All women
(N= 9,995)

Analysis of predictors based on the cervical dilatation over time

Analysis of the diagnostic accuracy of other predictors

1038 women time inconsistencies

8,957 women

Development of customized labour curves by percentiles

Analysis of the diagnostic accuracy of the alert and action lines and the customized labour curves by percentiles

2 women missing key obstetric characteristics

468 women%

Stratification of the study population according to the 10-group Robson classification
(n= 8,955)

8,489 women analysed

Group 1
(n=2,945)

Group 2
(n=385)

Group 3
(n=4,160)

Group 4
(n=379)

Group 5
(n=434)

Group 10
(n=533)

Groups 6, 7 and 9*
(n=119)

Identification of women who crossed the reference curves (i.e. alert line, the action line and the labour curve at p50, p60, p70, p80, p90, p95) in their obstetric group

617 women+
63 women°

158 women+
5 women°

303 women+
120 women°

51 women+
8 women°

177 women+
3 women°

64 women+
20 women°

Development of labour curves#
(n=2,265)

Development of labour curves#
(n=222)

Development of labour curves#
(n=3,737)

Development of labour curves#
(n=320)

Development of labour curves#
(n=254)

Development of labour curves#
(n=449)

Consolidation of the study population by status related to reference curves (across groups)&

Alert line
Crossed: 4163 (49%)
Not Crossed: 4326

Action line
Crossed: 1268 (15%)
Not Crossed: 7221

p50 curves
Crossed: 3913 (46%)
Not Crossed: 4576

p60 curves
Crossed: 3332 (39%)
Not Crossed: 5157

p70 curves
Crossed: 2805 (33%)
Not Crossed: 5684

p80 curves
Crossed: 2212 (26%)
Not Crossed: 6277

p90 curves
Crossed: 1464 (17%)
Not Crossed: 7025

p95 curves
Crossed: 1009 (12%)
Not Crossed: 7480

* This study has no women from Robson's Obstetric Group 8. Labour curves were not generated for these groups due to small numbers + Women who had Caesarean sections or severe adverse birth outcomes did not contribute with data to the development of labour curves. ° Women who had C-Section before 4cm of cervical dilatation or with inconsistencies in labour progress (e.g. regressive dilatation, different cervical dilatations at the same time stamp, all observations at admission time) # 12 models developed, 2 per group (for women with and without augmentation of labour); each model generated curves for the percentiles 50, 60, 70, 80, 90 and 95. % 119 women from Groups 6,7and 9, 347 women with inconsistencies in labour progress, and 2 women with missing key obstetric characteristics. & Women who crossed the relevant p50 curve in each obstetric group contributed data to the overall group of women who crossed a p50 curve. A similar operation was implemented for those who did not cross the p50 curve. This procedure was repeated for the percentiles 60, 70, 80, 90, and 95.

Figure S1. The analysis flowchart