# Challenges in genetic counseling in hereditary cancer syndromes in a Mexican oncologic center

Diana Cristina Pérez-Ibave[1]*, María Lourdes Garza-Rodríguez[1,2], María Fernanda Noriega-Iriondo[1], Omar Alejandro Zayas-Villanueva[1], Fernando Alcorta-Nuñez[1], Juan Francisco González-Guerrero[1], Adelina Alcorta-Garza[1], David Hernandez-Barajas[1], Oscar Vidal-Gutiérrez[1] and Carlos Horacio Burciaga-Flores[1]*

1 Universidad Autónoma de Nuevo León, Hospital Universitario "Dr. José Eleuterio González", Centro Universitario Contra el Cáncer, Av. Francisco I. Madero S/N, Mitras Centro, Monterrey, Nuevo León, México, 64460.

2 Department of Molecular Science, Medicine School. University of Texas Rio Grande Valley. 5300, N.L. St, McAllen Tx. 78504. USA

**Background:** In Mexico, hereditary cancer is underdiagnosed, medical geneticists give genetic counseling, but the access is limited due to the socio-economic characteristics of the population. The CUCC (Centro Universitario Contra el Cáncer) Early Cancer Detection Clinic (CECIL) created a model in which patients without cancer are enrolled in a prevention cancer screening program.

**Methods:** From 2016 to 2021, 3014 patients were enrolled in the prevention program. Patients were evaluated with a hereditary cancer risk survey before a consultation. Those with at least one familial hereditary risk positive answer were assessed in a consultation. We also included patients with cancer diagnoses referred by oncologists of the CUCC. Those who fulfill hereditary cancer criteria were referred for genetic testing.

**Results:** A total of 1119 subjects were evaluated. Of these, 248 (21%) were candidates for genetic testing, only 149 (60%) could be analyzed, 52 probands (59%) and 32 relatives (51%) had at least one variant. Among the probands: 33 had HBOC (Hereditary Breast and Ovarian Cancer syndrome), 7 had Lynch, 1 LFS (Li-Fraumeni syndrome), 1 LFLS (Li-Fraumeni like syndrome), 1 FAP (Familial Adenomatous Polyposis), and 9 had benign variants. In the relative's group: 17 had Lynch, 10 HBOC, 1 LFS, and 4 FAP. To date, 3 patients under surveillance had an *in situ* lesions (1 endometrial and two colon), and 3 more had a premalignant colon lesion, one in the not tested group. To achieve the genetic test cost for the probands, 50% had partial sponsors, 31% paid for their tests, research projects were supported by 13%, and 4.5% were donations. Among relatives, 94.4% paid for the tests, and 5.5% were supported by research. All relatives were tested using an in-house low-cost test.

**Conclusion:** The model's success made awareness of these diseases, leading last year to the formation of a state detection program, including all public and private health institutions attending to patients with cancer, these patients are referred to CECIL. We found an effective way to find support low-cost genetic testing via foundations.