INTRODUCTION:
The role of routine portable ultrasound in the placement of central vascular catheters (CVCs) has been debated. The use of ultrasound to aid in the Internal Jugular Vein (IJV) cannulation is shown to improve success rates and decrease the need for multiple attempts, but it has not been worldwide adopted, probably because of cost and training issues. Additionally, the Central of Diseases Control (CDC) of the United States of America recommends the Subclavian Vein (SV) as the standard choice for CVCs due to low infection rates compared to others puncture sites but, in this anatomical landmark ultrasound is not much helpful due to clavicle bone acoustic shadow and anatomic position of the SV. By the past recent years a couple of guidelines and papers have been published suggesting that the use of ultrasound improves safety and efficacy when a central venous access is needed, although most studies examine ultrasound for IJV cannulation with mixed results. Moreover, when analyzing from a worldwide aspect, ultrasound is not exclusively available for this purpose in all hospitals. Recently a report published by the American Society of Anesthesiologists task force on central venous access suggests the routine use of a real time ultrasound for obtaining a central venous line. This led us to test the hypothesis whether the ultrasound device is really an essential tool for placing a central venous access.

METHODS:
A data collection sheet was created in order to record the collected data and this was subsequently analyzed. Medical chart review from this prospectively maintained database was performed from January 2002 to June 2013. 550 patients data, submitted to CVCs procedure were analyzed. The team was composed by two experienced surgeons with more than 100 cases registered.

CONCLUSION:
Based on the results here in presented, authors verified that the US is not an essential tool for placing CVCs in experienced hands, although it helps in specific cases. Attempts of cannulations with no US help presented with high successful rates and low rate of complications when experienced physician performs the procedure. When focusing in SV cannulation, anatomic landmarks are still effective and can be safely performed without the use of the US. This research does not apply for professionals under procedure learning curve. Even though there are a number of recent papers stressing the use of the ultrasound as an essential tool in placing CVCs, this device is not available at all institutions and localizations for this purpose and this is not currently standard of care worldwide yet, justifying a good rationale for this study to happen.

RESULTS:
Males were slightly predominant, corresponding to 51.3% (n=282) of the total population. The most often cannulated vein was the SV (n=451/81.95%). Right subclavian vein (RSV) was the first choice for cannulation (n=410/74.5%). 83.45% (n=459) of the punctures were immediately successful on first try. Registered complications were arterial puncture (n=36/6.54%), hematoma (n=16/2.90%) and pneumothorax (n=4/0.72%). Ultrasound was used in selective cases – previously know as difficult cases.

When the surgery team was advised by the clinical team as “difficult access” patient, when suspicion of thrombus was present, when the patient had a BMI over 40, when anatomic distortions were present. Following these criteria, ultrasound was utilized in 40 cases only (7.27%). From these forty patients, 8 (20%) needed more than one puncture attempts. On the total of 36 arterial punctures 10 (27.7%) were with the use of the ultrasound and were mainly related with anatomic distortions and hypotensive patients (SBP < 100 mmHg). From all cases that evaluated with hematoma (2.90%) after puncture, 25% (n=4) were when using the ultrasound.

FIGURE 1: Study design flowchart

There were no pneumothoraces related to the use of ultrasound since this complication was after the attempt of cannulation of the RSV. From 4 pneumothoraces complications, 3 happened on the first puncture try and 1 coursed associated with a hemothorax.

FIGURE 2: showerd elevation

FIGURE 3: IJV thrombosis on US view