

SIGNIFICANT IMPROVEMENT IN LABORATORY OUTCOME DATA FOLLOWING REPLACEMENT OF "TRADITIONAL" LARGE, SINGLE-CHAMBER INCUBATORS WITH "MINI" INCUBATORS

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Objective: So-called mini incubators have been available for over 18 years but only recently have grown in popularity over the cheaper, large "Big Box", single-chamber, multi-door, jacketed style incubators in IVF clinics. The claimed advantages of mini incubation are ease of use, faster internal environment recovery times following opening for both temperature and pH, along with the direct injection of certified medical grade gas mixtures as opposed to lab air as a component. Essential laboratory outcome data were compared from 12 months before transition to 9 months after transition from "Big Box" to mini incubation.

Design: Retrospective data analysis at a private fertility clinic

Materials and Methods: We replaced 12 ThermoForma[®] large incubators set up for triple gas operation with 16 Planer BT-37 mini incubators (Origio), connected to a medical gas mix of 6/5/89% CO₂-O₂-N₂. There was no change to the culture media (G series, Vitrolife[®]) or method of culture (30 microliter droplets under Ovoil[®]).

Results: See Table

Parameter	"Big Box" (%)	"MINI" (%)	P-value
M2 to 2PN Natural	5498/6212 (88)	4190/4269 (98)	0.0001*
M2 to 2PN ICSI	6065/8265 (73)	4418/5882 (75)	0.0218*
Average Blastocysts Cryopreserved	4.0	4.4	NS
Cycles with Cryopreservation	460/1146 (40)	371/853 (43)	NS
Pregnancy - Donors	51/101 (50)	46/83 (55)	NS
Pregnancy - <35	163/373 (44)	125/270 (46)	NS

* Chi-Square with Yate's Correction

Conclusions: Mini incubators are convenient and economical to use and deliver results that are at least on par, if not significantly improved, over conventional Big Box incubators. They are not inexpensive and only hold about half the number of patient's dishes, but their smaller size limits the negative effects of exposure to a degraded gas environment and slow temperature recovery each time the incubator is opened – a virtue in our opinion that results in direct improvement for patients.