Lay Abstract

Poor sperm quality (male infertility) significantly reduces the chance of natural conception and accounts for half of all cases of infertility, yet affected men are frequently overlooked when couples seek fertility investigations and treatment. Despite a growing awareness of men’s issues and a need to improve patient experience, there is very little documented about how fertility specialists (clinicians) routinely assess and treat male infertility. This study used a SurveyMonkey® questionnaire to capture current clinical practice, with 112 respondents from around the world. 41% clinicians did not routinely consider male medical history in detail and 24% never routinely examined infertile men. This should be a focus for improvement in clinical care. As expected, fertility treatment recommended for male infertility was mostly in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI), where a single sperm is injected into each mature egg. However, 48.2% clinicians also reported prescribing unproven medical therapy for unexplained male infertility. Of concern, a few clinicians routinely recommended testosterone treatment, which is likely to harm sperm production. However, advice regarding general health was universally delivered.
Male infertility: what on earth is going on? Pilot international questionnaire study regarding clinical evaluation and fertility treatment for men

Nkoyenum Pamela Olisa¹, Lisa Campo-Engelstein² ORCID 0000-0003-1800-9110, Sarah Martins da Silva¹* ORCID 0000-0003-2579-4866

¹Reproductive Medicine Research Group, School of Medicine, Ninewells Hospital and Medical School, University of Dundee, Dundee, DD1 9SY UK
²Institute for the Medical Humanities, Preventative Medicine and Population Health, University of Texas Medical Branch, Galveston, Texas USA

*Corresponding author

Dr Sarah Martins da Silva MBChB, DFFP, MD, FRCOG
Senior lecturer in Reproductive Medicine
s.martinsdasilva@dundee.ac.uk
01382 383201

Key words
Male infertility, sperm, assisted reproduction technology (ART), intracytoplasmic sperm injection (ICSI)
Abstract

Infertility is a time-consuming and exhaustive process, which disproportionately affects women. Although concerns have been raised about deficiencies in clinical evaluation of infertile men, there is currently little published data documenting this. A SurveyMonkey® questionnaire was therefore created to capture current clinical practice of fertility specialists working in IVF clinics. Responses were collected May – July 2021. 112 clinicians completed the pilot survey with respondents from Europe (n=49; 43.8%), Africa (n=39, 34.8%), North America (n=6; 5.4%), Asia (n=16; 14.3%), South America (n=1; 0.9%) and Australasia (n=1; 0.9%). 41% fertility specialists (45/110) reported taking only a brief medical history and 24% reported that they never routinely examined infertile male patients. 54% fertility specialists also reported issues getting men to undertake diagnostic semen analysis.

Treatment for male infertility spanned Assisted Reproductive Technology (ART), with themes of individualised medicine influencing treatment recommendations. 48.2% clinicians reported using empirical medical therapy (EMT) for unexplained male infertility. Notably, 3.6% respondents recommended testosterone treatment, despite likely negative impact on spermatogenesis. However, high levels of opportunistic general health advice were reported, including discussion of life exposures thought to be important for male reproductive health.

This study adds novel evidence and highlights current deficiencies in clinical practice relating to male infertility. Evaluation of the infertile male using simple medical tools (detailed history taking and clinical examination) has the potential to identify treatable or reversible conditions and should be an immediate focus for education and improvement in Reproductive Medicine. Investment in research and development is much needed in the field of andrology, to develop effective non-ART treatment options for male infertility.

