

A web-based support system of the Belgian Register for Assisted Procreation



Nicolas Gillain¹, Kris Bogaerts², Adelin Albert¹, Michèle Guillaume¹, Emmanuel Lesaffre²

¹ Department of Public Health, University of Liège, Liège, Belgium

² I-BioStat, KU Leuven and University Hasselt, Leuven, Belgium

KU LEUVEN

INTRODUCTION

“Assisted reproductive technology (ART)” is defined as all treatments or procedures that include the in vitro handling of both human oocytes and sperm or of embryos for the purpose of establishing a pregnancy. “In vitro fertilization (IVF)” is a quite complex ART procedure involving extracorporeal fertilization. Sometimes, non-IVF techniques with lower technological involvement can be tried. Nevertheless, the ART process always entails a little more risk in comparison to spontaneous pregnancies for both mothers and children.

1978 - World's first baby successfully conceived through IVF born in Great Britain

1983 - First baby resulting from an in vitro fecundation born in Belgium

1989 - ART data recorded by BELRAP (Belgian Register for Assisted Procreation)

1999 - National College of Physicians for Reproductive Medicine installed by Ministerial decree in Belgium

1999 - Registration becomes mandatory for all IVF cycles

2003 - New law established for the reimbursement of ART laboratory costs limiting the number of embryos for transfer to reduce the multiple pregnancy rate by 50%

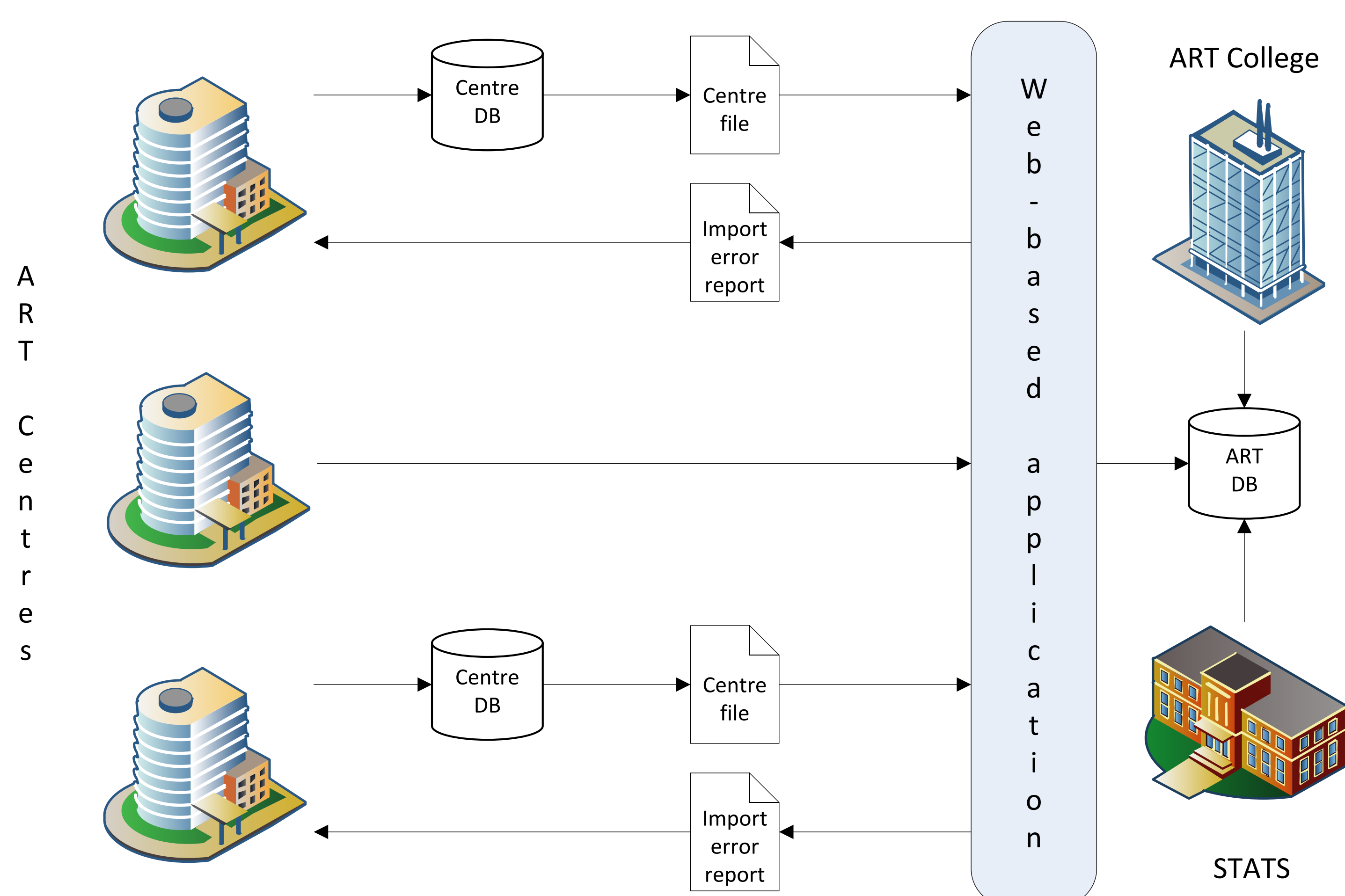
2006 - Registration becomes mandatory for all non-IVF cycles stimulated with gonadotropins

Faced with the growing management of data and information collected from ART procedures, there was a need for a system to collect, control and regulate these treatment cycles in view of minimising the potential risks.

