P-204 - 17OH-PROGESTERONE BIRTH WEIGHT-ADJUSTED CUT-OFF VALUES: THE IMPORTANCE OF THEIR PERIODIC REDEFINITION AND THEIR IMPACT ON THE NEWBORN SCREENING SPECIFICITY.

Borrajo GjC, Castillo PI

**INTRODUCTION:** Newborn screening (NBS) for Congenital Adrenal Hyperplasia is strongly influenced by gestational age and birth weight (BW). Both variables critically affect the NBS specificity; recall rate (RR) and rate of newborns referred for confirmatory testing (CT). Fundación Bioquímica Argentina implemented a 17OH-Progesterone (17OHP) BW-adjusted cut-off value (CO) for the first time on Dec/1997, having changed it several times in response to changes in the kits reagents design and the methods performance, or due to a periodic plan for CO redefinition. **OBJECTIVE:** To describe the performance of the actual 17OHP BW-adjusted CO implemented on Jul/2018 in comparison with the previous CO, in real-time and retrospectively, and their impact on NBS specificity and on the actions required when an abnormal result was obtained.

**MATERIALS AND METHODS:** 17OHP was measured using the AutoDELFIA Neonatal α-17OH-Progesterone kit. Actual and previous CO were defined analyzing results of 167,264 and 44,172 newborns screened in 2017 and 2009 respectively. Actual-CO: BW<815g: 246.0nmol/l; BW=[815-4270]g: order-6-polynomial function; BW>4270g: 23.0nmol/l. Previous-CO: BW<900g: 110.0nmol/l; BW=[900-3650]g: order-4-polynomial function; BW>3650g: 22.3nmol/l. Newborns screened: Jan-Jun/2018 (Retrospective Evaluation): 87,219; Jul-Dec/2018 (Real-time Evaluation): 83,739. Parameters analyzed: RR and number of newborns requiring collection of a second sample (SS) or their direct referral for CT. **RESULTS:** Retrospective Evaluation: using the previous-CO, 377 newborns (0.43%) showed abnormal results, 358/377 requiring a SS and 19/377 their referral for CT. When these newborns were retrospectively evaluated using the actual-CO, such parameters were 154 (0.18%), 145/154 and 9/154 respectively. Real-time Evaluation: using the actual-CO, 152 newborns (0.18%) had abnormal results, 147/152 requiring a SS and 5/152 their referral for CT. When this last population was analyzed using the previous-CO, 195 other newborns became abnormal (total-RR=0.41%), 178/195 requiring a SS and 17/195 their referral for CT. A detailed analysis showed that the higher impact of implementing the actual-CO was on newborns ≤2500g with a RR reduction of 90.0%. **CONCLUSIONS:** CO periodic redefinition is a recommended good laboratory practice that improves NBS diagnostic exactitude. Imperceptible day-to-day changes in the population distribution can affect the NBS specificity. More efficient CO definition is possible when large newborn populations are analyzed, especially for low-BW newborns.