Lay Abstract

Poor sperm quality (male infertility) significantly reduces the chance of natural conception and accounts for half of all cases of infertility, yet affected men are frequently overlooked...
when couples seek fertility investigations and treatment. Despite a growing awareness of men’s issues and a need to improve patient experience, there is very little documented about how fertility specialists (clinicians) routinely assess and treat male infertility. This study used a SurveyMonkey® questionnaire to capture current clinical practice, with 112 respondents from around the world. 41% clinicians did not routinely consider male medical history in detail and 24% never routinely examined infertile men. This should be a focus for improvement in clinical care. As expected, fertility treatment recommended for male infertility was mostly in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI), where a single sperm is injected into each mature egg. However, 48.2% clinicians also reported prescribing unproven medical therapy for unexplained male infertility. Of concern, a few clinicians routinely recommended testosterone treatment, which is likely to harm sperm production. However, advice regarding general health was universally delivered.
Introduction

Infertility is a global health problem. Its effects are largely unseen, yet fertility problems have a profound impact on psychological wellbeing and quality of life (Luk and Loke, 2015, Nussbaum, 2011). Wider repercussions often further compound the misery of infertility, including relationship breakdown and divorce as well as economic deprivation, social stigma and lack of community status in certain cultures (Greil, et al., 2010). There are no truly reliable figures for the prevalence of infertility. However, best estimates indicate 8-12% couples of reproductive age are affected (Datta, et al., 2016, Vander Borght and Wyns, 2018) with upwards of 48 million couples experiencing infertility globally (Mascarenhas, et al., 2012). Higher rates of infertility paradoxically tend to exist in African and South Asian countries where fertility rates are high; a phenomenon termed “barrenness amid plenty” (Inhorn and Patrizio, 2015). Recent epidemiological studies report prevalence of infertility as high as 25% in China (Zhou, et al., 2018) and 31.1% in Nigeria (Polis, et al., 2017).

Fertility care encompasses the prevention, diagnosis and treatment of infertility and is an important part of addressing the right of individuals and couples to create a family (Zegers-Hochschild, et al., 2013). Yet equal and equitable access to fertility care remains a challenge, especially in low and middle-income countries where personnel, equipment and infrastructure may be limited, or treatment costs prohibitive. Placing both partners at the centre of fertility care is clearly paramount. Nonetheless, evaluation of female fertility has traditionally been the driver for infertility workup, with men frequently overlooked. Importantly, answers to fundamental questions regarding prevention, management and consequences of male infertility are currently unknown, and there is therefore a common perception that reproductive medicine has little to directly offer men. Yet the desire to be a parent is just as strong for men as for women, with research indicating lower long-term mental health for men who do not have children compared to those who become fathers (Fisher, et al., 2010). Furthermore, the limited available evidence regarding men's experiences with involuntary childlessness indicates long-term grief and lower quality of life,
as well as feelings of loss, depression, exclusion, isolation and risk-taking behaviour (Fisher and Hammarberg, 2012, Wischmann and Thorn, 2013). A survey of males in the United States found that they rated the importance of being a parent as high (8.5/10). Notably, men were more likely than women to think it preferable to have children than to stay childless, and less likely to believe that life could be meaningful without children (Vayena, et al., 2002).

Whilst data show the need for greater engagement of men in their reproductive health from early adult life onwards (Barratt, et al., 2021), there is also an argument that interaction with fertility specialists may be an opportunity lost. Male factor accounts for at least half of all cases (Agarwal, et al., 2015, Kumar and Singh, 2015), yet men from infertile couples often do not undergo comprehensive clinical evaluation (Eisenberg, et al., 2013). Men are less likely to know about variables that affect fertility, including female age, obesity and smoking (Hammarberg, et al., 2013) and are more likely to over-estimate the chance of natural conception or success of fertility interventions (Hammarberg, et al., 2017). Unfortunately, robust and effective therapeutic interventions to directly treat male infertility are currently lacking, which both limits treatment options and, arguably, delivery of astute clinical care (Duffy, et al., 2020). The only option for couples is assisted reproduction technology (ART), which is expensive, invasive and without guarantee of success (25-30% live birth rate (LBR) per treatment) (Martins da Silva, et al., 2017). In the absence of alternative valid approaches, use of empirical medical therapy for men is perhaps not unreasonable, yet at best this may have limited efficacy and at worst may do more harm than good (Thaker, et al., 2020).

