NHS PrescQIPP

Male sexual dysfunction: Management of erectile dysfunction and premature ejaculation

This bulletin reviews the place in therapy of phosphodiesterase type 5 (PDE5) inhibitors, other treatments for erectile dysfunction (ED) and treatments for premature ejaculation (PE). It offers guidance and support material for organisations considering reviewing these treatments.

Erectile dysfunction

Following the patent expiry of sildenafil (Viagra®) in June 2013, there has been a significant decrease in the cost of sildenafil. Several generic products are now available as sildenafil citrate, as well as the branded generics Vizarsin® and Nipatra® (a chewable formulation). All generic sildenafil products are licensed for the treatment of ED.[1-11] Vacuum pump devices and alprostadil are alternative treatments to PDE5 inhibitors.

NHS criteria for the provision of ED treatments changed as of 1st August 2014, allowing generic sildenafil to be provided on the NHS for any patient with ED, regardless of cause, where this is clinically appropriate.[12] Other NHS criteria apply to provision of erectile dysfunction treatment that is outlined in this bulletin.

QIPP projects in this area are aimed at changing patients currently prescribed branded sildenafil (Viagra®) or other PDE5 inhibitors (vardenafil (Levitra®), tadalafil (Cialis®) or avanafil (Spedra®)) to generic sildenafil tablets and ensuring other treatments for ED are prescribed appropriately in primary care and waste is minimised. Alternative treatments should be initiated by, and initial supply given by, a specialist.

Premature ejaculation

Dapoxetine (Priligy®) is the first oral treatment for PE to be licensed in the UK. It is a short-acting selective serotonin reuptake inhibitor (SSRI) licensed for on-demand treatment before anticipated sexual activity. Off label use of longer acting SSRIs taken daily is an alternative, less costly treatment option. The place in therapy for pharmacological treatment is dependent on whether PE is lifelong (primary) or acquired (secondary).

QIPP projects in this area are aimed at ensuring cost-effectiveness of treatment. CCGs should make a local decision as to the recommended treatment hierarchy based on available evidence and cost-effectiveness of available treatments.

Recommendations

Erectile dysfunction

- Review new patients presenting with ED to identify causative factors that may lead to resolution of their ED. These include hormonal causes (hypogonadism, hyperthyroidism/hypothyroidism, hyperprolactinaemia), post-traumatic arteriogenic ED in young patients, drug-induced ED, partner sexual problems, radical prostatectomy.

Recommendations continued

- Ensure a cardiac risk assessment is performed in all patients presenting with ED.
- Ensure all patients with type 2 diabetes are screened for ED on an annual basis and offered treatment as appropriate.
- For patients presenting with ED, suitable for pharmacotherapy, offer generic sildenafil as first choice. This can be prescribed on the NHS for any patient with ED, regardless of cause.[12]
- Ensure patients prescribed alternative pharmacological treatment options for ED, including branded sildenafil, (Viagra®) and other PDE5 inhibitors, meet NHS criteria.[12] Patients not meeting these criteria should be prescribed treatment privately, if clinically appropriate.
- If clinically appropriate, switch patients on an alternative PDE5 inhibitor (branded sildenafil (Viagra®), vardenafil, tadalafil or avanafil) for ED to generic sildenafil taking account of individual patient circumstances. **Note**. This may mean a patient who was not previously entitled to a prescription on the NHS, could now receive treatment with generic sildenafil on the NHS. If undertaking a switch programme, ensure that switching methodology has been agreed locally by GPs, consultants, urology nurses, and other relevant healthcare professionals.
- Ensure patients suitable for alternative ED treatments have been appropriately assessed and had initial supply of these treatments from the initiating specialist. Patients should receive adequate counselling on appropriate use.

Premature ejaculation

- Ensure patients requiring pharmacotherapy for PE are prescribed a cost-effective treatment.
- CCGs will need to make a local decision as to the recommended treatment hierarchy and whether to include the off label use of once daily longer-acting SSRIs (e.g. paroxetine, fluoxetine, sertraline) prescribed generically for the treatment of PE. If undertaking a switch programme, ensure that switching methodology has been agreed locally by GPs, consultants, urology nurses, and other relevant healthcare professionals.
- When prescribing dapoxetine, ensure all treatment criteria specified in the licence are met before initiating prescribing.
- Prescribing of PDE5 inhibitors and ED treatments should be in line with NHS criteria. Generic sildenafil should be the first choice PDE5 inhibitor and patients currently prescribed an alternative PDE5 inhibitor could be changed to generic sildenafil.

