUs;
  - d. Taser Evaluation Forms and a small number of Forensic Medical Examiners' (FME) reports for nearly all uses of Taser within the period April 2004 to December 2006;
  - e. the medical risk factors declared in the Guidance;
  - f. the medical advice notes to the subject, the subject's general practitioner and to hospitals;
  - g. a recent interim review by DSTL on the possibility of increased risks to the hearts of children and adults of small stature from the electrical currents flowing in the chest.
9. DOMILL has sought advice from ACPO on the likely population characteristics of those who may be subjected to Tasers at incidents where firearms authority would not be granted. ACPO advised that the proposed extension to use of the Taser is unlikely to alter the population make-up of those against whom the Taser is deployed. Specifically, ACPO does not anticipate that the proportion of children and persons under the influence of illicit drugs, alcohol or other intoxicants will change following implementation of extended use. It is likely that the numbers of people subjected to Taser will increase.

## Conclusions

10. The new Policy, Guidance and training modules appear robust and, for both AFOs and members of STUs, they appear to provide a common foundation to minimise the potential for adverse medical effects from use of the M26 and X26 Tasers in non-firearms incidents.
11. The more frequent use of the Taser will result in a greater annual incidence of minor injuries and a greater, but still low, chance of a serious adverse event.
12. DOMILL anticipates that there will be an increase in the numbers of children subjected to Taser. DOMILL has reviewed ten cases of the exposure of persons under the age of eighteen to Taser currents in Great Britain up to December 2006, under firearms authority. The medical effects reported that could be attributed directly to the Taser were the expected minor wounds from the probe barbs.
13. There is very limited information globally on the relative vulnerability of children to Tasers, from either operational data or experimental studies on animals. However, data from McDaniel *et al.*<sup>6</sup> on the reduction in the safety factor for initiation of a serious cardiac event (ventricular fibrillation) with a reduction in the body weight of pigs suggests, if extrapolated to humans, that the safety factor for induction of ventricular fibrillation by Taser discharge in children at the younger (i.e. smaller) range of the paediatric population may be lower compared with that in the adult population. Until more research is undertaken to clarify the vulnerability of children to Taser currents, children and persons of small stature should be considered at possible greater risk than adults and this should be stated in the Guidance and training modules<sup>7</sup>.

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<sup>6</sup> McDaniel, W.C. *et al.* (2005). Cardiac safety of neuromuscular incapacitating defensive devices. *PACE*, **28** (Suppl 1):S284-S287.

<sup>7</sup> DOMILL has been requested by the Northern Ireland Policing Minister to identify essential studies that would enhance DOMILL's confidence in their developing views on whether children and vulnerable adults are likely to be at greater risk from the adverse effects of Taser, than normal adults.

14. The review of the Taser Evaluation Forms and the available (legible) FME reports showed no unexpected injuries in over 200 persons subjected to Taser currents. Most of the injuries reported arose from falls (anticipated from the previous DOMILL statements) or were not directly associated with Taser use.

### **Recommendations**

15. Due to the paucity of Taser deployment data against smaller individuals, together with suggestive evidence from limited animal studies, DOMILL recommends that AFOs and members of STUs should be particularly vigilant for any Taser-induced adverse responses in this subset of the population.
16. The Guidance should be amended to identify children and adults of small stature as being at potentially greater risk from the cardiac effects of Taser currents than normal adults of average or large stature.
17. In view of the uncertainties in the population characteristics of the increased numbers of subjects who are likely to be affected by the extended use of the Taser, it is essential that a quarterly review of Taser Evaluations Forms is undertaken by ACPO, DSTL and the Home Office. The acceptability of reversion to annual reporting should be assessed after the first year and DOMILL should be consulted. The Taser Evaluation Forms should identify under which policy authority the Taser was used.
18. DOMILL should be advised immediately in the event of any moderate or serious injuries or adverse physiological responses occurring directly or indirectly from firing of a Taser.

Chairman, DOMILL.