Blood pressure - systolic measured

Identifying and Definitional Attributes

Data Dictionary: NHDD

Knowledgebase ID: 000650   Version number: 1

Metadata type: DATA ELEMENT

Registration Authority: NHIMG   Admin status: SUPERSEDED

Effective date: 01-MAR-05

Definition: The person's measured systolic blood pressure.

Context: Public health, health care and clinical settings:
High blood pressure is a major risk factor for coronary heart disease, heart failure, stroke, and renal failure with the risk increasing along with the level of blood pressure (Ashwell 1997; DHSH 1994b; Whelton 1994; Kannel 1991).

Relational and Representational Attributes

Datatype: Numeric

Representational form: QUANTITATIVE VALUE

Representation layout: NNN

Minimum Size: 2

Maximum Size: 3

Data Domain: 999   Not collected
NOVAL   Measured pressure head in millimetres of Mercury (mm Hg)

Guide For Use: For recording the systolic reading, use phase I Korotkoff (the first appearance of sound).
If Blood pressure - systolic is not collected or not able to be collected, code 999.

Collection Methods: Measurement protocol for resting blood pressure:
The systolic blood pressure is one component of a routine blood pressure measurement (i.e. systolic/diastolic) and reflects the maximum pressure to which the arteries are exposed.
-The patient should be relaxed and seated, preferably for several minutes, (at least 5 minutes). Ideally, patients should not take caffeine-containing beverages or smoke for two hours before blood

pressure is measured.
-Ideally, patients should not exercise within half an hour of the measurement being taken (National Nutrition Survey User's Guide).
-Use a mercury sphygmomanometer. All other sphygmomanometers should be calibrated regularly against mercury sphygmomanometers to ensure accuracy.
-Bladder length should be at least 80%, and width at least 40% of the circumference of the mid-upper arm. If the Velcro on the cuff is not totally attached, the cuff is probably too small.
-Wrap cuff snugly around upper arm, with the centre of the bladder of the cuff positioned over the brachial artery and the lower border of the cuff about 2 cm above the bend of the elbow.
-Ensure cuff is at heart level, whatever the position of the patient.
-Palpate the radial pulse of the arm in which the blood pressure is being measured.
-Inflate cuff to the pressure at which the radial pulse disappears and note this value. Deflate cuff, wait 30 seconds, and then inflate cuff to 30 mm Hg above the pressure at which the radial pulse disappeared.
-Deflate the cuff at a rate of 2-3 mm Hg/beat (2-3 mm Hg/sec) or less.
-For recording the systolic reading, use phase I Korotkoff (the first appearance of sound).

Wait 30 seconds before repeating the procedure in the same arm. Average the readings. If the first two readings differ by more than 6 mm Hg systolic or if initial readings are high, take several readings after five minutes of quiet rest.

Related metadata: is used in conjunction with Service contact date version 1
is used in conjunction with Blood pressure - diastolic measured version 1

Administrative Attributes

Source Document: The National Heart Foundation Blood Pressure Advisory Committee's "Guidelines for the Management of Hypertension - 1999" which are largely based on World Health Organization Recommendations. (Guidelines Subcommittee of the WHO-SH: 1999 WHO-ISH guidelines for management of hypertension. J Hypertension 1999; 17:151-83).

Australian Bureau of Statistics 1998. National Nutrition Survey User's Guide 1995. Cat. No. 4801.0. Canberra: ABS. (p. 20).

National Diabetes Outcomes Quality Review Initiative (NDOQRIN) data dictionary.

Source Organisation: CV-Data Working Group
National Diabetes Data Working Group

Comments: The pressure head is the height difference a pressure can raise a fluid's equilibrium level above the surface subjected to pressure. (Blood pressure is usually measured as a head of Mercury, and this is the unit of measure nominated for this data element.)