The current reality is that there is a lack of clinical expertise (perceived or otherwise) focussed on male infertility (Das, et al., 2020) and a growing voice highlighting a crisis in male reproductive health, including the Male Reproductive Health Initiative (MRHI) (Barratt, et al., 2021, De Jonge and Barratt, 2019). However, there is surprisingly limited survey/questionnaire data published regarding current clinical practice, evaluation and
management of men attending specialist fertility centres. A nationwide survey of urology specialists in Japan featured 39 respondents and focussed on aetiology of male infertility and surgical intervention (Yumura et al., 2018), an American Urological Association (UAU) survey of 164 urologists included only 29 reproductive urologists and focussed on empirical medical therapy practices for idiopathic male infertility (Thaker et al., 2020) and a recent global survey of reproductive specialists investigated utilisation of oxidative stress testing and use of antioxidants for male infertility (Ashok, et al., 2021). In a bid to address this, we conducted a SurveyMonkey® questionnaire pilot study to capture a snapshot of delivery of clinical care and current professional opinion from fertility clinicians working in a variety of global ART settings.

Materials and Methods

A SurveyMonkey® questionnaire was created (Supplementary table 1). This comprised ten questions asking location (country) of clinician, number of ART cycles performed by their clinic each year and details of current clinical practice, including how men were routinely evaluated, diagnostic semen analysis, treatment approaches and recommendations, lifestyle advice and counselling support. The questionnaire was primarily shared via social media platforms (Facebook, Twitter for professionals, LinkedIn). No mailing lists were used, however, the SurveyMonkey® link was also shared with health professionals by personal email contact from the authors, as well as WhatsApp and telegram Obstetrics and Gynaecology groups in Nigeria. Responses were retrieved from SurveyMonkey® and data analysed using Excel.

Results

112 clinicians completed the survey, with at least one representative from each continent (excluding Antarctica). 43.8% (n=49) of the respondents were from Europe, predominantly UK, 34.8% (n=39) of the respondents were from Africa, 5.4% (n=6) were from North America, 0.9% (n=1) from South America, 14.3% (n=16) were from Asia and 0.9% (n=1) from
Australasia (Figure 1). 34.8% of the participants reported working in a clinic performing less than 100 ART treatment cycles per year, whilst 42.9% performed above 500 ART treatment cycles per year. 9.8% and 12.5% of respondents performed between 100 to 250 and 250 to 500 ART treatment cycles per year respectively (Supplementary figure S1).

When asked how men are routinely evaluated in clinic, two respondents (1.8%) indicated that male patients were usually seen by Urology specialists. As expected, most men were therefore solely evaluated by fertility specialists. However, only 21.4% (n=24) fertility specialists reported routine physical examination of male patients coupled with either a brief (n=5) or detailed medical history (n=19). Most ART clinicians (52.7%; n=59) reported examination of men only sometimes following either a brief (n=29) or detailed (n=30) clinical history. Alarmingly, 24.1% (n=27) clinicians reported that they never examined male patients, with 40.7% (n=11) taking a brief medical history only (Figure 2).

Regarding male fertility testing, 46% clinicians reported no issues getting men to undertake diagnostic semen analysis (Figure 3A). Most of these respondents (79%) worked in Europe (Figure 3B). In contrast, 54% clinicians commonly encountered issues getting men to undertake semen analysis. Many of these respondents (65%) worked in Africa (Figure 3C). Reasons cited were varied (Figure 3D) but included an assumption by men that they had no fertility problem because they were sexually active (33%) or because they had previously fathered a pregnancy (24%), an assumption by men that infertility is a woman’s issue (17%), as well as cost (2%). However, 24% ART clinicians that reported issues arranging fertility assessment identified that men were uncomfortable producing or submitting a sample for diagnostic semen analysis. Notably, the geographical distribution of these responses was mixed (Figure 3E), indicating a shared experience by men from heterogeneous backgrounds.