National guidance

Erectile dysfunction

UK and European guidance is available for the management of ED, and prescribing of treatments for impotence on the NHS.[12-15] For ED, these indicate addressing reversible causes and/or lifestyle modifications for the treatment of ED as a first consideration. These alone may be effective in improving sexual function in men with ED.[13,14] Lifestyle modifications should also accompany pharmacotherapy or psychological therapy.

ED, also known as impotence, is the persistent inability to get and maintain an erection that is sufficient for satisfactory sexual intercourse.[13] ED is a very common condition, and it is estimated that 50% of all men between the ages of 40 and 70 will have ED to some degree.[14] Causative factors include physical, psychological or drug induced causes. ED is closely associated with physical conditions and may also affect psychological health. It can have a significant impact on quality of life of both patients and their partners.[14]

Men do not readily visit their GP with medical problems and so when they present with ED for the first time, this represents an opportunity to rule out causative factors and undertake appropriate health checks.

The British Society for Sexual Medicine (BSSM) guidance also outlines other investigations that might be undertaken on men newly presenting, including a cardiac risk assessment[13] NICE guidance regarding the management of type 2 diabetes[17] also advises that the issue of ED should be reviewed with men annually.

The risk factors for ED are similar to the risk factors for cardiovascular disease and ED itself is a cardiovascular risk factor conferring a risk equivalent to a current moderate level of smoking.[13] ED in an otherwise asymptomatic man may indicate underlying cardiovascular disease and hence all patients presenting with unexplained ED should be thoroughly assessed for coronary heart disease and risk factors assessed.[13,14] Mild ED is an important indicator of risk for associated underlying disease.[14]

Treatment of ED varies depending on the cause and should include lifestyle changes to reduce the risk of cardiovascular disease, prescribing appropriate medication, treating an underlying health condition, such as heart disease or diabetes, psychological treatments such as cognitive behavioural therapy or sex therapy or looking at alternative available medicines if a medication is causing ED.[13,14]

Medication can be used to successfully manage ED in at least two-thirds of men. PDE5 inhibitors are the first line recommended pharmacological treatment. Vacuum erection devices can also be considered first line and may be a suitable option in well-informed older patients with co-morbidities and infrequent sexual intercourse requiring non-invasive, non-pharmacological treatment.[14] Most men who discontinue use of vacuum erection devices do so within three months.[14]

Vacuum pumps are not routinely initiated in primary care. More often, these devices are initiated following patient assessment by a specialist and the GP is often asked to prescribe the initial device and ongoing supply. The patient is then asked to bring the device back to an outpatient appointment so they can be appropriately counselled and shown how to use the device successfully. As the national tariff includes initial treatment, the specialist should supply the initial device.

Second line treatments for ED include alprostadil, available in the UK as an intracavernous injection (Caverject®, Viridal®), an intraurethral application (MUSE®) and a topical cream (Vitaros®). These can be effective treatments in patients where the cause of ED is following a spinal cord injury or after major pelvic surgery.[14]

The prescribing of medicines for impotence is restricted under the NHS in terms of who is eligible for prescriptions and quantities.[12,15] Prescription of vacuum pumps is not restricted and hence these may also be an option for patients who do not meet NHS criteria.

The Department of Health has recently conducted a consultation for proposed changes to NHS availability of ED treatments.[12] It is recognised that the changes will result in an increase of patients requesting treatment, and hence burden on primary care. As ED may in some circumstances be an early indicator of vascular disease, relaxing access to generic sildenafil for this indication could lead to patients seeking NHS treatment and receiving screening for more serious disorders encouraging earlier diagnosis and treatment.

