Organised by the ESHRE Special Interest Groups "Reproductive Surgery"

Epidemiology of congenital uterine anomalies

Dr Sotirios Saravelos
Clinical Research Fellow
Sheffield Teaching Hospitals

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Aims

Prevalence of CUA in different groups

Prevalence of different subtypes

Nahum GG. Uterine anomalies. How common are they, and what is their distribution among subtypes? *J Reprod Med*. 1998;43:877–887.

Studies	Years	No of Patients	No of CUA
n=22	1925-1990	573 138	965 (0.17%)

Classification?

Population?

Methodology?

Studies must describe

- Classification: American Fertility Society (1988)
- Population: General, Infertile, RM
- Methodology: Hyst/lap, SHG, HSG, USS, MRI

Prevalence of CUA

Population	No of Studies	Prevalence
General	12 (*n*=9690)	4.6%
Infertile	18 (*n*=9859)	8.1%
RM	20 (*n*=1937)	18.2%

Adapted from: Saravelos et al. *Hum Reprod Update*. 2008.

Prevalence of CUA

Population	No of Studies	Prevalence	Range
General	12 (*n*=9690)	4.6%	0.4 – 10.8
Infertile	18 (*n*=9859)	8.1%	0.5 – 37.6
RM	20 (*n*=1937)	18.2%	1.0 – 65.8

Review of 50 studies (n=21486)

On closer inspection...

CUA in RM: 4 different studies

Studies		Prevalence (%)
Makino (1997)		15.7
Clifford (1994)		1.8
Li (2002)		10.8
Salim (2003)		23.8

On closer inspection...

CUA in RM: 4 different studies

Studies	Methodology	Prevalence (%)
Makino (1997)	HSG	15.7
Clifford (1994)	2D US	1.8
Li (2002)	Hysteroscopy	10.8
Salim (2003)	3D US	23.8

Studies must describe

- Classification: American Fertility Society (1988)
- Population: General, Infertile, RM
- Accurate Methodology: ?

Which is the most accurate methodology?

Methodology	No of Studies	Sensitivity (%)
3D US	4 (*n*=679)	100
Saline-infusion US	7 (*n*=486)	93
HSG	9 (*n*=625)	78
2D US	5 (*n*=350)	56

Comparison to hysteroscopy/laparoscopy

Adapted from: Saravelos et al. *Hum Reprod Update*. 2008.

Which is the most accurate methodology?

Methodology	No of Studies	Specificity (%)
3D US	4 (*n*=679)	100
Saline-infusion US	7 (*n*=486)	99
HSG	9 (*n*=625)	90
2D US	5 (*n*=350)	99

Comparison to hysteroscopy/laparoscopy

Review of 25 studies (n=2140)

Which is the most accurate methodology?

Methodology	No of Studies	PPV (%)
3D US	4 (*n*=679)	100
Saline-infusion US	7 (*n*=486)	97
HSG	9 (*n*=625)	83
2D US	5 (*n*=350)	96

Comparison to hysteroscopy/laparoscopy

Review of 25 studies (n=2140)

Which is the most accurate methodology?

Methodology	No of Studies	NPV (%)
3D US	4 (*n*=679)	100
Saline-infusion US	7 (*n*=486)	98
HSG	9 (*n*=625)	91
2D US	5 (*n*=350)	87

Comparison to hysteroscopy/laparoscopy

Review of 25 studies (n=2140)

Which is the most accurate methodology?

Methodology	No of Studies	Accuracy[1] (%)
3D US	4 (*n*=679)	100
Saline-infusion US	7 (*n*=486)	97
HSG	9 (*n*=625)	86
2D US	5 (*n*=350)	84

Comparison to hysteroscopy/laparoscopy

$$^{1}\text{Accuracy} = \frac{\text{True positives} + \text{True negatives}}{\text{True positives} + \text{False positives} + \text{True negatives} + \text{False negatives}}$$

Sheffield Data: Sensitivity of HSG

CUA	Anomalies detected	Correct classification
Arcuate (*n*=18)	15/18	7/18
Septate (*n*=29)	23/29	17/29
Bicornuate (*n*=6)	6/6	6/6
Total	44/53 (83%)	30/53 (57%)

