

Supplementary Table S1. Outcomes and domains input into the Delphi

	Outcome	% of respondents scoring outcome as critical		
		Healthcare professionals	Researchers	Patients
<b>Semen analysis</b>	Acrosome integrity—is an indicator of the sperm’s ability to fertilize an oocyte	30	34	55
	Reactive oxygen species—the amount of a harmful substance which can cause damage to sperm and lead to poor reproductive outcomes	27	21	41
	Malondialdehyde levels in seminal plasma—malondialdehyde is a substance which can be measured in a semen sample and is a marker of poor health which may negatively impact sperm	4	0	9
	Semen liquefaction time—the time taken for an ejaculation to become liquid	9	3	0
	Semen pH—the acidity of a semen sample	18	7	17
	Semen volume—the measured amount of semen	32	28	39
	Sperm concentration—the amount of sperm present in each millilitre of a semen sample	91	90	87
	Sperm count—the number of sperm that are present in an ejaculate	89	90	91
	Sperm DNA fragmentation index—an assessment of the level of DNA damage within sperm	52	59	50
	Sperm morphology—the appearance of sperm when looked at under a microscope	56	72	70
	Sperm motility—the proportion of sperm which are able to move forward or have forward motion and is an indication as to the sperm’s ability to travel within the female reproductive tract to fertilize an oocyte	92	97	91
	Sperm penetration assay—a test which shows how effective sperm can be at fertilizing an oocyte, and is a marker of fertility potential	8	28	33
	Time to initiation of spermatogenesis—the time it takes for new sperm to develop and mature from immature cells, a process which typically takes 74 days	13	7	5
	Motile sperm count—the number of moving sperm in a sample	91	86	82
	<b>Pregnancy outcomes</b>	Spontaneous pregnancy—a woman becoming pregnant without any medical intervention	97	90
βhCG detected pregnancy—very early pregnancy when the pregnancy hormone can be detected in the blood or urine		68	59	70
Intrauterine pregnancy confirmed by ultrasound—ultrasound scan showing a pregnancy within the uterus		92	86	91
Singleton pregnancy—when there is one baby growing inside the womb		77	79	91
Multiple pregnancy—when there is more than one baby growing in the womb		74	69	87
Early pregnancy loss—a miscarriage occurring during the first 12 weeks of pregnancy		86	97	83
Late pregnancy loss—a miscarriage occurring after the first 12 weeks and before 24 weeks of pregnancy		77	93	87
Time to conception—the time taken to achieve pregnancy		78	69	96
<b>Neonatal outcomes</b>	Cumulative pregnancy rate—the number of pregnancies achieved after having several embryo transfers from <i>in vitro</i> fertilization treatment	87	90	78
	Small for gestational age—when the weight of a newborn baby is in the lowest 10% of babies: the smallest 10 out of every 100 babies	53	69	27
	Neonatal mortality—babies that die in the first 28 days of their life	82	90	95
	Chromosomal anomalies—when there is an error in the genetic makeup, usually leading to a birth defect or disorder	90	97	91
Structural malformations—a baby that is born with an abnormality in part of its body such as the heart or spine	87	97	90	

(continued)

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	Outcome	% of respondents scoring outcome as critical		
		Healthcare professionals	Researchers	Patients
<b>Maternal outcomes</b>	Pre-eclampsia—a combination of raised blood pressure (hypertension) and the presence of protein in urine, if left untreated, it can cause life-threatening complications	52	68	42
	Eclampsia—fits (seizures) caused by a combination of raised blood pressure (hypertension) and the presence of protein in urine, if left untreated, it can cause life-threatening complications	59	75	45
<b>Lifestyle factors</b>	Satisfaction with sexual life—how someone feels about their sex life	28	18	60
	Sexual dysfunction—problems when having sex such as pain or inability to undertake penetrative intercourse	70	64	75
	Erectile dysfunction—unable to achieve and maintain an erection	79	79	60
	Ejaculatory dysfunction—unable to ejaculate during intercourse or masturbation	85	82	80
<b>Clinical findings</b>	Sexual intercourse frequency—how often a couple has sex	50	29	50
	Testicular volume—the measured volume of a testicle	71	52	55
	Varicocele grade—a varicocele is the enlargement of veins within a scrotum which can be graded based on how enlarged the veins are	54	52	35
	Spermatic vein diameter—the size of the diameter of a vein within the scrotum	15	4	5
	Physical fitness assessed by continuous maximal incremental test—an assessment of a person’s health based on a fitness test	16	4	25
<b>Operative outcomes</b>	Operating time—the length of time taken to perform a surgery	8	11	26
	Number of internal spermatic veins ligated—a procedure to block off veins carrying blood away from the testicle	13	12	16
	Number of internal spermatic arteries preserved—spermatic arteries supply blood to the testes. It is important to not damage these during surgery	36	19	26
	Haematoma formation—a collection of blood under the skin (blood clot) which might occur after an injury or surgery	31	27	26
	Hydrocele—a collection of fluid in the scrotum around the testicle	20	26	26
	Infection—when an organism enters the body and causes illness	58	71	79
	Pain—an unpleasant physical	42	54	79
	Pyrexia—a raised body temperature usually associated with illness	49	52	21
<b>Post-operative outcomes</b>	Testicular atrophy—shrinkage of the testicle	86	81	79
	Patient satisfaction—how happy someone feels about an experience, for example, the outcome of an operation	65	57	68
	Time to return to normal activity following surgery—how long it takes someone to get back to their normal daily activities after an operation, surgery, or procedure	53	37	58
	Recurrence of varicocele—the return of a varicocele after treatment to repair it (a varicocele is enlarged blood vessels in the scrotum)	66	63	58
	Prostatic symptoms—pain or difficulty in passing urine due to swelling or inflammation of the prostate gland	46	59	47
<b>Additional suggested outcomes</b>	Testicular pain—pain in the testicle	68	71	84
	FSH (Follicle-stimulating hormone)—a hormone which regulates the development of sperm	79	42	59
	LH (Luteinizing hormone)—a hormone stimulating the production of testosterone	56	31	53
	Prolactin—a hormone which can affect sperm production, if too high	38	27	46
	Testosterone—a hormone which promotes sperm production following puberty	79	65	76

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E2 (Oestradiol)—a hormone produced from testosterone which can affect sperm production if there is an imbalance with testosterone	34	35	46
Inhibin B—a hormone regulating the production of FSH (follicle-stimulating hormone) which regulates the development of sperm	28	27	31
Embryo quality—an assessment of the health and viability of an embryo (a collection of cells which will develop into a foetus, formed after a sperm fertilizes an egg) and based on its visual characteristics	72	72	56
Euploid embryo—an embryo (a collection of cells which will develop into a foetus, formed after a sperm fertilizes an egg) that has normal genetic makeup	68	65	72
Time to pregnancy from intervention—the time it takes to achieve pregnancy following medical treatment	68	54	59
Patient stress—psychological or emotional strain experienced during medical treatment	54	46	67
Patient psychological and emotional wellbeing during treatment—psychological and emotional wellbeing treatment	59	54	67

FSH, follicle-stimulating hormone; LH, luteinizing hormone; E2, Oestradiol; DNA, deoxyribonucleic acid.