As of the 1st August 2014, the following restrictions apply:

- Generic sildenafil tablets can be prescribed on the NHS for ANY patient with ED, regardless of cause.
- The other PDE5 inhibitors - branded sildenafil (Viagra®), vardenafil, tadalafil and avanafil can only be prescribed to patients who meet NHS criteria (see below). If a patient does not meet these criteria, a private prescription can be offered.
- Patients who suffer severe distress as a result of ED can be treated in primary care. Where pharmacological treatment is also required, and a PDE5 inhibitor is suitable, generic sildenafil

should be offered. Patients with severe distress for whom generic sildenafil is not effective or not tolerated, can be referred to secondary care for treatment and ongoing prescribing.

- Alprostadil can be provided on the NHS **ONLY** for patients who meet NHS criteria (see below). These preparations should be specialist initiated.
- Advice around the quantity of medication to prescribe remains unchanged.

NHS criteria for provision of pharmacological treatment of ED on the NHS, excluding generic sildenafil, remain. These are:

- Patients suffering from any of the following:
  - Diabetes
  - Multiple sclerosis
  - Parkinson's disease
  - Poliomyelitis
  - Prostate cancer
  - Severe pelvic injury
  - Single gene neurological disease
  - Spina bifida
  - Spinal cord injury.
- Patients receiving treatment for renal failure by dialysis.
- Patients who have had the following surgery:
  - Prostatectomy
  - Radical pelvic surgery
  - Kidney transplant.
- Patients who were receiving NHS prescriptions for one of these drugs on 14th September 1998.

An enlarged prostate alone is not included in the clinical conditions list, but local audit data indicates that clinicians may, in the past, have inadvertently included these men for NHS prescribing.

Advice regarding the quantity of medication to prescribe remains unchanged from that outlined in Health Service Circular HSC 1999/148 which recommends one treatment per week at NHS expense, based on research evidence in the 40-60 year age group, but does allow GPs to use their clinical judgement to prescribe more than one treatment per week. The "street value" of these treatments is also highlighted to aid determination of appropriate quantities on prescription. Prescriptions (other than those for generic sildenafil) must be marked "SLS" in order to allow dispensing and supply in community pharmacy.[15]

It is important from the point of view of equity of access that GPs follow the new national criteria outlined above for access to PDE5 inhibitors. For PDE5 inhibitors other than generic sildenafil, if a patient is prescribed a PDE5 inhibitor for a condition that is not included in the NHS list then this is not fair to other individuals suffering from the same condition denied access by other GPs. It is for this reason that it is recommended that GPs offer generic sildenafil where a PDE5 inhibitor is indicated. GPs should only prescribe branded sildenafil and other PDE5 inhibitors on the NHS to those patients that meet nationally set out treatment criteria.

Currently, for patients who do not wish to have generic sildenafil, or in whom this is not effective or not tolerated, and an alternative PDE5 inhibitor is appropriate, these can only be offered if the patient meets NHS criteria as listed above. If they do not, a private prescription may be written for a patient on a GPs NHS list. In this case, the patient cannot be charged a fee for writing the private prescription. If the patient is eligible for NHS treatment and the GP decides that clinically it is appropriate to give more than 4 doses per month, then they must provide an NHS prescription for the total quantity necessary for the patient.

There may not always be easy access to local psychosexual counselling services or equivalent referral pathways for GPs. Local commissioning groups should address this care pathway for patients.

Premature ejaculation

PE is a male sexual dysfunction characterised by ejaculation which always or nearly always occurs prior to or within about one minute of vaginal penetration and the inability to delay ejaculation on all or nearly all vaginal penetrations, and negative personal consequences, such as distress, bother, frustration and/or the avoidance of sexual intimacy.[16]

PE is either 'lifelong' (primary) or 'acquired' (secondary).[14] Lifelong PE is characterised by onset from the first sexual experience, remains so during life and ejaculation occurs too fast (before vaginal penetration or less than 1-2 min after). Acquired PE is characterised by a gradual or sudden onset following normal ejaculation experiences before onset and time to ejaculation is short (usually not as short as in lifelong PE).

If PE is causing few problems in the patient's relationship, treatment should be limited to psychosexual counselling and education. Expectations of treatment should also be addressed before commencing treatment. ED, other sexual dysfunction or genitourinary infection should be treated first or at the same time as PE.

