

State-of-the-market from the *dableducational.org* website

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Inaccurate blood pressure measurement leads inevitably to the inappropriate diagnosis and treatment of hypertension with resultant disadvantages for patients. Despite the serious consequences of inaccurate measurement of blood pressure the fact is that there are many inaccurate devices in the market and many have not been validated independently for accuracy. To overcome this deficiency, state-of-the-market papers have been published over the past decade. These papers, however, are limited in their availability to the wide range of potential purchasers of blood pressure measuring devices and such papers are often out-of-date by the time of publication. The *dableducational* website was founded in 2003 to provide regularly updated evidence-based information on blood pressure measuring devices on the internet to all would-be purchasers of blood pressure measuring devices. Since its foundation, the *dableducational* website has received in excess of 2 million visits; it is used by 1200

organizations in more than 105 countries worldwide, and receives an average of 160 000 visits monthly with a high percentage take down rate. In addition, the website provides a library resource with over 450 papers, and a device equivalence procedure for manufacturers. *Blood Press Monit* 12:377–379 © 2007 Wolters Kluwer Health | Lippincott Williams & Wilkins.

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State-of-the-market publications

A large market exists for blood pressure measuring devices, not only in clinical medicine, but also with the public where the demand for self-measurement of blood pressure is growing rapidly. For the consumer, whether medical or lay, device accuracy should be of prime importance in selecting a blood pressure measuring device. The majority of devices available have, however, not been evaluated independently for accuracy and the consumer often does not have the expertise or information to make a fully informed decision as to which device to purchase. In an attempt to rectify this deficiency, 'state-of-the-market' papers began to be published over a decade ago.

The first state-of-the-market assessment was published in 1995 [1]. This publication recognized the growing market for ambulatory blood pressure measurement (ABPM) and that 'the potential purchaser faced with attractive advertising brochures and persuasive sales talk may have difficulty determining the accuracy of any given ABPM device.' Forty-three ABPM devices from 31 suppliers and manufacturers were reviewed. The second state-of-the-market assessment was published in 1998 [2]. In addition to up-dating the validation status of ABPM devices, this publication also included devices for the rapidly growing market for devices for self-measurement of blood pressure and the use of automated devices in the clinical setting. In 2001 the Working Group on Blood Pressure Monitoring of the European Society of

Hypertension published a further up-date in the *British Medical Journal* [3] and this was again updated the same year [4].

State-of-the-market website (*www.dableducational.org*)

These surveys, though serving a useful purpose, had the disadvantage of being obtainable only by journal subscribers, and the information soon becomes outdated, in that this forum cannot keep pace with the availability of new devices [5]. Doctors and others wishing to purchase blood pressure measuring devices did not have a ready means of obtaining up-to-date information on the validation status and accuracy of blood pressure measuring devices. Device manufacturers were often faced with long and costly time delays between validation of a device and the subsequent publication of the results. To overcome these difficulties, the *dableducational* website (*www.dableducational.org*) was launched in 2003 [5]. The ethos of this not-for-profit endeavour was that by making evidence-based information on blood pressure measuring devices available on the internet to medical practitioners, consumers, such as patients, hospitals and doctors, and to the device manufacturing industry, blood pressure measurement would become more accurate, thereby benefiting patients with hypertension.

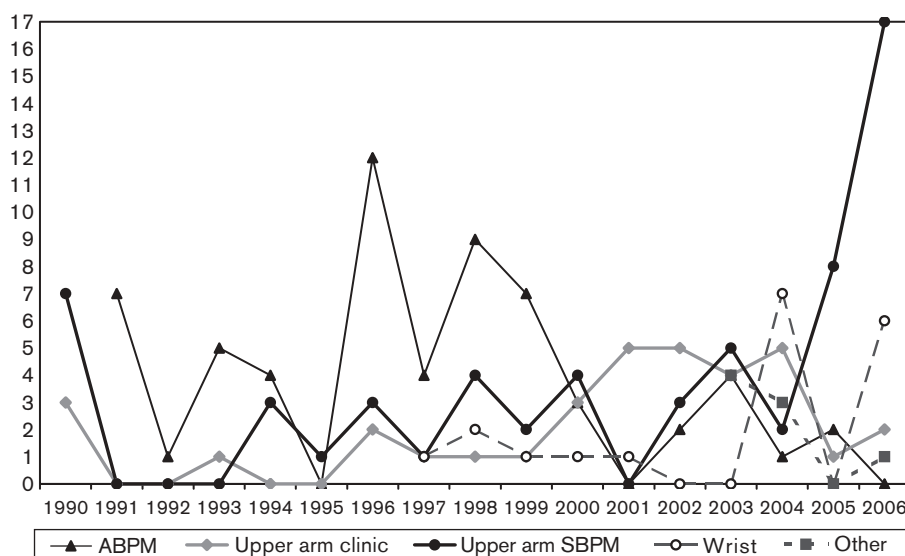
Since its foundation, the *dableducational* website has received in excess of 2 million visits with over 1200

Table 1 Validation studies per year according to protocol used

Year	AAMI only	AAMI+BHS	BHS only	ESH	Equivalent	AD HOC	Total
1990		10					10
1991		7					7
1992		1					1
1993		6					6
1994	2	5					7
1995		1					1
1996	2	10	5				17
1997	1	4	1			1	7
1998		13	3				16
1999		10	1				11
2000	3	7	1				11
2001	1	4				1	6
2002	1	5	1	3			10
2003	2	5	1	8		1	17
2004	1	6	2	6		3	18
2005		4	1	6			11
2006	2	4	2	10	8		26
Total	15	102	18	33	8	6	182

AAMI, Association for the Advancement of Medical Instrumentation Standard; Ad Hoc, Ad hoc protocols; BHS, British Hypertension Society Protocol; ESH, European Society of Hypertension International Protocol.

Fig. 1



Validations per year according to device type. ABPM, ambulatory blood pressure measurement; SBPM, self-measurement of blood pressure.

organizations using the site in more than 105 countries worldwide. Every month there are an average of 160 000 visits with a high percentage take down rate. The website provides a library resource with over 450 papers, many of which are obtainable as pdf files. The website is up-dated regularly and lists the validation status of blood pressure devices for clinical use, self-measurement of blood pressure and ABPM. Since its foundation, the website has assessed 182 validation studies, of which 33 were for ABPM devices, 50 for devices for self-measurement of blood pressure, 28 for upper arm clinical devices, and

four for miscellaneous devices. The devices validated are listed per year according to the protocols used in Table 1 and the number of publications of validation studies per year are shown in Fig. 1 for each device type. In addition to providing an up-dated state-of-the-market for all devices, the dablEducational Advisory Board website provides a process for manufacturers to claim equivalence for devices that have undergone minor modification thereby avoiding the need to undergo repeat validation [6].

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