# International Conference on Women Health

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## How Often Are Identity Mismatches Truly Detected in ART?

**Abstract:**

Patient and specimen identification remains one of the most critical safety priorities in assisted reproductive technology (ART), yet published error estimates vary widely depending on the witnessing method used. In this multi-site retrospective cohort analysis, we examined de-identified routine operational data from ten ART clinics across Europe, using a barcode-based electronic witnessing system to quantify true identity-related mismatches detected during laboratory workflow. Across 414,500 recorded procedures, 203 non-clinical entries, including 175 system Error events and 28 Incomplete cycles, were excluded, leaving 414,297 procedures for primary analysis. Within this dataset, 2,399 true identity-related errors were identified, corresponding to an overall rate of 0.58% (95% CI 0.56%–0.60%). Error subtypes included no match/unclassified events in 1,452 cases (60.5% of true errors), wrong patient in 718 cases (29.9%), wrong item in 146 cases (6.1%), and too many barcodes in 83 cases (3.5%). Importantly, no identity mismatch in this cohort was recorded as progressing to a completed procedure involving the wrong patient, consistent with the blocking design of the electronic witnessing system. These findings show that barcode-based witnessing systems can identify and interrupt mismatches before procedural progression, while also highlighting the need for better harmonisation of error categorisation to improve subtype interpretation, benchmarking, and clinical prioritisation in ART laboratories.

**Keywords:** Assisted reproduction; ART safety; electronic witnessing; patient identification; traceability; laboratory errors.

**Biography:** Ramona-Olivia Girnita is a Developmental Biology Expert at Mercor Intelligence, where she leads the advancement of cutting-edge artificial intelligence (AI) systems by training and stress-testing their capacity for complex biological reasoning. She began her career at the forefront of the COVID-19 pandemic, serving as an RNA-Extraction Section Supervisor at one of the UK's largest testing centres. Following this, she broadened her expertise in microbiology at Thermo Fisher Scientific while further specialising in Clinical Embryology and Assisted Reproductive Technology. Throughout her career, she has maintained a rigorous focus on quality assurance and risk reduction; her current research examines how AI integration can fundamentally strengthen safety and eliminate error in modern laboratory practice.