# The classification, diagnosis and management of the hypertensive disorders of pregnancy: A revised statement from the ISSHP

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There has never been a definite consensus on the classification and diagnostic criteria for the hypertensive disorders of pregnancy. This uncertainty is likely to have led to between-centre differences in rates of adverse maternal and foetal outcomes for the various hypertensive disorders in pregnancy, particularly pre-eclampsia.

In 2000, the International Society for the Study of Hypertension in Pregnancy (ISSHP) recognised that this lack of consensus was one reason for controversies concerning counselling, management and documentation of immediate and remote pregnancy outcomes. Accordingly, the Society appointed a committee that reviewed available classifications and endorsed and published an international recommendation for how these disorders should be classified and diagnosed in pregnancy [1]. The major stumbling block remained whether or not proteinuria should be retained as a *s n qua non* for the diagnosis of pre-eclampsia; the Society recommended that a broad definition, at times not including proteinuria, could be applied for the ***n*** ***n*** ***on*** of pre-eclampsia whilst the inclusion of proteinuria would ensure more specificity around the diagnosis when reporting clinical criteria for patients enrolled in ***s*** ***r*** . The purpose of this document is to update ISSHP thinking on this subject.

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In the years since this report, there have been a number of developments relevant to diagnosis, classification and management of the hypertensive disorders in pregnancy. One problem is the emerging concept that pre-eclampsia may indeed have several subtypes, the final clinical manifestation being the result of a maternal constitutive response to either abnormal placental function or abnormal placentation [2]. Several clinical issues need be considered.

Firstly, there has been an international move away from the use of mercury sphygmomanometry, largely for occupational health and safety reasons. This has led to the widespread use of automated blood pressure devices, many of which have not been validated for use in pregnancy, or specifically in pre-eclampsia. Secondly, there has been growing recognition of the potential inaccuracies in the measurement of proteinuria and of the potential for severe maternal complications in pregnancies complicated by de novo hypertension without proteinuria [3]. Thirdly, there has been an explosion of research in general hypertension into the disorder of white coat hypertension, such that it is imperative to distinguish between this and true chronic hypertension. Fourth, the research into the cause(s) of pre-

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Pre-eclampsia and gestational hypertension are characterised by the new onset of hypertension (≥

to diagnose pre-eclampsia superimposed upon underlying renal disease because these patients commonly have impaired GFR and/or proteinuria to begin. In these cases pre-eclampsia can generally be diagnosed when another feature

- The proteinuria persists postpartum and ultimately signifies a primary renal disease which has coincidentally developed in the pregnancy, an unusual event.

Other factors less strongly associated with pre-eclampsia include but are not limited to:

- primiparity (although pre-eclampsia may occur in subsequent pregnancies even in the absence of pre-eclampsia in the first),
- primipaternity – both changed paternity [37] and an interval greater than 5 years have been associated with an increased risk for pre-eclampsia [38],
- short duration of sexual relationship (<6 months) prior to the pregnancy [39],
- obesity,
- African American race,
- advanced maternal age,
- family history of pre-eclampsia [40,41].

Thrombophilias have no hmp-

and100 mmHg diastolic [7]. Differing authorities have

Of note, neither the serum uric acid nor the level of proteinuria should be used as an indication for delivery.

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ISSHP acknowledges the expertise and rigorous approach that has been undertaken in the development of several key guidelines including:

- NICE (5)
- SOMANZ [3]
- Canadian [8]
- ACOG (ACOG. Practice guideline WQ 24)

The key areas in which these guidelines differ are:

(1) the requirement for proteinuria in the diagnosis of pre-eclampsia (NICE)
(2) the level at which routine antihypertensive treatment of blood pressure is mandatory and the target BP thereafter
(3) when magnesium sulphate should be administered

Adopting the management recommendations of any of these guidelines is entirely justified and appropriate. Importantly, ISSHP recommends that each unit has a specific policy as to which management guidelines are to be followed so that there is uniform practice within each unit. In addition, each unit should strive to record and evaluate their maternal and foetal outcomes to ensure that their policies and guidelines remain appropriate.

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[1] Brown MA, Lindheimer MD, de Swiet M, Assche AV, Moutquin J-M. The classification and diagnosis of the hypertensive disorders of

[29] Franklin SS, Thijs L, Hansen TW, O'Brien E, Staessen JA. White-coat hypertension: new insights from recent studies. Hypertension 2013; 62(6):982–7.
[30] Brown MA, Buddle ML, Martin A. Is resistant hypertension really resistant? Am J Hypertens 2001;14(12):1263–9 (Epub 2002/01/05).
[31] Brown MA, Mangos G, Davis G, Homer C. The natural history of white coat hypertension during pregnancy. BJOG 2005;112(5): 601–6.
[32] Baweja S, Kent A, Masterson R, Roberts S, McMahon LP. Prediction of pre-eclampsia in early pregnancy by estimating the spot urinary albumin: creatinine ratio using high-performance liquid chromatography. BJOG 2011;118(9):1126–32.
[33] Kleinrouweler CE, Wiegerinck MMJ, Ris-Stalpers C, Bossuyt PMM, van der Post JAM, von Dadelszen P, et al. Accuracy of circulating placental growth factor, vascular endothelial growth factor, soluble fms-like tyrosine kinase 1 and soluble endoglin in the prediction of pre-eclampsia: a systematic review and meta-analysis. BJOG 2012;