Pharmacotherapy for PE is only indicated where either lifelong or acquired PE has been diagnosed after appropriate assessment and other causes have been ruled out.[16]

Psychological and behavioural strategies recommended by the European Association of Urology (EAU) include the 'stop-start' programme and the 'squeeze' technique. Both these procedures are typically applied in a cycle of three pauses before proceeding to orgasm. Masturbation before anticipated sexual intercourse is also a technique that may be used in younger men.[14] This may result in greater ejaculatory delay after the refractory period and may result in the patient recognising the signs of increased sexual arousal and how to keep his level of sexual excitement below the intensity that elicits the ejaculatory reflex. The efficacy of this technique has been shown to be similar to the 'start-stop programme'.[14]

Pharmacotherapy is the first line treatment in lifelong PE, behavioural therapy is not recommended first line. Where pharmacotherapy is initiated, gradual withdrawal should be attempted in selected patients after 6-8 weeks.[16]

The use of topical anaesthetics to delay ejaculation is the oldest form of pharmacotherapy for PE, although no licensed product is available in the UK. There is some evidence to support the use of topical desensitizing agents to reduce the sensitivity of the glans penis so delaying ejaculatory latency, but without adversely affecting the sensation of ejaculation.[14] Two studies have evaluated the use of lidocaine-prilocaine cream 5% for this indication and shown improvement in intravaginal ejaculatory latency time (IELT). These could be offered as an alternative to oral pharmacotherapy.

Tramadol has also been studied for the management of PE, however, there is a lack of high level evidence to support its use.[14]

Off label use of daily SSRIs are also recommended as pharmacological treatments for PE.[14,16] The most commonly used SSRIs for management of PE are paroxetine, sertraline and fluoxetine.

Dapoxetine (Priligy®) is the only licensed treatment for PE in the UK.[18] It is a short-acting SSRI licensed for on-demand treatment before anticipated sexual activity.

Dapoxetine is only licensed in adult men aged 18-64 years who meet ALL of the following criteria:[18]

- An IELT of less than two minutes and
- Persistent or recurrent ejaculation with minimal sexual stimulation before, on, or shortly after penetration and before the patient wishes and
- Marked personal distress or interpersonal difficulty as a consequence of PE and
- Poor control over ejaculation and
- A history of PE in the majority of intercourse attempts over the prior 6 months.

Any use of dapoxetine in patients that do not meet all of the above criteria can also be considered as off label use.

Dapoxetine should be administered only as an on-demand treatment before anticipated sexual activity. It should not be prescribed to delay ejaculation in men who have not been diagnosed with PE.

Concomitant use of dapoxetine and PDE5 inhibitors is contraindicated.[18]

Various behavioural techniques are effective and should be used in patients unwilling to use pharmacotherapy.[14]

Clinical effectiveness

Erectile dysfunction

PDE5 inhibitors

A meta-analysis estimated the likely improvements of ED measured by the International Index of Erectile Function (IIEF) at the highest fixed dosages of sildenafil, tadalafil and vardenafil.[19] The IIEF addresses male sexual function and is a self-administered questionnaire. A total of 14 trials were included in the meta-analysis (three with 100mg sildenafil, eight with 20-25mg of tadalafil and three with 20mg vardenafil). All trials were of good methodological quality. Sildenafil proved to be significantly more effective than vardenafil, other pairwise comparisons showed no difference in efficacy. The meta-analysis concluded that all PDE5 inhibitors are highly effective in the treatment of ED.

For the newest PDE5 inhibitor, avanafil, there are no active comparator studies. Four randomised, double-blind, placebo controlled trials have been conducted, evaluating the efficacy and safety of avanafil in patients with ED.[20-23] These were conducted in men with diabetes, men post-prostectomy and in men in the general population of the USA and Korea. Overall, those treated with avanafil (across all doses), showed statistically significant improvement in the percentage of sexual attempts in which an erection of sufficient duration was maintained to enable successful intercourse; the percentage of sexual attempts in which vaginal penetration was achieved; and IIEF scores, compared with placebo. The majority of adverse events seen in clinical studies were mild to moderate in severity and resulted in infrequent discontinuations.[24]

The four PDE5 inhibitors are all licensed to be taken a maximum of once a day for ED.[1-11, 25-28] They are taken either 30 minutes (tadalafil and avanafil), 25 to 60 minutes (vardenafil) or 1 hour (sildenafil) before sexual activity. Tadalafil is also licensed to be taken as a regular once daily preparation at doses of 2.5mg or 5mg daily which is intended for patients who anticipate frequent use (more than twice weekly) of tadalafil. One suggested advantage of this is the patient does not need to wait for onset of action before sexual activity, however once daily tadalafil is significantly more costly than on demand treatments.

The PDE5 inhibitors have similar side effects, contra-indications, precautions in use and drug interactions.[1-11, 25-28] Details of the time to maximal plasma concentration (Tmax), time to erection and how long they last post dose and elimination half-life are provided in table 1 below. The long duration of effectiveness of tadalafil (up to 36 hours) has been said to improve patient satisfaction as it allows more spontaneity in the sexual experience.

Table 1: PDE5 inhibitors selected pharmacokinetic and clinical comparators[1-11, 25-28]

	Sildenafil (generic, Vizarin®, Nipatra®, Viagra®) tablets	Vardenafil (Levitra®) tablets	Vardenafil (Levitra®) orodispersible tablets	Tadalafil (Cialis®) tablets	Avanafil (Spedra®) tablets
Maximum frequency	Once daily	Once daily	Once daily	Once daily	Once daily
Time taken before sexual actual activity	1 hour	25 to 60 minutes	25 to 60 minutes	At least 30 minutes	Approximately 30 minutes
Tmax	30-120 minutes (median 60 mins)	30-120 minutes (median 60 mins)	45-90 minutes	2 hours (median)	30-45 minutes (median)
Time to erection	25 minutes (Range 12-37 minutes)	25 minutes (median, range starting from 15 minutes)	25 minutes (median, range starting from 15 minutes)	16 minutes-36 hours	15-30 minutes
Time still able to produce erection post dose	4-5 hours	4-5 hours	4-5 hours	Up to 36 hours	Up to 6 hours
Effect of food intake	Rate of absorption reduced by mean 60 minutes when consumed with food	Rate of absorption reduced by median 60 minutes when consumed with high fat meal	Rate of absorption reduced by median 60 minutes when consumed with high fat meal	Not affected	Rate of absorption reduced by mean 1 hour 15 minutes when consumed with high fat meal

Vacuum devices

The efficacy of vacuum devices, in terms of producing an erection satisfactory for intercourse is reported to be up to 90%, regardless of the cause of ED[14] although satisfaction rates vary considerably.[13,14] The long term use of the devices decreases to 50-64% after 2 years and most men who discontinue use do so after 3 months, leading to potential waste. They are most efficacious if the patients have a positive attitude to the use of the device, have been counselled appropriately and had sufficient demonstration of their use.[13]

Vacuum devices are contraindicated in men with bleeding disorders or currently receiving anticoagulant therapy. The commonest adverse events include pain, inability to ejaculate, petechiae, bruising, and numbness which occur in less than 30% of patients.[14]

Alprostadil

Several alprostadil preparations are available in the UK. These are intracavernous injection (Caverject®, Viridal®), an intraurethral application (MUSE®) and a topical cream (Vitaros®).

Intracavernous injection of alprostadil has been found to be effective in greater than 70% in general ED populations as well as in patient subgroups (diabetes, cardiovascular disease etc.). Sexual activity was reported after 94% of injections with satisfaction rates of 87-93.5% in patients and 86-90.3% in partners.[14]

Penile pain, prolonged erections, priapism, and fibrosis are complications of intracavernous alprostadil injection. Pain is usually self-limited after prolonged use.[29-33] Systemic side effects are uncommon, the most common being mild hypotension, especially when using higher doses.[14]

Despite favourable efficacy data, studies found patients using intracavernous alprostadil injection had high drop-out rates and limited compliance. Drop-out rates of 41-68% have been described, with most drop outs occurring within the first 2-3 months. In a comparative study, alprostadil monotherapy had the lowest discontinuation rate (27.5%) compared to overall drug combinations (37.6%), with an attrition rate after the first few months of therapy of 10% per year. Patients must be counselled appropriately on initiation of treatment and followed-up closely to ensure that they can adequately use the medication.[14]

Intraurethral alprostadil produces erections sufficient for sexual intercourse in 30-65.9% of patients, lower than that for intracavernous injection of alprostadil. The most common adverse event is local pain. Dizziness, headache and symptomatic hypotension are also reported as common. Minor urethral bleeding is common and is related to the mode of administration.[34]

Topical alprostadil cream (Vitaros®) is applied to the tip of the penis (meatus). Efficacy has been evaluated in two studies compared to placebo. Relative to placebo, a statistically significant overall improvement was observed in each of the primary efficacy endpoints, i.e. the erectile function domain of the IIEF score and increased success in vaginal penetration and ejaculation.[35] A regulatory assessment report conducted in the Netherlands found that for the primary efficacy endpoints the pivotal studies show a statistically significant superiority over placebo, the clinical relevance of the found effect remains 'modest'.[36] Although direct comparator studies with PDE5 inhibitors are not available, the assessment report noted that indirect comparisons indicated that Vitaros® was less effective than PDE5 inhibitors based on Sexual Encounter Profile (SEP) scores.[36] Studies comparing with other alprostadil preparations are also not available.

Alprostadil preparations are considered a second-line treatment. Alprostadil may be suitable for patients who do not respond to oral PDE5 inhibitors.[13]

Most long term alprostadil injection users can switch to sildenafil despite underlying pathophysiology. However, patients may prefer to continue to use alprostadil injections.[14]

Premature ejaculation

There is no controlled research to support the efficacy of behavioural techniques. However, a double-blind randomised cross-over study showed that oral pharmacological treatment resulted in greater IELT prolongation than behavioural therapy. Clinical experience also suggests that improvements achieved with behavioural strategies are not maintained long-term.

The efficacy of masturbation has been shown to be similar to the 'start-stop programme'.[14]

Two studies have evaluated the use of lidocaine-prilocaine cream 5% for ED and shown improvement in IELT.

Tramadol has also been studied for the management of PE, however, there is a lack of high level evidence to support its use.[14]

The efficacy of dapoxetine has been evaluated in five randomised, placebo-controlled trials in a total of 6081 patients.[37-44] The main outcome measures were average IELT values recorded per 4 week period and responses to the Premature Ejaculation Profile (PEP), a patient reported outcome measure. Dapoxetine showed only a modest efficacy in producing an increase in ILET of about one minute compared with placebo after 12-24 weeks treatment. However, a 3-4 point increase in IELT is usually what is accepted as a clinically significant response in practice. Improvement in PEP measures where significantly greater than with placebo, however only one third of patients reported that their PE was 'better' or 'much better' after 12 weeks treatment.[37]

There are no studies directly comparing on-demand dapoxetine with other drug treatments for PE, or long term data on safety and efficacy.[39] Dapoxetine has similar adverse events to and interactions to other SSRIs.[18]

One review suggests that dapoxetine is less effective than other SSRIs, particularly paroxetine. The lack of comparative data, the relatively modest improvements in outcomes and the potential for adverse effects associated with dapoxetine, indicate that dapoxetine does not offer additional benefit over daily generic SSRI treatment.[37] It is important to note that as other SSRIs do not have a licence for the treatment of PE, the prescriber needs to discuss this with the patient and obtain and document informed consent if prescribing.[45] See GMC good practice in prescribing and managing medicines and devices (2013) for further advice.

It is also worth noting that the off label use of SSRI's to treat PE is part of the BSSM and EAU treatment pathways.[13,14]

The monthly cost of dapoxetine is also significantly more than other SSRIs.[37,46]

Cost comparisons

NICE guidance (CG66), recommends that men with type 2 diabetes and ED are offered a PDE5 inhibitor, choosing the drug with the lowest acquisition cost, in the absence of contraindications, if ED is a problem.[17]

The tables below indicate costs of treatment for ED and PE.[46,47]

Table 2: PDE5 inhibitor costs per month based on 4 doses per month or once daily for tadalafil daily regimen