ART specialists were asked what fertility treatment they usually recommended for unexplained male infertility (Figure 4A). As expected, responses spanned ART offerings, including IUI (0.9%), IVF (49.1%), ICSI (34.8%), either alone (25.0%) or combined with surgical sperm
retrieval (SSR; 9.8%), or treatment using donor sperm (4.5%). Although the questionnaire asked clinicians to select an option that best represented their routine practice, there were also a variety of free text responses. These could be grouped into two themes, one where fertility treatment recommended was dependent on semen analysis abnormality and the other where treatment recommendations also considered the female partner or couple’s circumstances and previous treatment attempts. Specialists were also asked about medical treatment for unexplained male infertility (Figure 4B). Around half (51.8%) clinicians did not use empirical medical therapy for male infertility. Those who did were most likely to prescribe Clomiphene citrate (clomid) or Tamoxifen (33.0%). However, clinicians also reported the use of empirical Letrozole (1.8%) and combined FSH and HCG (6.3%). Notably, 3.6% respondents reported routine use of Testosterone, despite the resultant suppression of endogenous testosterone production and the risk of impaired spermatogenesis. Specialists were asked whether they recommended fertility vitamin and dietary supplements (VDS) for unexplained male infertility. Responses demonstrated clinical equipoise, with 19.6% always recommending VDS, 44.6% usually recommending VDS, 23.2% not usually recommending VDS and 12.5% never recommending VDS.

The questionnaire also asked clinicians about lifestyle and dietary changes discussed with men in preparation for fertility treatment and pregnancy (Supplementary figure S2). Responses demonstrated high levels of opportunistic delivery of health advice. Smoking cessation and alcohol reduction was routinely mentioned by 93% specialists during consultations, with 73% advising regarding regular exercise and 72% advising fruit, vegetables and healthy diet. Modification of consumption of caffeine and advice regarding sugar reduction was mentioned less often (30% and 31% respectively). Free text responses also included advising weight loss where appropriate, cessation of recreational drug use and avoiding exposure to extreme heat.
Lastly, we sought to explore clinic support for men, and asked about provision of fertility and/or genetic counselling. All clinics offered counselling. Uptake of fertility and/or genetic counselling was compulsory for all patients in 23.2% (26/112), required only in certain circumstances, for example fertility preservation and treatment using donor gametes, in 25.9% (29/112) and entirely optional in 26.8% (30/112) clinics. Of note, the remaining 24.1% (27/112) respondents reported counselling only being compulsory for women.

Discussion

The discussion of our results is presented in the spirit of a debrief. Team debriefs are commonly used in medicine to evaluate clinical or situational performance. The structure of a basic debrief is to systematically consider what went well, what could be improved, what went badly and then subsequently focus on one or two learning points to carry forwards.

Firstly, what do fertility specialists do well? Education regarding potential effects of behavioural, environmental (including occupational exposures) and lifestyle factors on fertility is important to empower patients. Questionnaire responses demonstrated universally high levels of opportunistic delivery of general health and fertility-specific advice. Interaction with fertility specialists therefore represents an important moment for sharing medical advice and key personal health messages for men. Survey responses also demonstrated patient-centred clinical care. When clinicians were asked to indicate their usual treatment for male infertility, it was notable that a theme of personalised medicine emerged alongside the spectrum of ART treatment recommended. This included treatment recommendations that took into consideration the female partner or couple's circumstances, including previous treatment (successful or otherwise), as well as the concept of recommending fertility treatment based on the severity of semen analysis abnormality. Clinics also universally offered fertility counselling and support, which is important because men with infertility commonly experience psychological distress that impacts on their quality of life (Jacob, et al., 2021).
Secondly, what could be improved? Whilst hypogonadotrophic hypogonadism is a well-defined condition that responds to hormonal therapy, there is a lack of good quality evidence supporting the use of hormone treatment for unexplained male infertility. Similar to previously published studies (Buhling, et al., 2020), antiestrogenic drugs (Clomiphene citrate, Tamoxifen) were the most prevalent empirical medical treatments (EMT) used for unexplained male infertility, by around half of respondents. Clomiphene citrate and Tamoxifen block negative feedback at the level of the hypothalamus and pituitary, enhancing secretion of luteinizing hormone (LH) and follicular stimulating hormone (FSH) as well as downstream testosterone synthesis and spermatogenesis. Whether this has any place in management of male infertility with apparently normal hypothalamic-pituitary-testicular axis is less clear. The typical prescribed therapeutic dose is Clomiphene citrate 25 mg daily. Higher dosages may cause hypothalamic-pituitary-gonadal downregulation. Notably, although improved semen characteristics have been reported in several studies, a limited effect on live birth rate has been reported to date (Chua, et al., 2013, Willets, et al., 2013). The use of nutraceuticals and VDS by infertile men is widespread (Martins da Silva, 2019), despite currently limited scientific evidence of benefit to conception and live birth (Smits, et al., 2019, Schisterman, et al., 2020, Steiner, et al., 2020). Survey responses were spread from never to always recommending VDS and demonstrated genuine clinical equipoise. In the absence of further large-scale, randomised placebo-controlled studies examining the effect of EMT and VDS on pregnancy and live birth in men with unexplained infertility it is difficult to see how we can move forward from this position.