METHODS

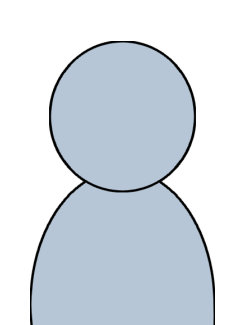
Internet site: www.belrap.be

- Bi-lingual (French and Dutch) web-based system
- Upload or fill in data on a cycle basis by ART centres
- Immediate quality report indicating errors, inconsistencies and missing data
- Online reviewing of the data status
- Access to global and individual statistical reports
- Extraction of data to produce yearly statistical reports
- Generation of the list of reimbursable cycles

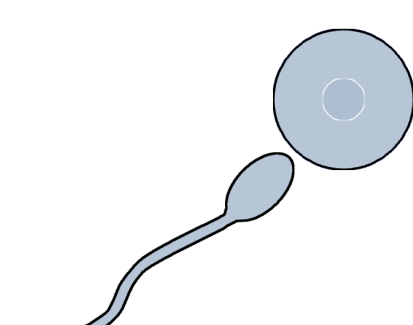


SOME STATISTICS

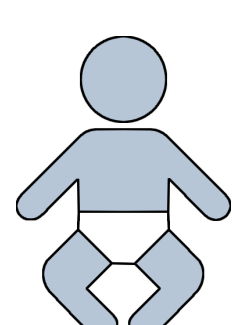
www.belrap.be
since 2009



> 200 users



> 295,000 cycles



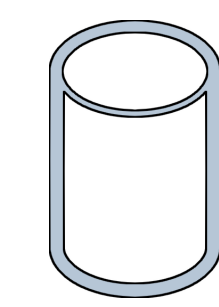
> 30,000 babies

RESULTS

The use of the web-based application offers several advantages:

- The application is accessible from anywhere with no specific software installation
- All data are centralized in one remote and secure database
- Every update is immediately available to all users

Data types

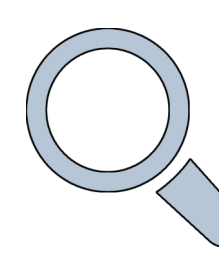


Since 2008, the terminology used is based on the ART Glossary published by the International Committee for Monitoring Assisted Reproductive Technology (ICMART).

An IVF cycle record contains 124 fields (e.g. “Labo rank”, “Pregnancy outcome”).

A non-IVF cycle record contains 46 fields (e.g. “Intrauterine insemination”, “Ovarian stimulation”).

System description



Everyone can access the public part of the website to consult information about the College and its activities, the annual Belgian reports as well as the list of ART centres.

Only authenticated users can access the private part. The privilege level will determine which functionalities the user can access on the website.

Before any new cycle is started, the ART centre needs to ask for a unique number (the BELRAP identification number) to identify the cycle for the data transfer. This mainly requires the following items:

- IVF / non-IVF cycle
- Social Security Identification Number (SSIN) of the woman and partner. The SSIN uniquely identifies individuals in the Belgian healthcare system.

There are two ways to manage IVF and non-IVF cycle and baby data:

- Uploading a file with the data (if the centre has its own application)
- Using the web pages developed to manage the data online

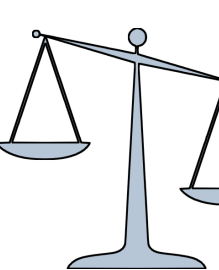
Quality control



There are 4 kinds of codification rules for the IVF and non-IVF data:

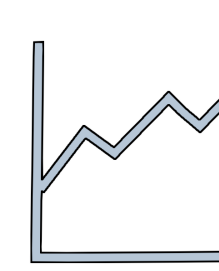
- Error rules generally related to the format of the data (compulsory)
- Missing rules (informative)
- Inconsistency rules between several fields (compulsory)
- Other rules (compulsory)

Ethics



For privacy and confidentiality reasons, the SSIN is encrypted in an irreversible way before being stored in the database.

Data analysis



The data are analysed and a global statistical report is published online on a yearly basis. Each ART centre receives an individual report to compare itself to the overall statistics and to localize itself to the other centres in an anonymous way.

DISCUSSION

The system and data collected can serve several purposes:

- Using the data collected for research studies
- Addressing a public health objective
- Controlling the quality and consistency of the data

A simplification of the registration and an improvement of the import and export procedures will further increase the quality of data and usability of the system.

ACKNOWLEDGMENTS

National College of Physicians for Reproductive Medicine in Belgium

MORE INFORMATION

nicolas.gillain@ulg.ac.be



<http://bit.ly/BELRAPBiomed15>