Home Iontophoresis for Hyperhidrosis

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March 2016

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Summary

- Hyperhidrosis is a common disorder characterised by sweating in excess of that needed for normal thermoregulation. Primary hyperhidrosis occurs in otherwise healthy people and is typically focal affecting the, palms, soles and axillae. It is a socially distressing condition, which can have a significant impact on a patient's quality of life.

- Iontophoresis is a non-invasive process in which a low intensity electrical current is applied to the affected area of skin through water baths or wet contact pads. It is widely used in the UK, and most dermatology departments treat palmar and plantar hyperhidrosis, but not all provide a service for those suffering in the axillae. Patients typically receive one course of iontophoresis consisting of 7 to 12 sessions over a four week period in the hospital setting. If a course of treatment is successful, it will need to be repeated at one to four weekly intervals, and for this patients are encouraged to purchase their own iontophoresis device for home-use.

- Tap water iontophoresis has a long history of use for the treatment of hyperhidrosis in a clinical setting, but the evidence supporting its use is based largely on clinical opinion and several small studies. Only one small study has assessed the efficacy of home iontophoresis using a device readily available in the UK. In this study patients with primary palmoplantar hyperhidrosis received a course of iontophoresis in a hospital setting. If treatment was successful, patients were provided with information on purchasing an Idrostar unit for home use. Most patients (72%) found that hospital iontophoresis was an effective and well-tolerated therapy. However, home iontophoresis was less effective with 62% reporting it was 'much less effective' than hospital treatment. Patients applied lower currents at home compared with those administered by nursing staff in the hospital, which may explain the reduced efficacy.

- Tap water iontophoresis has a long history of safe and well tolerated use when administered correctly. Although some side effects such as a burning or tingling sensation, tingling, erythema and small vesicle formation may be experienced during treatment, these are usually mild and rarely necessitate discontinuation of treatment. Iontophoresis using a home device is not expected to result in any additional side effects to those typically experienced in a hospital setting.

- Iontophoresis for hyperhidrosis is a nurse led service, and costs are expected to be limited to activity costs for the initial treatment schedule. Based on 2017/18 National Tariff prices a typically course of iontophoresis in an outpatient setting cost £528 to £808. However, the costs would be significantly higher if patients not purchasing a home device were to receive ongoing maintenance therapy at one to four weekly intervals in an outpatient setting. A range of iontophoresis devices suitable for home-use are available in the UK, costing from £360 to £1,300 (inc VAT). If the NHS were to provide a device for patients to administer their own treatment at home instead of in a hospital setting there may be some scope for cost savings to be made. However, the margin would depend upon the acquisition cost of the device, and ultimately the number of outpatient sessions replaced. With a combined cost of £552 for the first outpatient attendance and the cheapest device, home use would need to replace at least seven further outpatient attendances to be a cost-effective option.
Introduction and background

Hyperhidrosis is a common disorder characterised by sweating in excess of that needed for normal thermoregulation. It may be focal, involving specific areas of the body, or generalized, involving the entire body. Hyperhidrosis is classified according to the presence of an underlying cause. In the vast majority of cases there is no identifiable cause and this is known as primary or idiopathic hyperhidrosis. It occurs in otherwise healthy people and is typically focal affecting the axillae, palms, soles and face. Secondary hyperhidrosis tends to be a more generalised in nature with sweating involving most body parts. Secondary hyperhidrosis is typically associated with endocrine abnormalities, malignancies, infections, neurological diseases, psychiatric disorders or a side-effect of medication.1-4

There is no data to indicate how common hyperhidrosis is in the UK, but a large national survey published in 2004 estimates that approximately 2.8% of the US population is affected by primary hyperhidrosis. However, the true prevalence is likely to be significantly higher, as the condition often goes unreported due to embarrassment. The onset of primary hyperhidrosis typically begins during childhood or adolescence, but can occur at any age. In a few people, symptoms can spontaneously improve over time, but for the majority it runs a chronic course. Hyperhidrosis is a socially distressing condition, which can have a significant impact on a patient’s quality of life, including interference with intimacy, activities of professional and daily living, and physical discomfort.1-5

There are no standardised diagnostic criteria for hyperhidrosis, and the diagnosis is based on history and physical signs. The Hyperhidrosis Disease Severity Scale (HDSS) is accepted as a means of categorising the clinical severity of hyperhidrosis based on how it affects daily activities (table 1).

Table 1. Hyperhidrosis Disease Severity Scale (HDSS).4

<table>
<thead>
<tr>
<th>Subjective Score</th>
<th>Clinical interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>My sweating is never noticeable and never interferes with my daily activities</td>
<td>1 - mild</td>
</tr>
<tr>
<td>My sweating is tolerable but sometimes interferes with my daily activities</td>
<td>2 - moderate</td>
</tr>
<tr>
<td>My sweating is barely tolerable and frequently interferes with my daily activities</td>
<td>3 - Severe</td>
</tr>
<tr>
<td>My sweating is intolerable and always interferes with my daily activities</td>
<td>4 - Severe</td>
</tr>
</tbody>
</table>

There is no standardised treatment pathway for hyperhidrosis, and the treatment options available largely depend upon local policy. Patients with localised mild-moderate hyperhidrosis (HDSS 1 or 2) are usually treated in primary care. Initial treatment usually involves lifestyle advice and the use of topical 20% aluminium chloride preparations (Driclor or Anhydrol Forte). Oral antimuscarinics such as propantheline bromide (licensed), oxybutynin or glycopyrronium bromide (both off-label) may be trialled in primary care, but due to troublesome side-effects are more
usually suited to the management of generalised hyperhidrosis. Treatment should be reviewed after 1–2 months, and if successful, it can be continued indefinitely.\textsuperscript{1-4}

Referral to a dermatologist should be arranged for all patients with generalised hyperhidrosis, and for those with severe hyperhidrosis (HDSS 3 or 4), that has failed to respond to the above measures. Treatments generally available in secondary care include modified topical therapy, iontophoresis and botulinum-toxin A injections. If these do not work, surgical options may include local sweat-gland excision by subcutaneous curettage or tumescent liposuction, or sympathectomy.\textsuperscript{1-3}

**Iontophoresis**

Iontophoresis is a non-invasive process in which a low intensity electrical current is applied to the affected area of skin through water baths or wet contact pads. It is most often used for the hands, feet, and less frequently, the axillae (under arm area). While the exact mechanism of action is not completely understood, it is an effective treatment in the inhibition of sweat secretion. There are currently two types of iontophoresis available for the treatment of hyperhidrosis, one based on normal tap water, and one based on the addition an anticholinergic agent to the water.\textsuperscript{3}

Tap water iontophoresis is widely used throughout the UK, and most dermatology departments treat palmar and plantar hyperhidrosis, but not all provide a service for those suffering in the axillae. There are no clinical guidelines on the use of iontophoresis, and treatment is conducted according to local protocols. Patients typically receive one course of iontophoresis (7 to 12 treatment sessions) over a four week period in the hospital setting. Each session lasts between 20 to 30 minutes depending on the areas being treated. The criteria for successful treatment of hyperhidrosis are generally regarded as a reduction in HDSS from 3 or 4 to HDSS 1 or 2. Treatment failure can be defined as no change in HDSS score after 1 month of therapy or lack of tolerability for the treatment.\textsuperscript{2-4,6,7}

If a course of treatment is successful, it will need to be repeated as soon as the sweating resumes. The frequency of the maintenance therapy varies according to the individual, but is normally required at one to four weekly intervals, and for this patients are usually encouraged to purchase their own iontophoresis unit for home-use. A number of devices suitable for home-use are commercially available in the UK from recognised manufacturers and suppliers, with prices ranging from £330 to over £1,000 (excluding VAT). The iontophoresis devices most widely used by UK dermatology departments are those manufactured by Idrostar. However, if clinicians don’t recommend a particular brand, most patients are likely to buy the cheapest device available.\textsuperscript{2-4,7}

**Guidance and related advice**

The National Institute for Health and Care Excellence (NICE) has issued full guidance on Endoscopic thoracic sympathectomy for primary hyperhidrosis of the upper limb, in May 2014.\textsuperscript{8}

No other UK guidance or national policies relevant to the treatment of hyperhidrosis were identified.
Clinical evidence

Tap water iontophoresis has been used for the treatment of palmar and plantar hyperhidrosis since 1968. Despite such a long history of use, there are no large randomised controlled trials to support the efficacy of iontophoresis in the treatment of hyperhidrosis. The evidence supporting its use in the treatment of palmar and plantar hyperhidrosis is based on clinical opinion and several small controlled and non-controlled studies. Clinical opinion also suggests iontophoresis for axillary disease may be effective in practice, despite a lack of compelling, published evidence. Additional studies have shown that iontophoresis performed with anticholinergic agents such as glycopyrrolate in solution improves efficacy in comparison with using tap water only, but patients frequently report significant systemic adverse events.

Home iontophoresis

Published data evaluating the efficacy and safety of home iontophoresis is limited to two small cohort studies. Only one of these studies was performed using a device that is readily available for purchase by patients in the UK.

A small retrospective cohort study undertaken at a dermatology department in Dublin assessed the efficacy and compliance of home and hospital iontophoresis for hyperhidrosis. Patients with palmar, plantar or palmar and plantar primary hyperhidrosis unresponsive to topical therapies were offered a course of iontophoresis with the Idrostar pro plus device (STD Pharmaceuticals). A dermatology nurse specialist administers the maximally tolerated electrical current for a minimum of nine treatments over 21 days. If hospital iontophoresis prove successful, patients were provided with information on purchasing an Idrostar (STD Pharmaceuticals) unit for home use.

Data were collected by reviewing the medical records of patients who were treated with iontophoresis and by conducting administering a questionnaire to patients during a telephone call. In total 28 patients had received treatment with tap water iontophoresis over a seven year period, but complete data were only collected for 25 patients. The mean age was 33 years (range 8-71). The onset of hyperhidrosis was most often in childhood, and palmar and plantar with axillary hyperhidrosis was the most common pattern. The majority of patients (68%) rated their condition as severe, with a moderate to severe impact on their quality of life. Most patients found that hospital iontophoresis was an effective therapy for hyperhidrosis with 72% of patients reporting both a great improvement in their symptoms and quality of life. Of these, thirteen (52%) purchased an Idrostar unit for home use. Eleven patients used the unit to treat both their palms and soles, one treated the palms only, and one the soles only.

Home iontophoresis was less effective than hospital treatment with two patients reporting no improvement in the symptoms of hyperhidrosis from baseline, two mild improvements, and four moderate improvements. Five patients reported a greater than 80% improvement in symptoms with a great improvement in quality of life. Overall, most patients (62%) thought that home iontophoresis was ‘much less
effective’ than hospital treatment, with only four describing it as equally effective. The majority of patients (92%) used a lower electrical current during home iontophoresis compared with that they tolerated during hospital therapy delivered by a nurse (2.5 – 20mA vs. 7 – 29mA). Six patients (46%) stopped using their home iontophoresis device because it was not effective for their hyperhidrosis. These patients used the device for an average of eight months (range 4–24 months) before discontinuing, and all had applied low currents during home treatment.

There has been one previous study investigating the use of a home iontophoresis device in the treatment of hyperhidrosis. Akins et al., studied the efficacy of the US manufactured Drionic unit (General Medical Co) in patients with hyperhidrosis of the palms, soles and/or axillae. Enrolment was limited to individuals demonstrating marked sweat output as measured by Persprint paper. At the time of the study (1987), the Drionic unit was a battery powered iontophoresis device that delivered a direct current through two-tap water saturated pads.

Twenty-two patients received treatment on a combined total of twenty-seven affected sites. These treatment sites were randomly divided into the right and left sides, with the untreated site serving as a control. Of these sites, ten were palms, nine were soles, and eight were axillae. As recommended by the manufacturer, the treatment sites were exposed to a 30 minute session twice a day for five days followed by 30-minute daily treatments. Treatment was continued until a reduction in sweating was noted. Patients were instructed to use the unit at the maximum output tolerable, and not to use antiperspirants or other topical agents during the study. Sweat output was measured by use of Persprint paper and the data were quantified by an image analysis computer. A positive clinical response was arbitrarily interpreted as a >50% reduction in sweat production on the treated side as estimated by two physicians. Measurements were taken on day 0, day six, and then weekly until a clinical response was noted. Treatment was then discontinued and a 1-month follow-up measurement was conducted.