Comparison to hysteroscopy/laparoscopy

Adapted from: Saravelos et al. *RBM Online*. In press

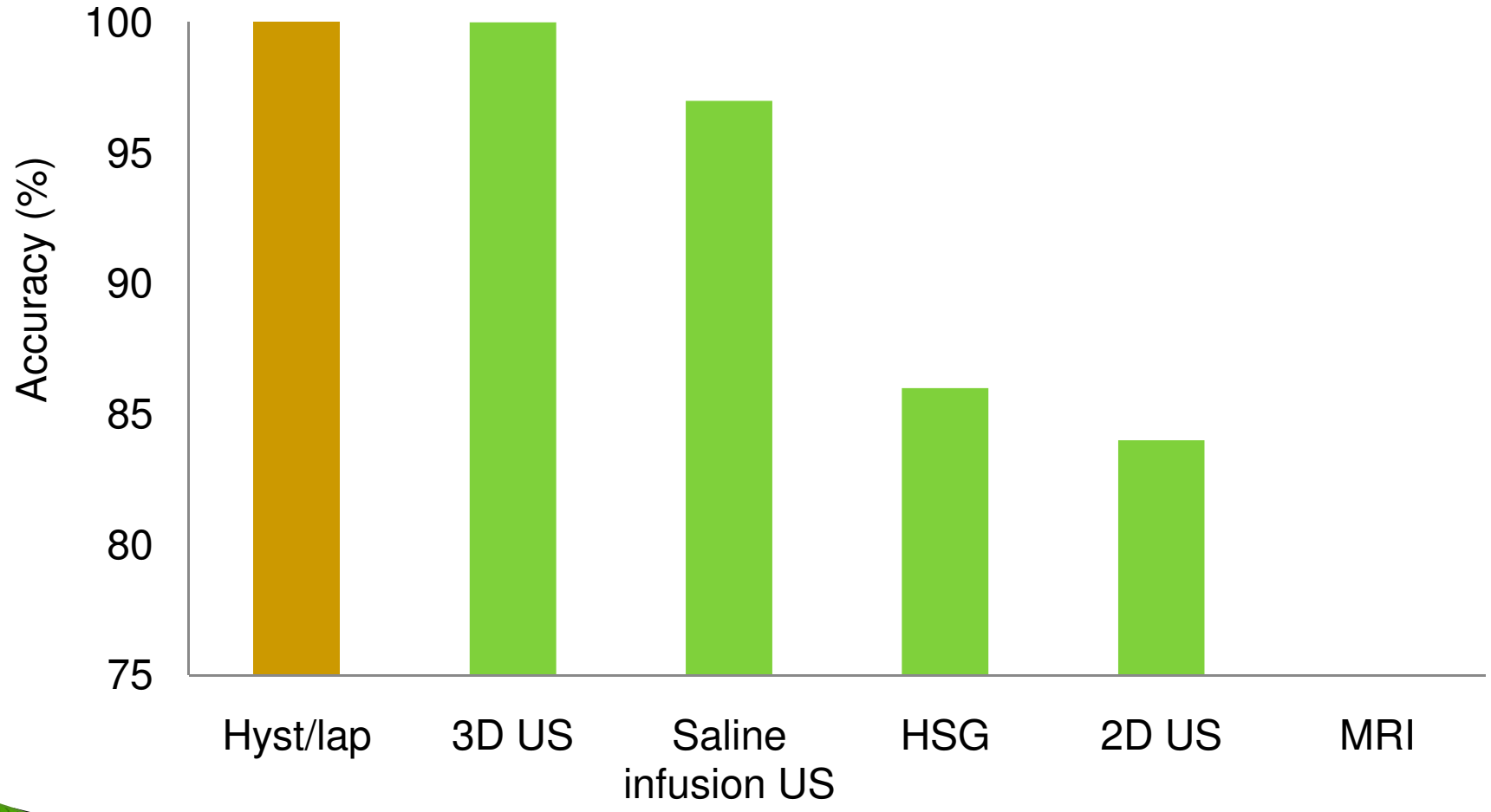
Sheffield Data: Sensitivity of 2D US

CUA	Anomalies detected	Correct classification
Arcuate (*n*=18)	5/18	0/18
Septate (*n*=29)	8/29	6/29
Bicornuate (*n*=6)	1/6	1/6
Total	14/53 (26%)	7/53 (13%)