Thirdly, what do fertility specialists do badly? One very notable feature of the questionnaire responses is the generally poor clinical assessment of the man. 41% clinicians (45/110) report taking only a brief medical history and 24% clinicians reported that they never routinely examined male patients. Although honest, this is hugely disappointing and something that must be urgently addressed by our speciality, not least because clinical history and examination are key tools for diagnosis, appropriate investigation, and
management. Recent work has also identified associations between male infertility and various malignancies (Hanson, et al., 2018, Behboudi-Gandevani, et al., 2021). For example, infertile men are reported to be at least three times more likely to develop testicular cancer (Walsh, et al., 2009, Del Giudice, et al., 2020). Indeed, around 1% cases presenting with male infertility have been reported to harbour a more serious or potentially fatal medical condition, including cancer, but also endocrinopathies, systemic disease and genetic syndromes (Honig, et al., 1994). Comprehensive history taking and physical examination has the ability to detect more serious or potentially life-threatening conditions and should be approached bearing this in mind. It is also disheartening to see a small proportion of fertility specialists recommending Testosterone for male infertility. Certainly, exogenous testosterone should not be used to attempt to improve sperm production as it suppresses endogenous testosterone production and therefore has a negative effect on spermatogenesis.

Lastly, what should be the focus of learning points to carry forwards? Detailed evaluation of infertile men, including clinical history and examination would appear to be a key recommendation. The link between infertility and malignancy (primarily testicular and prostate cancer) certainly highlights the importance of immediate evaluation (Del Giudice, et al., 2020), but perhaps also raises a bigger question about long term follow up for infertile men and the need to determine strategies for this. Another key learning point relates to issues encountered around male fertility assessment, specifically diagnostic semen analysis, which was reported by 54% of fertility specialists. Whilst various reasons were cited, embarrassment, cultural and social stigma was a factor commonly reported (24%) to hinder men from producing or submitting a sample for fertility assessment. This was also a shared experience across geographical location and would certainly account for the interest and demand for home fertility testing. The integration of microfluidics and advances in smartphone capabilities, particularly camera and optical sensing accessories, have not only made remote semen quality testing possible, but also accessible to people in both
developed and developing countries. Several point-of-care systems have been reported to provide highly accurate evaluation of semen based on the World Health Organization (WHO) guidelines (Kanakasabapathy, et al., 2017), indicating the potential for technological solutions that may be acceptable to both patients and clinics. In the meantime, our speciality must be more cognisant of the lived experience of male infertility, appreciate the personal shame and embarrassment experienced by some men and continue to take opportunities as fertility specialists to deliver astute clinical care and to destigmatise male infertility. Infertility is not solely a female problem, and we should not just be women’s health specialists.