Pre-treatment assessments indicated no significant differences in the sweat rates between the control and treated site. Of the original 27 treatment sites, three did not respond clinically within one month and were not included in the statistical analysis. In the remaining 24 treatment sites, the mean print values were significantly different at the palm, soles (both p<0.001), and axillae (p<0.01), demonstrating a marked decrease in sweat production on the treated side. The time taken to achieve a positive clinical response varied form six days to more than 34 days, although 93% of sites had responded by day 20. The palmar site was the only region to show a statistically significant continued sweat inhibition at one month post-treatment follow-up.

Safety
Tap water iontophoresis has a long history of safe and well tolerated use when administered correctly. Although some side effects may be experienced during treatment, these are usually mild and very rarely necessitate discontinuation of treatment. The most frequently reported side effect is a burning or tingling sensation.
Home iontophoresis for hyperhidrosis

Northern Treatment Advisory Group, February 2017

(“pins and needles”) in the treated area. Irritation of the skin (erythema and small vesicle formation) along the water line is also common, but is usually transient. 3,6,9

Many of the side effects associated with iontophoresis can be prevented by proper preparation and patient education. To prevent mild shocks, patients should not remove their hands or feet from the water trays while the device is in use. Scratches and cuts on the surface to be treated should be covered with a thin layer of petroleum jelly to minimize discomfort during the procedure. Skin dryness or irritation can be treated by decreasing the frequency of treatments and by using emollients or hydrocortisone cream. 3,4,6,9,12-16

Iontophoresis is contraindicated if pregnant, or if the patient has a cardiac pacemaker or defibrillator, orthopaedic metal implants or a uterine implant (IUD/IUS - contraceptive ‘coil’).

Home iontophoresis

The application of tap water iontophoresis using a home device is not expected to result in any additional side effects to those typically experienced in a hospital setting, as described above. If used in accordance with manufacturers and clinicians instructions these side effects should not be severe enough to necessitate discontinuation of treatment.

Only very limited safety data were reported in the study assessing the efficacy and compliance of home and hospital iontophoresis for hyperhidrosis. 11 During hospital iontophoresis, 22 patients (88%) experienced transient side effects, such as tingling and stinging. Four patients (16%) experienced compensatory hyperhidrosis. Of the 13 patients who went on to use home iontophoresis, all reported (100%) experiencing transient side-effects during treatment. One patient experienced compensatory hyperhidrosis.

In the study by Akins et al., side effects were reported in 20 of the 27 treatment sites. 10 They were all minor and none required the patient to stop treatment. The most common side effect was discomfort during treatment which was described as mild in 11 sites, moderate in five sites, and severe in four sites. Other side effects included scaling, erythematous papules and vesicles, all of which were at the palms and axillae only.

Dosage and administration

There are no national guidelines on the use of iontophoresis in the management of hyperhidrosis, and treatment is conducted according to local protocols. Patients typically receive one course of iontophoresis consisting of seven treatments given over a period of four weeks (Day 1, 2, 4, 7, 10, 15 and day 22) in the hospital setting. Each treatment session varies from 20-30 minutes depending on the areas being treated.

If the initial course of treatment is successful, it is recommended that a single maintenance session should be carried out as soon as the sweating starts to return.
The frequency of the maintenance treatment varies with the individual, but is normally required at one to four weekly intervals. Most dermatology departments encourage patients purchase their own iontophoresis unit for home-use in order to administer their own maintenance treatment.

**Cost analysis**

**Home-use Devices**

A number of iontophoresis devices for home-use are commercially available in the UK. Most are available in differently priced packages depending upon which affected area of skin requires treatment. These devices commonly come with a set-up manual, and an online instructional video or DVD. A general comparison of these devices is shown in Table 2. This table is for illustrative purposes only, and is not intended to be exhaustive of all options available for purchase in the UK. The prices shown are those quoted on the manufacturer's/suppliers website. Some devices may be available through other distributors at a lower price. The HMRC permits orders for medical devices intended for use by private individuals within the EU (including orders on behalf of close family members) to be exempt from VAT. However, the purchases of devices for home-use made through secondary care are likely to be subject to VAT.

A number of other supposed devices are also available from international online retailers and auction sites at significantly lower prices. However, the quality and safety of such devices vary according to their origin of manufacture and stringency of European standard markings, so patients wishing to try home treatment will require guidance from their dermatologist regarding the purchase of a reputable device.¹,²¹

STD Pharmaceuticals under the brand name Idrostar manufactures four tap water iontophoresis machines for the treatment of hyperhidrosis. The Idrostar and Idrostar+ are both designed for home use and the i2ma is intended for home or clinic use. With the Idrostar+ different packages are available for the hands and feet, with or without axillae electrodes and with or without remote controls. The Idrostar Pro Pulse is intended for hospital/clinic or home use and is the only device able to treat four extremities at once. All devices carry a two year warranty.