Comparison to hysteroscopy/laparoscopy

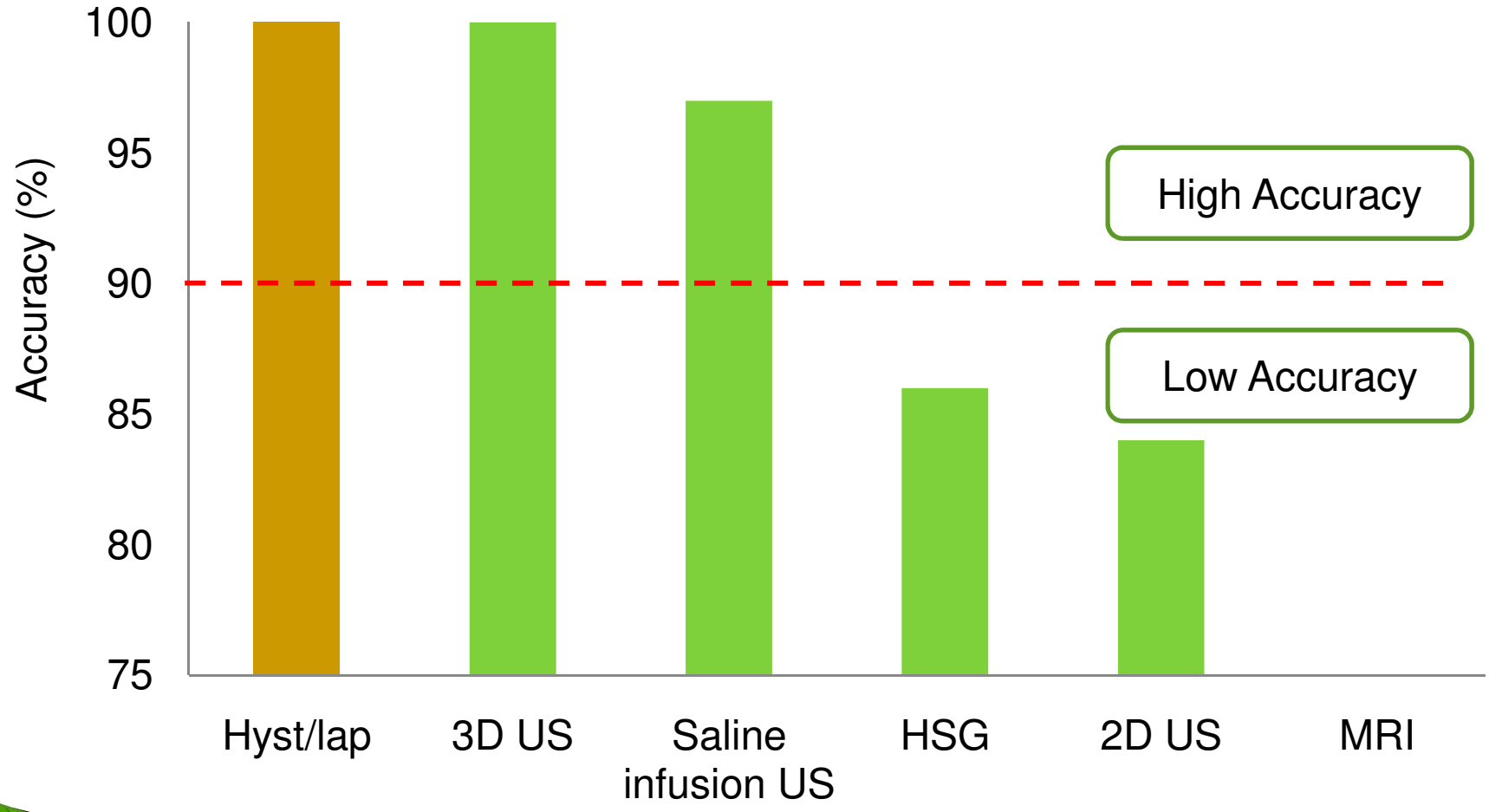
Adapted from: Saravelos et al. *RBM Online*. In press