Declaration of interest
SMDS is Associate Editor of Reproduction and Fertility. SMDS was not involved in the review or editorial process for this paper, on which she is listed as an author. Other authors declare no conflict of interests

Funding
This research did not receive any specific grant from any funding agency in the public, commercial or not-for-profit sector.

Author Contribution Statement
SMDS was responsible for study concept. NPO, LCE and SMDS designed the questionnaire and acquired data. NPO and SMDS analysed and interpreted the data. NPO and SMDS drafted the manuscript. All authors revised and contributed to final manuscript, approved the version submitted for publication and agree to be accountable for all aspects of the work presented.

Data Availability
The data underlying this article will be shared on reasonable request to the corresponding author.
References


De Jonge C, Barratt CLR. The present crisis in male reproductive health: an urgent need for a political, social, and research roadmap. *Andrology* 2019;7: 762-768.


Figure 1: World map depicting distribution of respondents. Number of responses from each continent indicated (Europe (blue) n=49; Africa (orange) n=39; North America (yellow) n=6; South America (green) n=1; Australasia (dark blue) n=1; Asia (pink) n=16).

Figure 2: Reported routine evaluation of men in specialist fertility clinic; brief medical history and no examination (blue) n=11; detailed medical history and no examination (orange) n=16; brief medical history and sometimes examination (grey) n=29; detailed medical history and sometimes examination (yellow) n=30; brief medical history and usually examination (purple) n=5; detailed medical history and usually examination (green) n=19; evaluation by urology (red) n=2.

Figure 3: Clinicians experiences of getting men to undertake diagnostic semen analysis. A No issues were experienced by 46% (n=52) respondents, however 54% (n=60) reported issues commonly encountered. B Geographical distribution of respondents reporting no issues encountered with getting men to undertake diagnostic semen analysis. C Geographical distribution of respondents commonly encountering issues getting men to undertake diagnostic semen analysis. D Primary reasons reported for issues getting men to undertake diagnostic semen analysis included an assumption by men that they had no fertility problem because they were sexually active (blue; n=20) or because they had previously fathered a pregnancy (orange; n=15), that men were not comfortable producing or submitting a sample for testing (grey; n=14), an assumption that infertility is a woman’s issue (brown; n=10) as well as cost (purple; n=1). E Geographical distribution of respondents commonly experiencing issues getting men to undertake diagnostic semen analysis because they were uncomfortable producing or submitting a sample for laboratory assessment.

Figure 4: Treatment routinely recommended for unexplained male infertility A ART routinely offered included IVF (blue; n=55); ICSI (orange; n=28); ICSI and surgical sperm retrieval
(SSR) (peach; n=11); donor sperm (grey; n=5). Notably, some indicated individualised
treatment recommendation according to semen analysis results (pale yellow; n=6) or
partner/couple characteristics (green; n=6). B Use of empirical medical therapy (EMT) for
unexplained male infertility. EMT used routinely by 48% clinicians, including clomiphene or
tamoxifen (blue; n=37), Letrozole (orange; n=2), combined follicle stimulating hormone
(FSH) and human chorionic gonadotrophin (HCG) injections (grey; n=7), testosterone
(yellow; n=4) other (red; n=4). EMT not routinely used by 52% respondents (green; n=58) C
Vitamin and dietary supplements (VDS) for unexplained male infertility. Respondents
reported recommending VDS never (blue; n=14), not routinely (orange; n=25), sometimes
(grey; n=51) or always (yellow; n=22).

Supplementary table 1 SurveyMonkey® questionnaire used in this study

Supplementary figure S1 Number of ART treatment cycles performed by respondent’s
clinics per year (less than 100 (blue) n=39; 100 – 250 (orange) n=11; 250 – 500 (grey) n=14;
over 500 (yellow) n=48).