The current (2002) definition of hypertension is based on the level of blood pressure above which treatment is recommended, and this depends on the presence of other risk factors, e.g. age, diabetes etc (NHF 1999 Guide to Management of Hypertension).

DSS - Cardiovascular disease (clinical):
In the primary care setting, blood pressure on both arms should be measured at the first visit, particularly if there is evidence of peripheral vascular disease.

Variation of up to 5 mm Hg in blood pressure between arms can be acceptable. In certain conditions (e.g. chronic aortic dissection, subclavian artery stenosis) all blood pressure recordings should be taken from the arm with the highest reading.

Measure sitting and standing blood pressures in elderly and diabetic patients or in other situations in which orthostatic hypotension might be suspected.

Measure and record heart rate and rhythm. Note: Atrial fibrillation in a patient with hypertension indicates increased risk of stroke.

In all patients, consideration should be given to obtaining blood pressure measurements outside the clinic setting either by self-

measurement of blood pressure at home or by non-invasive ambulatory blood pressure monitoring.

Target-organ damage and cardiovascular outcome relate more closely to blood pressures measured outside the clinic, particularly with ambulatory monitoring. An accurate, reliable machine and technique are essential if home blood pressure monitoring is to be used. In up to 30% of patients who are hypertensive in the clinic, blood pressure outside the clinic is within acceptable limits ('white coat' hypertension).

High blood pressure is a major risk factor for coronary heart disease, heart failure, stroke, and renal failure with the risk increasing along with the level of blood pressure (Ashwell 1997; DHSH 1994b; Whelton 1994; Kannel 1991). The higher the blood pressure, the higher the risk of both stroke and coronary heart disease. The dividing line between normotension and hypertension is arbitrary.

Both systolic and diastolic blood pressures are predictors of heart, stroke and vascular disease at all ages (Kannel 1991), although diastolic blood pressure is a weaker predictor of death due to coronary heart disease (Neaton & Wentworth 1992).

The risk of disease increases as the level of blood pressure increases. When blood pressure is lowered by 4-6 mmHg over two to three years, it is estimated that the risk reduces by 14 per cent in patients with coronary heart disease and by 42 per cent in stroke patients (Collins et al 1990; Rose 1992.) When high blood pressure is controlled by medication, the risk of cardiovascular disease is reduced, but not to the levels of unaffected people.

In settings such as general practice where the monitoring of a person's health is ongoing and where a measure can change over time, the service contact date should be recorded.

DSS - Diabetes (clinical):
The United Kingdom Prospective Diabetes Study (1987 to 1998) showed major benefit from lowering blood pressure in preventing diabetes complications.

A target for blood pressure for people who suffer from diabetes is 130/85 mm Hg or less; recommended by the Australian Diabetes Society (if proteinuria is detected it is less than 125/75 mm Hg) Australian Medicines Handbook: last modified February, 2001).

Following the NSW Principles of Care and Guidelines for the
Clinical Management of Diabetes Mellitus for patients who suffer
from hypertension, if pharmacological intervention is required,
ACE inhibitors are the preferred agents for treating hypertension in
people with diabetes (unless contraindicated).

References:
"Guidelines for the Management of Hypertension - 1999" largely
based on World Health Organization Recommendations.
(Guidelines Subcommittee of the WHO) J Hypertension 1999; 17:
151-83.).

Diabetes Control and Complications Trial: DCCT New England
Journal of Medicine, 329(14), September 30, 1993.

UKPDS 38 Tight blood pressure control and risk of macrovascular
and microvascular complications in type 2 diabetes: UK
Prospective Diabetes Study Group. British Medical Journal (1998);
317: 703-713.

Data Element Links

Information Model Entities linked to this Data Element

NHIM   Service provision event

Data Agreements which include this Data Element

DSS - Cardiovascular disease (clinical)   From 01-Jan-03 to

DSS - Diabetes (clinical)   From 01-Jan-03 to

DSS - Acute coronary syndrome (clinical)   From 04-Jun-04 to