Accuracy of methodologies



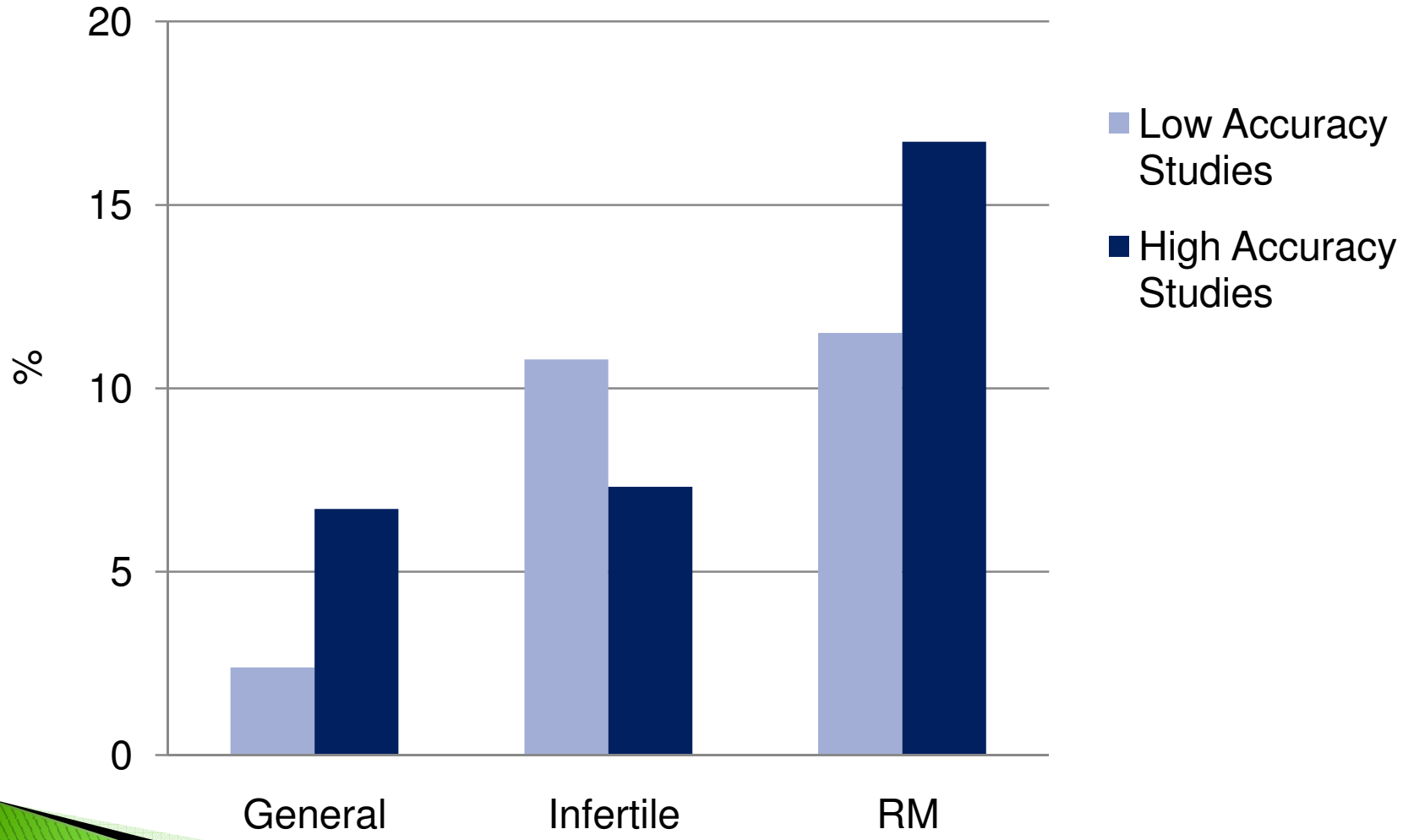
Review of 25 studies (n=2140)