PDE5 inhibitor	Price per month based on 4 doses per month or once daily for tadalafil daily regimen
Sildenafil 25mg generic tablets	£1.09
Sildenafil 50mg generic tablets	£1.13
Sildenafil 100mg generic tablets	£1.22
Nipatra® (sildenafil) 25mg chewable tablets	£13.72
Nipatra® (sildenafil) 50mg chewable tablets	£17.02
Nipatra® (sildenafil) 100mg chewable tablets	£18.80
Viagra® (sildenafil) 25mg tablets	£16.59
Viagra® (sildenafil) 50mg tablets	£21.27
Viagra® (sildenafil) 100mg tablets	£23.50
Vardenafil 5mg (Levitra®)	£7.56
Vardenafil 10mg (Levitra®)	£14.08
Vardenafil 20mg (Levitra®)	£23.48
Vardenafil orodispersible tablet (ODT) 10mg (Levitra®)	£17.88
Tadalafil 10mg (Cialis®)	£26.99
Tadalafil 20mg (Cialis®)	£26.99
Tadalafil 2.5mg / 5mg daily dose (Cialis®)	£54.99
Avanafil 50mg (Spedra®)	£10.94
Avanafil 100mg (Spedra®)	£14.08
Avanafil 200mg (Spedra®)	£21.90

Table 3: Costs of alprostadil preparations

Product	Average price per dose (across all strengths)
Vitaros® cream	£10.00
MUSE® urethral application	£11.39
Caverject® powder and solvent for solution for injection vials	£14.25
Caverject® Dual Chamber cartridges for injection	£16.85
Viridal® Duo continuation pack cartridges for injection	£21.72

Table 4: Costs of vacuum devices

Product (manufacturer)	Price per device
Pos-T-Vac battery operated (Euro Surgical Ltd)	£127.00
Pos-T-Vac manual (Euro Surgical Ltd)	£98.00
Elite (Farnhurst Medical Ltd)	£135.00
Elite Plus (Farnhurst Medical Ltd)	£160.00
Elite Plus 2 (Farnhurst Medical Ltd)	£160.00
Accord (Genesis Medical Ltd)	£119.00
Impulse (Genesis Medical Ltd)	£119.00
Revive (Genesis Medical Ltd)	£149.00
E.I.D Erection Inducer Device (Healthcare 2000 ltd)	£149.00
SomaCorrect (iMEDicare Ltd)	£159.00
SomaCorrect Xtra (iMEDicare Ltd)	£179.00
SomaErect Response II (iMEDicare Ltd)	£160.81
SomaErect Response II – XL (iMEDicare Ltd)	£160.81
SomaErect Touch II (iMEDicare Ltd)	£169.00
Osbon ErecAid Classic (Mediplus Ltd)	£105.96
Osbon ErecAid Esteem (Mediplus Ltd)	£191.58
ErectEase (Mediwatch UK Ltd)	£94.00
Rapport Classic (Owen Munford Ltd)	£114.46
Rapport Premier (Owen Mumford Ltd)	£174.57
VaxAid Hydropump V30 (VaxAid ltd)	£89.50
Vetex Pump System (Vetco UK)	£95.00

Table 5: SSRI costs per month based on once daily dosing or one dose per week for dapoxetine

SSRI	Price per month based on once daily dosing or one dose per week for dapoxetine
Dapoxetine 30mg	£19.62
Dapoxetine 60mg	£25.50
Paroxetine 20mg (unlicenced for premature ejaculation)	£2.11
Paroxetine 50mg (unlicenced for premature ejaculation)	£4.16
Sertraline 25mg (0.5x50mg) (unlicenced for premature ejaculation)	£0.79
Sertraline 200mg (2x100mg) (unlicenced for premature ejaculation)	£4.48
Fluoxetine 20mg (unlicenced for premature ejaculation)	£1.13
Fluoxetine 60mg (3x20mg) (unlicenced for premature ejaculation)	£3.39

Switching from branded sildenafil (Viagra®) or other PDE5 inhibitors to generic sildenafil

The introduction of generic sildenafil provides the opportunity to review patients on branded generics of sildenafil (Vizarsin® and Nipatra®), branded sildenafil (Viagra®), tadalafil, vardenafil and avanafil to ensure that prescribing is in line with NHS guidance and to consider switching to generic sildenafil.

