

# One Step versus Two Step tests for gestational diabetes screening: systematic review and metaanalysis of the randomized trials

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#### ABSTRACT

- Background: Carbohydrates disorders in pregnancy, including gestational diabetes mellitus (GDM) are most common morbidities complicating pregnancy, with short- and long-term consequences to mothers, fetuses, and newborns. Worldwide controversy exists regarding the best method and criteria for GDM screening and diagnosis.
- **Objective:** To assess both the prevalence of GDM by the one-step and the two-step methods and to compare the maternal and neonatal outcomes.
- Data Sources: Electronic databases (i.e. MEDLINE, Scopus, ClinicalTrials.gov, EMBASE, Sciencedirect, the Cochrane Library at the CENTRAL Register of Controlled Trials, Scielo) were searched from their inception until January 2017.
- Study eligibility criteria: We included all randomized controlled trials (RCTs) comparing the one-step with the two-step methods for the screening and diagnosis of GDM.
- **Results:** 3 RCTs (2,301 women) were included as they compared the one-step with the two-step methods for the screening and diagnosis of GDM. In each one there are a study group undergoing One-step 75 g test and a control group undergoing Two-step 100 g test. Regarding GDM rate, 2 RCTs reveal an incidence more than double in the study group respect to control group (14.5% vs 6%; 4.3% vs 0.0%), while in one RCT there are no differences (3.6% vs 3.7%). Maternal and neonatal outcomes have been analyzed only in 2 studies. Sevket's RCT reveals that women GDM-negative by IADPSG had better perinatal outcomes than women GCT-negative and women GCT-positive with a negative OGTT; Scifres' RCT concludes that rates of macrosomia, cesarean delivery, and pregnancy-induced hypertension were also similar between groups. Not all our outcomes were studied in selected RCTs. GDM rate was 8.4% in women screened with One step approach, 4.6% in women screened with Two step method (RR 1.74, Cl 95% 1.21 to 2.52). Regarding cost-effectiveness, only one RCT reported this analysis.
- **Conclusion**: One step test has a higher rate of GDM diagnosis despite Two step test. Despite continuing controversy regarding if the One Step test or the Two Step tests should be used for GDM screening, we didn't find enough data in literature. Only well designed RCTs comparing One-step versus Two-step approach including huge populations could answer to this question.

### RESULTS

Table 1. Maternal outcomes (Step 1 vs Step 2).

	GDM rate	Gestational hypertension	Preeclampsia	РТВ	Shoulder dystocia	Induction	Cesarean
Meltzer, 2010	3.6% (18/486) vs 3.7% (18/485)	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
Sevket, 2013	14.5% (56/386) vs 6% (24/400)	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
Scifres, 2014	4.3% (1/24) vs 0.0% (0/23)	Not stated	4.3% (1/24) vs 0.0% (0/23)	Not stated	4.3% (1/24) vs 0.0% (0/23)	18.2% (4/24) vs 26.1% (6/23)	8.7% (2/24) vs 8.7% (2/23)
Total	8.4% (75/896) vs 4.6% (42/908)	Not stated	4.3% (1/24) vs 0.0% (0/23)	Not stated	4.3% (1/24) vs 0.0% (0/23)	18.2% (4/24) vs 26.1% (6/23)	8.7% (2/24) vs 8.7% (2/23)
RR (CI 95%)	1.74 (1.21-2.52)	Not stated	1.96 (1.48-2.59)	Not stated	1.96 (1.48-2.59)	0.78 (0.35- 1.76)	0.98 (0.35- 2.71)

#### Table 2. Perinatal outcomes (Step 1 vs Step 2).

	Birth weight	Stillbirth	Macrosomia	LGA	SGA	Neonatal hypoglycemia	Neonatal hyper- bilirubinemia	NICU	Neonatal death
Meltzer, 2010	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
Sevket, 2013	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
Scifres, 2014	Not stated	0.0% (0/24) vs 0.0% (0/23)	4.3% (1/24) vs 13.0% (3/23)	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
Total	Not stated	0.0% (0/24) vs 0.0% (0/23)	4.3% (1/24) vs 13.0% (3/23)	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated
RR (CI 95%)	Not stated	0.96 (0.02- 50.35)	0.32 (0.03- 3.30)	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated