

# Electronic Witness System makes patients less concerned about biological sample mix-up errors and comfortable with IVF clinical practice.

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## Background:

Even if generally recognized as a very rare event in IVF, it has been reported that biological sample mix-up can occur. For this reason, some IVF laboratories have introduced the electronic witness system (EWS) in order to minimize the risk of error during the handling of biological samples. However, no studies have investigated how patient's view of IVF can be influenced after the implementation of such technology.

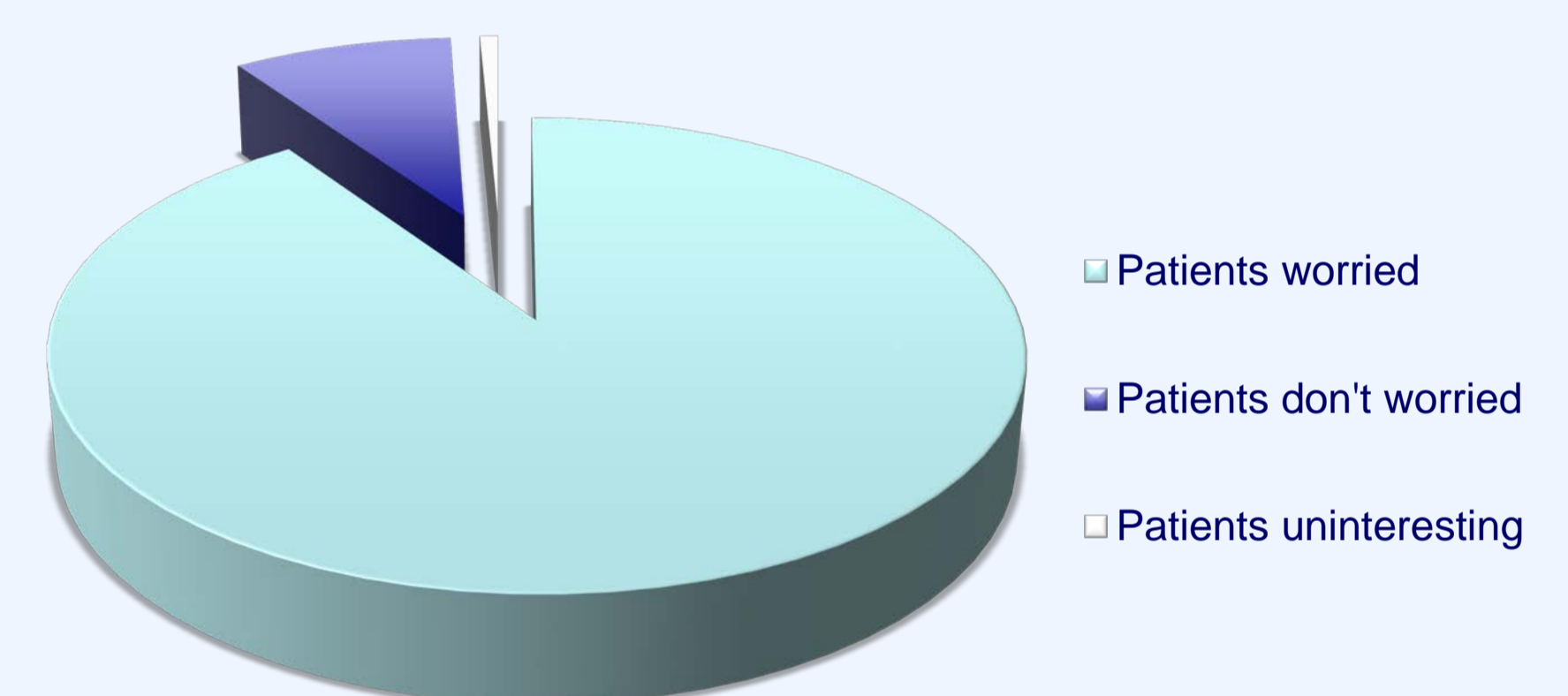
## Materials and methods:

We performed a prospective study on 408 infertile patients attending an IVF cycle in a single private center equipped with IVF witness (RI) between January 2013 and December 2014. At the embryo transfer patients were given a specific questionnaire developed in 8 items to evaluate patient's worries about IVF errors and EWS satisfaction, through a likert scale ranging from 1 to 6. Data obtained before (204 patients), and after (204 patients) a resounding embryo mix-up event in an Italian Hospital, during the course of the study, were also compared, to assess if this significant event could influence the patient's perspective on mix-up errors and their liking respect to EWS. Finally, the distribution of scores about mix-up errors concerns and EWS satisfaction, was observed in a narrow time window around the mix-up event.