Supplementary figure S2 Medical advice regarding diet and life exposures and
unexplained male infertility. Others (n=6) included weight reduction (if appropriate);
recreational drug use including anabolic steroids; exposure to extreme heat, including
saunas, hot tubs and choice of underwear.
A

B

C

Copyright © 2022 the authors
Supplementary Table 1

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What country do you work in?</td>
<td></td>
</tr>
<tr>
<td>2. How many ART treatment cycles does your clinic perform per year?</td>
<td>&lt;100</td>
</tr>
<tr>
<td>3. How are male patients routinely evaluated?</td>
<td>Take a brief medical history only</td>
</tr>
<tr>
<td></td>
<td>Take a detailed medical history from a fertility perspective, including life exposures</td>
</tr>
<tr>
<td></td>
<td>Take a brief history and sometimes examine him</td>
</tr>
<tr>
<td></td>
<td>Take a detailed medical history from a fertility perspective and sometimes examine him</td>
</tr>
<tr>
<td></td>
<td>Take a brief history and usually examine him</td>
</tr>
<tr>
<td></td>
<td>Take a detailed medical history from a fertility perspective and usually examine him</td>
</tr>
<tr>
<td></td>
<td>Other (please specify)</td>
</tr>
<tr>
<td>4. Do you experience any issues getting men to undertake fertility testing (diagnostic semen analysis)?</td>
<td>No – there are no issues</td>
</tr>
<tr>
<td></td>
<td>Yes – because men are sexually active and assume they have no fertility problem</td>
</tr>
<tr>
<td></td>
<td>Yes – because men have previously fathered a pregnancy and assume they have no fertility problem</td>
</tr>
<tr>
<td></td>
<td>Yes – because men are not comfortable with producing / submitting a sample for analysis</td>
</tr>
<tr>
<td></td>
<td>Yes – because men assume that infertility is a woman’s issue</td>
</tr>
<tr>
<td></td>
<td>Other (please specify)</td>
</tr>
<tr>
<td>5. Do you recommend fertility vitamin and dietary supplements for unexplained male infertility?</td>
<td>Yes - always</td>
</tr>
<tr>
<td></td>
<td>Yes - sometimes</td>
</tr>
<tr>
<td></td>
<td>Not routinely</td>
</tr>
<tr>
<td></td>
<td>Yes - only when clinically needed</td>
</tr>
<tr>
<td></td>
<td>Never</td>
</tr>
<tr>
<td>6. What medical treatment do you routinely recommend for unexplained male infertility?</td>
<td>Clomiphene (clomid) or tamoxifen</td>
</tr>
<tr>
<td></td>
<td>Letrozole</td>
</tr>
<tr>
<td></td>
<td>FSH and HCG combined</td>
</tr>
<tr>
<td></td>
<td>HCG</td>
</tr>
<tr>
<td></td>
<td>Testosterone</td>
</tr>
<tr>
<td></td>
<td>None of the above</td>
</tr>
<tr>
<td></td>
<td>Other (please specify)</td>
</tr>
<tr>
<td>7. Do you advise men to make lifestyle and dietary changes in preparation for fertility treatment and pregnancy? (please tick all that apply)</td>
<td></td>
</tr>
<tr>
<td>Alcohol reduction</td>
<td>Smoking cessation</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
</tr>
</tbody>
</table>

8. What fertility treatment do you usually recommend for unexplained male infertility?
- IVF
- ICSI
- ICSI and surgical sperm retrieval (SSR)
- Donor sperm
- Other (please specify)

9. Is fertility and/or genetic counselling compulsory for patients?
- Yes – but only women
- Yes – but only men
- Yes – for both
- Yes – but only in certain circumstances, for example fertility preservation, donor gamete treatment
- No - it is optional

10. Do you think it is acceptable for a clinic to charge patients for donor sperm that has been altruistically donated? (you may tick more than one option)
- Yes - so patients appreciate that it is valuable
- Yes – because it makes a profit for the clinic
- Yes – because it generates funds for the running of the clinic
- Yes – but only to cover costs
- No – clinics shouldn’t make a profit on something that was altruistically donated
- No - other reason
- Other (please specify)