Organisations considering a review and switch from branded sildenafil or other PDE5 inhibitors to generic sildenafil should ensure that the process and switching methodology has been agreed locally by all key stakeholders including GPs, practice nurses, urology consultants, urology nurses and other relevant healthcare professionals/patients. Community pharmacists should also be informed of any switch processes. Organisations should consider the information below before deciding on a switching protocol.

The audits in attachments 1 and 2 (available here: TBA) can be used to identify patients who would be suitable for a therapy review, which may include reviewing whether patients meet the NHS criteria for pharmacotherapy of ED, switching to generic sildenafil where appropriate, reviewing the number of treatments prescribed, and discontinuing medication that is ineffective or not being taken.

It is important from the point of view of equity of access that GPs follow the new national criteria outlined above for access to PDE5 inhibitors. For PDE5 inhibitors other than generic sildenafil, if a patient is prescribed a PDE5 inhibitor for a condition that is not included in the NHS list then this is not fair to other individuals suffering from the same condition denied access by other GPs. It is for this reason that it is recommended that GPs offer generic sildenafil where a PDE5 inhibitor is indicated. GPs should only prescribe branded sildenafil and other PDE5 inhibitors on the NHS to those patients that meet nationally set out treatment criteria.

Patients currently prescribed branded sildenafil (Viagra®) or a branded generic version of sildenafil should be changed to the same dose of generic sildenafil as currently prescribed. Patients switching from other PDE5 inhibitors should be changed to an equivalent dosage level of generic sildenafil, i.e. low dose to low dose, high dose to high dose etc. For example, vardenafil 20mg can be changed to sildenafil 100mg.

Bioavailability differences exist between vardenafil 10mg orodispersible tablets and regular vardenafil tablets.[26] Care should be taken when switching patients from orodispersible vardenafil tablets to generic sildenafil.

Savings available

(ePACT prescribing data analysis and charts attached in data pack)

Prescribing should be reviewed to ensure it is appropriate, treatment is effective and patients meet the NHS criteria for treatment (for all treatments other than generic sildenafil).

National annual spend on PDE5 inhibitors is £38.7 million (October 2014). **Switching to generic sildenafil could release almost £36.9 million per year which equates to £65,142 per 100,000 patients annually**. There may be an increased cost to prescribing as the prescribing restrictions on generic sildenafil have been lifted, however, this will be minimal and offset by longer term savings on related health conditions.

Summary

- The patent for Viagra® expired in June 2013 and generic sildenafil products are now available at significantly reduced cost. This has the potential to release significant savings nationally. Patients presenting with ED should be screened for underlying causative co-morbidities including cardiovascular disease and diabetes. Patients with known diabetes should be asked about the presence of ED annually.
- Prescribing of PDE5 inhibitors for the treatment of ED should be reviewed. Generic sildenafil should be prescribed as the first choice PDE5 inhibitor where this is indicated. Patients prescribed other PDE5 inhibitors - branded sildenafil (Viagra®), vardenafil (Levitra®), tadalafil (Cialis®) and avanafil (Spedra®), should be reviewed and a switch to generic sildenafil considered where appropriate. Branded generics of sildenafil are not recommended as these are of increased cost in comparison to generic sildenafil tablets.
- Patients must meet NHS criteria for NHS funded pharmacotherapy treatments other than generic sildenafil and reviewing this cohort of patients provides the opportunity to ensure patients meet this criteria. Generic sildenafil can be prescribed for all patients with ED, regardless of cause.
- Vacuum pumps and alprostadil preparations are alternatives to PDE5 inhibitors for the treatment of ED. Patients should be assessed for suitability for these devices, and initial supply should be given by a specialist. Patients and their partners must be counselled appropriately to ensure they can use the treatment effectively to maximise concordance, efficacy of treatment and patient satisfaction with treatment.
- Where pharmacotherapy is indicated for the management of PE, dapoxetine (licensed) or generic SSRIs (off-label), should be considered. CCGs should make a local decision as to the recommended treatment hierarchy based on available evidence and cost-effectiveness of available treatments.

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Available here: http://www.prescqipp.info/resources/viewcategory/314-male-sexual-dysfunction

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