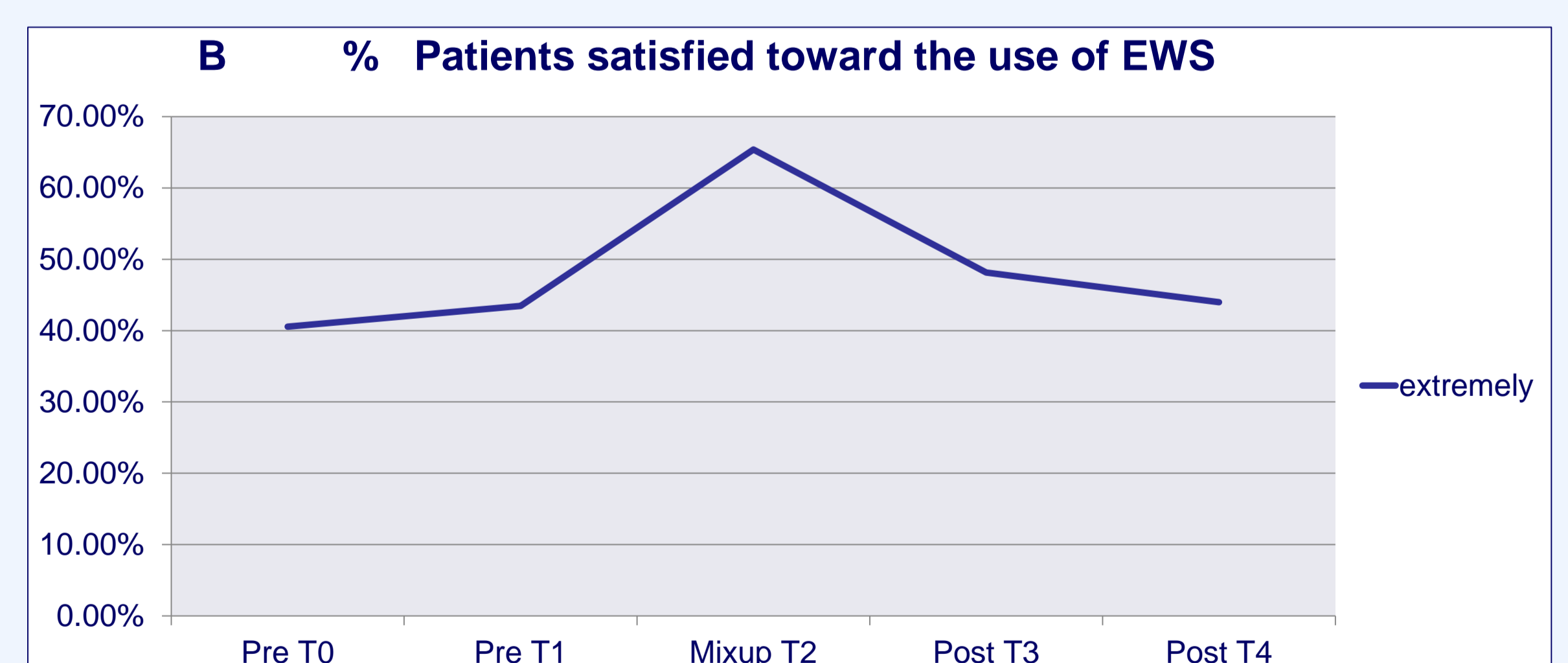
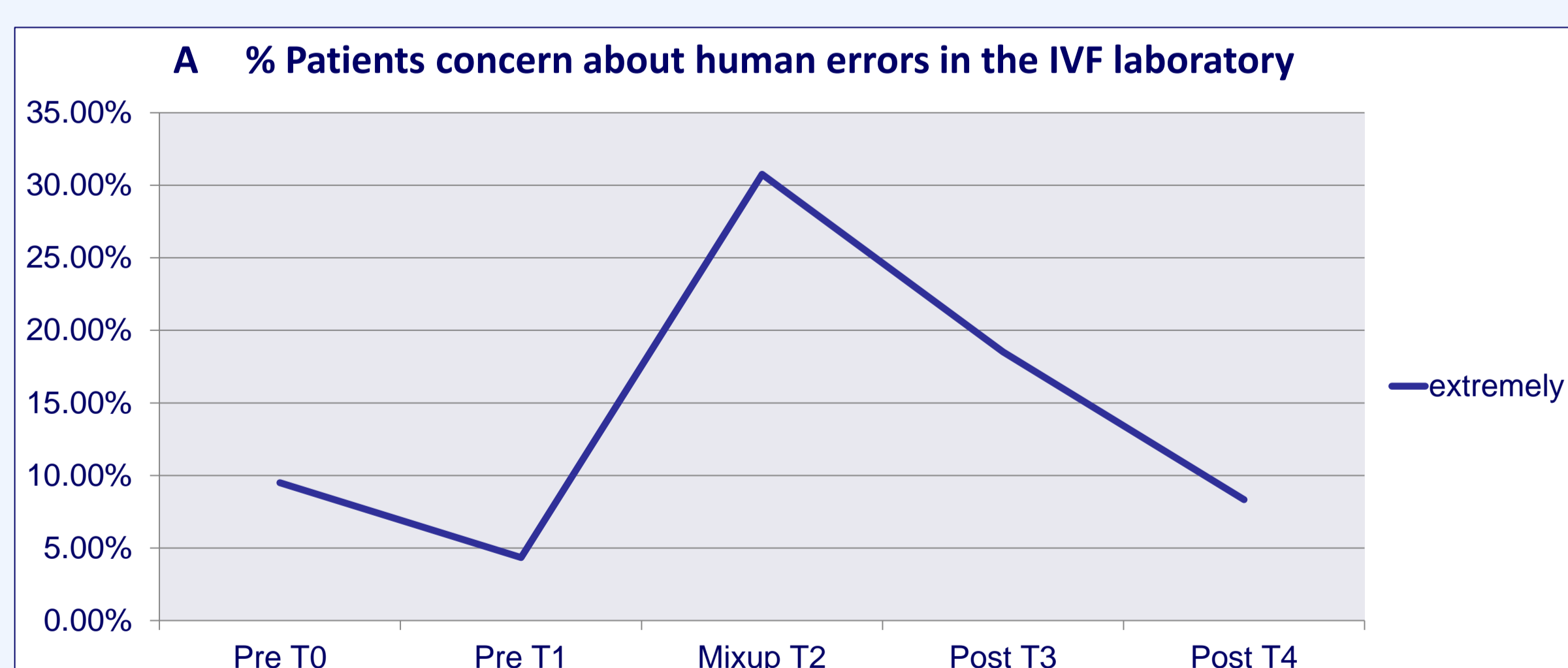
