P-233 - ECONOMIC EVALUATION OF A HEEL INCISION DEVICE COMPARED TO A PUNCTURE LANCET DEVICE FOR SAMPLE COLLECTION BY HEEL STICK IN NEWBORNS

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INTRODUCTION: Every infant born in Mexico is screened at around three to five days after birth using heel-stick blood spots collected with a sterile puncture lancet device (PLD) or a heel incision device (HID), to detect a variety of congenital conditions. Incision devices were specifically designed for sampling blood from newborn’s heel; however, in most public screening programs in Mexico, PLD are still used, although these require a greater number of heel sticks and the procedure is more traumatic than with a HID. Several studies have reported that pain, puncture frequency, duration of procedures and tissue damage are significantly reduced with the use of HID, since they have a higher efficacy than PLD. This analysis was performed to determine whether using HID is cost-effective in Mexico.

OBJECTIVE: To carry out a complete economic assessment regarding cost-effectiveness for a public newborn screening program in Mexico.

MATERIALS AND METHODS: Efficacy data for heel-stick performed by different nurses using a HID or a PLD, was obtained in the literature. A random effect model was used obtain the mean of the number of required punctures and the probability of repeating the blood sampling with each device. A decision model explained the associated probability of having to repeat the blood sampling in newborns with each alternative. A univariate sensitivity analysis on the price of the alternatives and the measures of effectiveness was performed. The chosen option was the one that showed the lowest incremental cost-effectiveness ratio (ICER) among the alternatives.

RESULTS: Sample collection data from 520 neonates were evaluated, 259 procedures were made with PLD and 261 with HID. 96.2% of procedures with HID, required only one puncture to obtain a suitable blood sample, compared to 68.0% of procedures with PLD. The total cost of a newborn screening procedure in a public institution in Mexico, with a HID is lower, compared to the PLD, due to the greater efficiency that HID present. ICER obtained was US-$7.44 per patient.

CONCLUSION: The use of HID represents a cost-saving strategy when used to perform heel sticks in public health institutions in Mexico, compared to PLD.