Abstract
ABPM is an invaluable clinical tool, as it has been shown to improve blood pressure control in Primary Care. Many clinical guidelines for hypertension advocate ambulatory blood pressure monitoring. This study aims to quantify the use of clinical guidelines for hypertension and to explore the role of ABPM in Primary Care. A questionnaire survey was sent to GPs working in the West of Ireland. 88% (n=139) of GPs use clinical guidelines that recommend the use of ABPM. 82% (n=130) of GPs find use of clinic blood pressure monitoring insufficient for the diagnosis and monitoring of hypertension. Despite good access to ABPM, GPs report lack of remuneration, 72% (n=116), cost 68% (n=108), and lack of time, 51% (n=83) as the main limiting factors to use of ABPM. GPs recognize the clinical value of ABPM, but this study identifies definite barriers to the use of ABPM in Primary Care.

Introduction
Uncontrolled hypertension is a major cause of stroke and cognitive impairment and is the single most important risk contributing to 60% of all cardiovascular deaths. In Ireland, high blood pressure affects 70% of those aged 70 years and over. A substantial impact of hypertension on the community should not be underestimated. The burden of hypertension on the community, in addition to the burden of hypertension to the individual, is a significant burden on health services. In primary care, the burden of hypertension is set to increase in an aging population. In the absence of effective treatment, such as lifestyle change and medication, the problem of uncontrolled hypertension and its ill effects. International research in this area has yielded practice-changing clinical guidelines, many of which recommend the use of ambulatory blood pressure monitoring (ABPM).

Most recently, in 2011, the National Institute for Health and Clinical Excellence (NICE) has published the Clinical Guidance for the Management of Primary Hypertension which recommends ABPM for routine diagnosis of hypertension in Primary Care. A prominent Irish study has shown that ABPM significantly improves blood pressure control in primary care. Work in this area has revealed circadian rhythm abnormalities on ABPM that are related to increased cardiovascular events and mortality. ABPM is the gold standard for diagnosis of hypertension, provides a clearer picture of blood pressure and can reveal cases of white coat and masked hypertension. In Ireland there is currently no evidence quantifying the use of clinical guidelines for hypertension in Primary Care. This merits of ABPM are well described and this study aims to quantify the use of clinical guidelines for hypertension and identify the role of ABPM in General Practice and barriers to its use.

Methods
This is a cross-sectional quantitative study. A postal questionnaire was designed and piloted initially to ten GPs and modified accordingly. The final questionnaire was then sent to all 240 GPs registered for General Medical Services in counties Galway, Roscommon and Mayo in September 2010. A short covering letter explaining the purpose of the study was included with a stamped addressed envelope for the reply. The principles of increasing response rates to postal questionnaires include investigation and acknowledgement of all responses were anonymous. The questionnaire sought information about demographic details, use of clinical guidelines for hypertension, which guidelines were used, opportunities for training, local support and limitations to use of ABPM. In total the questionnaire consisted of 12 questions with a tick-box answer format. Included with the tick-box questions were free text sections for questions relating to which clinical guidelines are used, reported use of ABPM and reported limitations to use of ABPM. Results were analysed using Epi Info, version 3.5.1. The Chair of the Research Ethics Committee of the Irish College of General Practitioners ruled that this study did not require ethical approval, as this study does not involve any access to patients or patient data and only involved a questionnaire survey of healthcare workers who are not identifiable.

Results
The response rate was 68% (n=162). Table 1 illustrates the demographics of the respondents. 88% (n=139) of GPs use clinical guidelines for hypertension. The British Hypertension Society Guidelines (BHS) for the Management of Hypertension 2004 was reported as the most commonly used [60% (n=83)] and the European Society for Cardiology/European Society for Hypertension 2007 Guidelines was reported as being used by 36% (n=50) of GPs. Least commonly used by 4% (n=0) was the 2003 World Health Organisation (WHO)/International Society of Hypertension (ISH) Guidelines for Hypertension. These three clinical guidelines advocate the use of ABPM for the investigation of hypertension for certain indications. 82% (n=130) of GPs were of the opinion that the use of clinic sphygmonanometer only is insufficient for the diagnosis and monitoring of hypertension. 89% (n=141) of GPs have access to ABPM. Within this group, 89% (n=126) can access this form of monitoring within their own surgery and 11% (n=15) source it outside of the surgery, from a local hospital or neighbouring practice. Of those who do not have access to ABPM, 28% (n=5) believe that use of clinic sphygmonanometer alone is sufficient for diagnosis and monitoring of hypertension. Within the group that has access to ABPM, 63% (n=117) stated that they have used ABPM, 36% (n=111) alone is not enough for diagnosis and monitoring of hypertension. White-coat hypertension is reported as the most common clinical indication for use of ABPM [84% (n=136)]. 73% (n=118) use ABPM in newly diagnosed cases of hypertension. 46% (n=75) used ABPM to monitor response to antihypertensive treatment. Other indications reported by GPs include investigation of suspected cases of hypertension, hypertension in pregnancy and convincing the patient of having a diagnosis of hypertension. Table 2 shows the factors that were considered a limitation to the use of ABPM. 74% (n=104) of GPs who have access to ABPM, cite lack of remuneration as the main reason for its lack of use. 89% (n=16) of GPs who don't have any access to ABPM, cite cost as being a limiting factor for use of ABPM.

Discussion
This study shows that most GPs use clinical guidelines for the diagnosis and management of hypertension. The two sets of guidelines used most frequently both advocate the use of ABPM. This study shows that GPs recognise the clinical benefit of ABPM, as 82% (n=130) of GPs finding use of CBPM alone is insufficient for the diagnosis and monitoring of hypertension. Most GPs have good access to ABPM in either their own surgery or elsewhere. Their use of ABPM correlates with clinical guideline recommendations. However despite this, this study identifies definite limitations to the use of ABPM in Primary Care today. Lack of remuneration, cost and lack of time are the main barriers for the use of ABPM within the patient population in this study. Understandably these are practical limitations and have a direct relationship to each other.

Since carrying out this study, NICE have published a draft for consultation of its 2011 guideline for the Clinical Management of Primary Hypertension. This NICE guideline now recommends ABPM for routine diagnosis of hypertension in Primary Care. Also NICE now state that use of CBPM alone for diagnosis of hypertension leads to inaccurate diagnosis and may result in the misdiagnosis of a significant number of patients who are actually hypertensive. For these new guidelines, NICE have carried out the largest cost-benefit analysis of ABPM and this showed clearly that use of ABPM provides substantial savings for the NHS. Previously, it has been shown that use of ABPM reduces treatment cost by 14% and results in fewer anti hypertensives being prescribed. Medication costs are one of the biggest expenses directly related to hypertension. ABPM use is now approved and remunerated by Medicare and Medicaid in the US. Given the clinical importance of ABPM, the Health Service Executive should formally recognise the clinical and the economical benefit of ABPM in Primary Care and offer appropriate remuneration to GPs in Ireland for its use in practice.

This study does have some limitations. Firstly, questionnaire surveys may not accurately reflect what actually happens in practice. Secondly the study only examined one area in Ireland. The current practice in different regions may differ. However given the response rate, the number of practices surveyed and the equal response rate from rural and urban practices, the findings of this study are likely to reflect the use of ABPM throughout the country. Hypertension is a serious health concern. ABPM is an invaluable clinical tool in Primary Care. However definite barriers exist...
limiting the use of ABPM. Incentivizing the use of ABPM in Primary Care would increase the use of this form of
monitoring, effectively tackle the growing problem of hypertension and in turn, have positive economic effects.

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