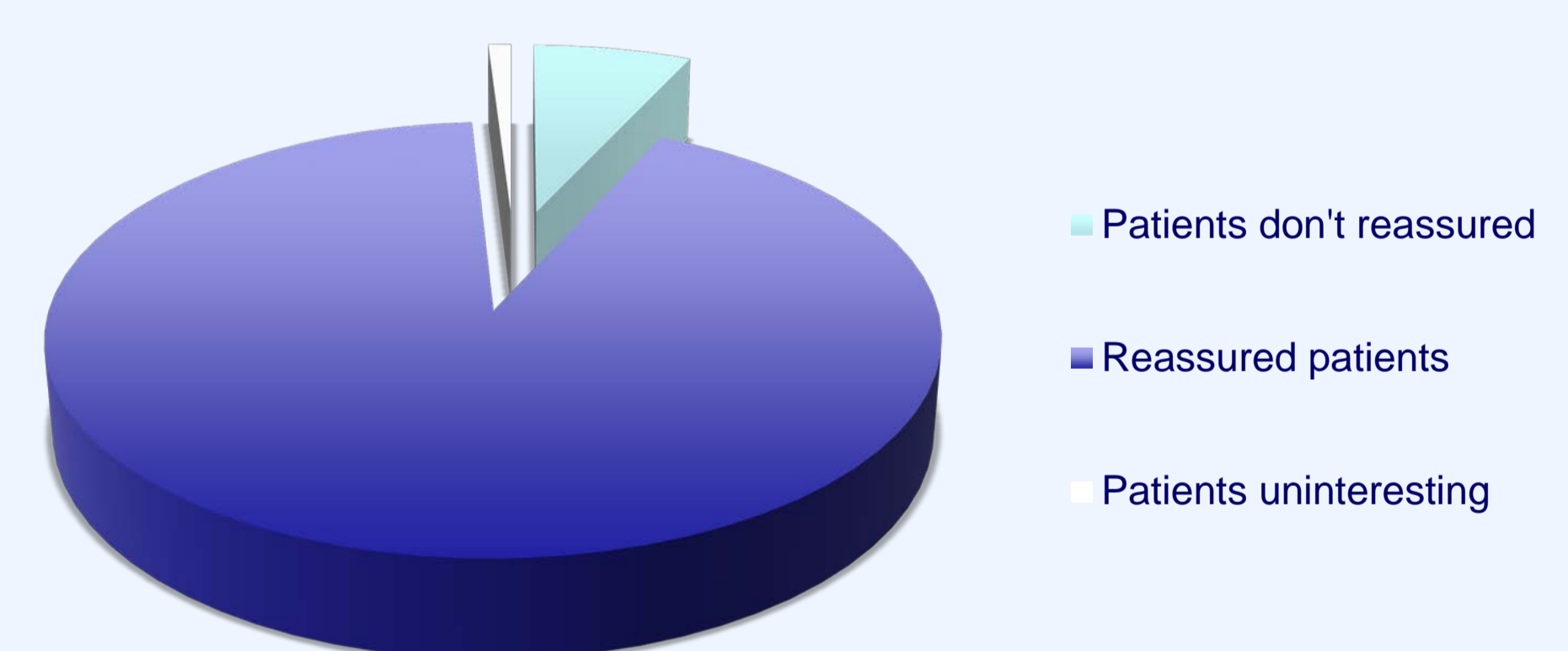
## Results:

Most of the patients (83%, 339/408; 95%CI =79.1-86.6) were poorly aware of potential sample mix-up in IVF. However, when informed, (90,43%, 369/408,95%CI=87.2-93.1) expressed significant concerns. The use of an EWS in our Clinic reduced concerns about mismatch errors in (92,15%, 376/408,95%CI= 89.1-94.6) of patients. (97,06%, 396/408,95%CI=94.9-98.5) of patients were particularly satisfied with the electronic traceability of their gametes and embryos in the IVF laboratory. (97,1%, 398/408,95%CI=95.5-98.8) of patients felt highly comfortable with an IVF centre equipped with an EWS. Interestingly, a mix-up event happened during the course of the study and patient's satisfaction increased significantly towards the traceability and the clinical use of EWS (P=0.032) after the event. At the time of the critical event, we observed a significant increase (P<0.01) in the number of patients showing extreme concerns about the possibility of a human error in the procedures, as well as in patients showing extreme satisfaction toward an IVF clinic using EWS, compared to patients receiving the interview in the immediate pre and post event period.

MIX - UP ERROR WORRIES: % patient



MIX-UP ERROR WORRIES REDUCTION : % patient



**Figure A –B**  
Pre T0= between 30 and 15 days before; Pre T1= 30 days before ; T2= in the 15 days following the mix-up event ; Post T3= between 15 days and one month after; Post T4= in the following 15 days

## Conclusions:

EWS was shown to reduce patient's concerns and increase their confidence in the IVF clinic especially after a dramatic mix-up event occurred. As known, patients can be stressed during an IVF treatment and EWS can be an effective resource to alleviate them from additional distress. Therefore, EWS can be highly recommended not only to assist clinicians and embryologists but also for the patient's wellbeing and to make them feel more comfortable during IVF.