Accuracy of methodologies



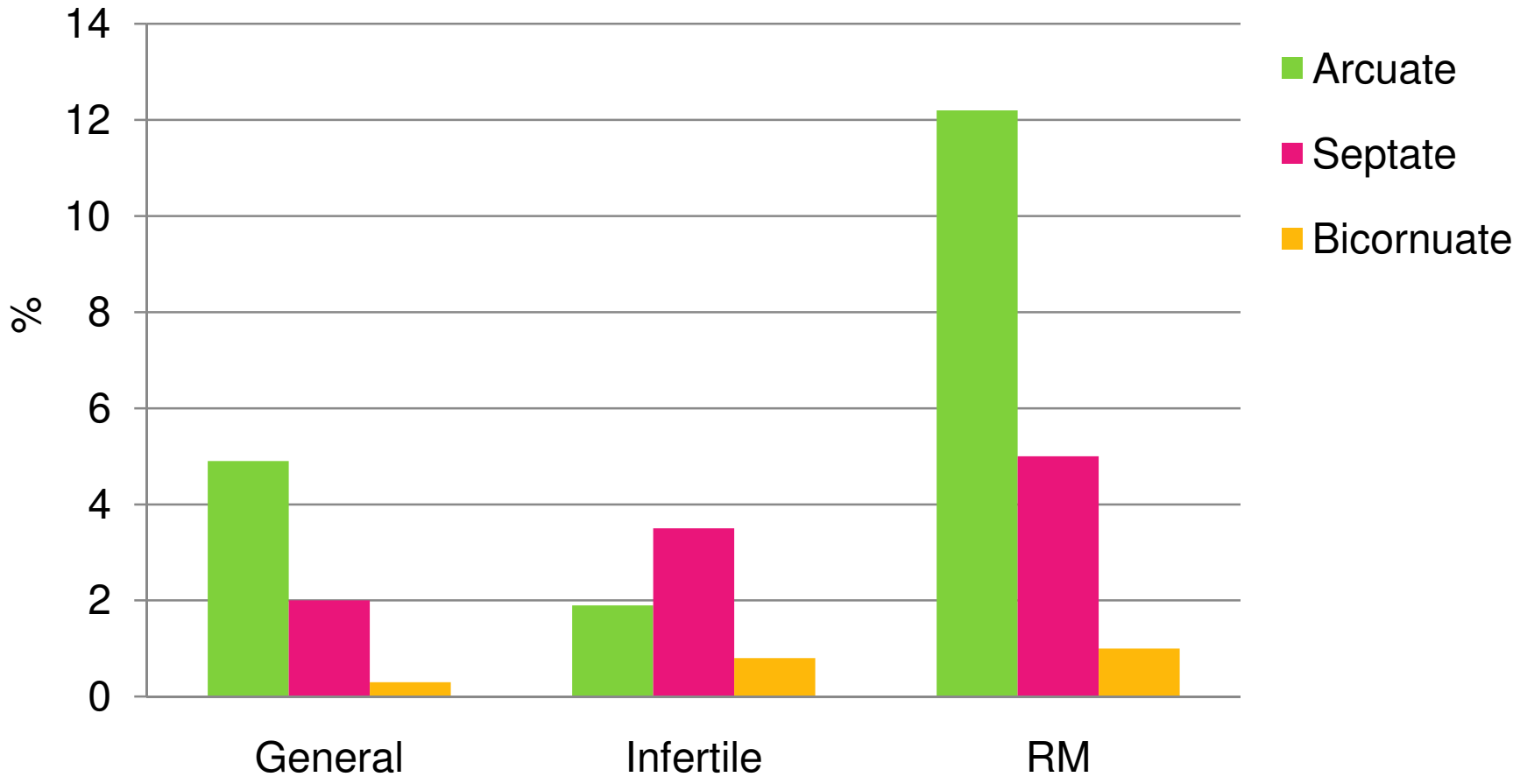
Review of 25 studies (n=2140)

Overall prevalence of CUA



Review of 50 studies (n=21486)

Prevalence of Subtypes



High Accuracy studies (n=13110)

Sheffield RM Data: Reproductive outcome

Patient group	1st Trimester	2nd Trimester	Live birth
Unexplained RM (*n*=630)	68%	3%	24%
Arcuate (*n*=101)	73%	1%	24%
Septate (*n*=106)	73%	13% **	9% **
Bicornuate (*n*=29)	72%	14% *	14% *

* p<0.05
** p<0.001

Adapted from: Saravelos et al. *RBM Online*. In press

Sheffield RM Data: 1st Trimester Loss

Patient group	Biochemical	Early	Late
Unexplained RM (*n*=263)	30%	49%	21%
Arcuate (*n*=42)	10 **	55%	35% *
Septate (*n*=45)	11% **	58%	31% *
Bicornuate (*n*=18)	11% *	50%	39% *

* p<0.05
** p<0.01

Adapted from: Saravelos et al. *RBM Online*. In press

Summary

- Importance of methodological accuracy
- Overall prevalence:

General	~ 6.7%
Infertile	~ 7.3%
RM	~ 16.7%

- Septate uterus may be related to infertility
- Different CUA may cause different patterns of pregnancy loss

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Thank you