

Supplementary Table S1. Outcomes and domains input into the Delphi

		% of respondents scoring outcome as critical		
		Healthcare professionals	Researchers	Patients
Semen analysis	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	8	28	33

		% of respondents scoring outcome as critical		
	Outcome	Healthcare professionals	Researchers	Patients
	fertilizing an oocyte, and is a marker of fertility potential			
	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
Pregnancy outcomes	Spontaneous pregnancy—a woman becoming pregnant without any medical intervention	97	90	87
	β hCG 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
	Cumulative pregnancy rate—the number of pregnancies achieved after having several embryo transfers from <i>in vitro</i> fertilization treatment	87	90	78
	Neonatal outcomes	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

		% of respondents scoring outcome as critical		
	Outcome	Healthcare professionals	Researchers	Patients
	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
Maternal outcomes	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
Lifestyle factors	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
	Sexual intercourse frequency—how often a couple has sex	50	29	50
Clinical findings	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

		% of respondents scoring outcome as critical		
	Outcome	Healthcare professionals	Researchers	Patients
	Physical fitness assessed by continuous maximal incremental test—an assessment of a person's health based on a fitness test	16	4	25
Operative outcomes	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
	Testicular atrophy—shrinkage of the testicle	86	81	79
	Post-operative outcomes	Patient satisfaction—how happy someone feels about an experience, for example, the outcome of an operation	65	57
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

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	Outcome	Healthcare professionals	Researchers	Patients
	Prostatic symptoms—pain or difficulty in passing urine due to swelling or inflammation of the prostate gland	46	59	47
	Testicular pain—pain in the testicle	68	71	84
Additional suggested outcomes	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
	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

		% of respondents scoring outcome as critical		
	Outcome	Healthcare professionals	Researchers	Patients
	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.

Supplementary Table S2s. Acknowledgements for those who have participated in the Delphi process.

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