Executive summary

Health Council of the Netherlands. Use of the automatic external defibrillator in the Netherlands. The Hague: Health Council of the Netherlands, 2002; publication no. 2002/02

In the Netherlands, upwards of 15,000 people a year die from sudden cardiac arrest. Of those who suffer circulatory arrest (with collapse) in the presence of others, twelve per cent survive at least until their discharge from hospital. Circulatory failure is generally caused by the development of ventricular fibrillation, a dysrhythmia that results in stoppage of the heart as a blood pump. The main reason why resuscitation is unsuccessful in such cases is the belatedness of defibrillation. Overall, it can be assumed that, following a circulatory disorder resulting from ventricular fibrillation, the probability of survival falls by 10% a minute. Twelve minutes after the onset of circulatory failure, the probability of survival has fallen to 9%.

Since 1980, an automatic defibrillator has been in use which can distinguish with very high sensitivity and specificity between cardiac rhythms for which a defibrillator shock is appropriate and rhythms for which this is definitely not the case. Use of this defibrillator has, through targeted, automatically generated instructions and extensive automation of operation, become so clear and easy that in principle any layman can use the device. Particularly in the United States, but also in a number of European countries, extensive experience has been gained of the use of these devices. It turns out that even under field conditions rhythm diagnosis is excellent and that the ease of operation rules out life-threatening mistakes. With this defibrillator in the hands of professionals who can generally reach a circulatory failure victim quickly (so-called first responders, such as the police or security personnel), it has often been managed to shorten considerably the time between collapse and defibrillation, resulting in a sharp increase in victims' chances of survival (to as high as 40-50%).

In the Netherlands, conventional defibrillation is, under the terms of Article 35 *et seq.* of the Act on Professions in Individual Health Care, a treatment reserved for performance by doctors owing to the possible danger to the patient from use by unqualified or incompetent individuals. However, putting off defibrillation until a doctor arrives always results in (costly) loss of time and therefore leads to a tension between the legal and medical approach in helping the patient as much as possible. Although this Act provides, in case of need, for the possibility of defibrillation with impunity and this need always arises with circulatory failure from ventricular fibrillation, the restriction has up to now curbed the introduction of the automatic defibrillator for use in the Netherlands. The equipping and practical training of such first responders has lagged behind, partly owing to an unfortunate interpretation of this restriction.

The design of the automatic defibrillator is now so safe that there are no longer any grounds for the restriction in the Act on Professions in Individual Health Care. It is not possible for an untrained individual to pose a danger to the victim through use of the automatic external defibrillator. As a result, and also to eliminate prevailing confusion about competence to perform defibrillation on patients with ventricular fibrillation (acute cardioversion), it is desirable to remove defibrillation via the automatic external defibrillator (AED) as a restricted operation from the law.

Use of the AED by medical laymen trained in its application will in many cases considerably reduce the interval between the time of cardiac arrest and defibrillation in patients with ventricular fibrillation, resulting in a substantial increase in the probability of survival without patients running extra risks. It is therefore recommended to familiarise first responders in this country with use of the AED and equip them with this device. It is also advisable to incorporate knowledge of and training with the AED in existing primary resuscitation courses.

The AED is in the near future expected to earn a place in enterprises and public amenities alongside the usual first-aid facilities. The government is doing the right thing in adopting an open, encouraging attitude with regard to use of the AED. To ensure a coordinated and efficient introduction for the AED, it is desirable to institute a central body. The Dutch Resuscitation Council might play a role herein. If the experiments initiated with public access defibrillation in the United Stated prove a success, their introduction should be considered in our country, too.

Private individuals who purchase an AED must be strongly advised to follow an elementary resuscitation course with instruction in the use of the AED.

It must be endeavoured to achieve such a standardised approach to automatic defibrillators that no confusion with consequent loss of time can arise from people not having practised regularly on different types. A standardised approach is also

important with respect to the provision of information on the presence of AEDs in public places.