Sweat Guard Ltd manufactures one home device which is available in different packages for the hands and feet, and/or axillae. The device comes with a two year warranty.

Davita manufactures one home device for the hands and feet to which electrodes for the treatment of axillae can be purchased separately. The device comes with a two year warranty.

Hidrex manufactures two home devices. One is available in different packages for the hands and feet, and/or axillae; the other for the feet only. Both devices come with a two year warranty.

ALT also manufactures two home devices. One is available in different packages for the hands and feet, and/or axillae; the other for the feet only. Both devices come with a two year warranty.

AAM manufactures one home device for the hands, feet, axillae, and also the neck, groin, thighs and buttocks. The device comes with a one year warranty.
### Table 2. Comparison of home-use iontophoresis devices available in the UK.

<table>
<thead>
<tr>
<th>Device</th>
<th>Area</th>
<th>Current type</th>
<th>Power source</th>
<th>Cost (VAT exempt)</th>
<th>Cost (+ VAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD Pharmaceuticals 2</td>
<td>Palmar, Plantar</td>
<td>Direct Current</td>
<td>Disposable batteries.</td>
<td>£363.00</td>
<td>£435.60</td>
</tr>
<tr>
<td>with remote control</td>
<td>Palmar, Plantar</td>
<td></td>
<td></td>
<td>£395.00</td>
<td>£474.00</td>
</tr>
<tr>
<td>Axillae electrodes (x2)</td>
<td>Axillae</td>
<td></td>
<td></td>
<td>-</td>
<td>£53.88</td>
</tr>
<tr>
<td>Idrostar +</td>
<td>Palmar, Plantar</td>
<td>Direct and Pulsed Current</td>
<td>Disposable batteries.</td>
<td>£420.00</td>
<td>£504.00</td>
</tr>
<tr>
<td></td>
<td>Axillae only</td>
<td></td>
<td></td>
<td>£425.00</td>
<td>£510.00</td>
</tr>
<tr>
<td></td>
<td>Palmar, Plantar and axillae</td>
<td></td>
<td></td>
<td>£470.00</td>
<td>£564.00</td>
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<tr>
<td>with remote control</td>
<td>Palmar, Plantar</td>
<td></td>
<td></td>
<td>£460.00</td>
<td>£552.00</td>
</tr>
<tr>
<td></td>
<td>Palmar, Plantar and axillae</td>
<td></td>
<td></td>
<td>£500.00</td>
<td>£600.00</td>
</tr>
<tr>
<td>i2ma</td>
<td>Palmar, Plantar</td>
<td>Direct Current</td>
<td>Internal rechargeable batteries</td>
<td>£499.00</td>
<td>£598.80</td>
</tr>
<tr>
<td>Axillae electrodes (x2)</td>
<td>Axillae</td>
<td></td>
<td></td>
<td>-</td>
<td>£47.23</td>
</tr>
<tr>
<td>Idrostar pro pulse</td>
<td>Palmar, Plantar</td>
<td>Direct and Pulsed Current</td>
<td>Internal rechargeable batteries</td>
<td>£1,075.00</td>
<td>£1,290.00</td>
</tr>
<tr>
<td>Axillae electrodes (x2)</td>
<td>Axillae</td>
<td></td>
<td></td>
<td>-</td>
<td>£47.23</td>
</tr>
<tr>
<td>Sweat Guard Ltd</td>
<td>Palmar, Plantar</td>
<td>Direct Current</td>
<td>Rechargeable batteries</td>
<td>£350.00</td>
<td>£420.00</td>
</tr>
<tr>
<td>Axillae electrodes (x2)</td>
<td>Axillae</td>
<td></td>
<td></td>
<td>£379.00</td>
<td>£454.00</td>
</tr>
<tr>
<td></td>
<td>Palmar, Plantar and axillae</td>
<td></td>
<td></td>
<td>£400.00</td>
<td>£480.00</td>
</tr>
<tr>
<td>Davita</td>
<td>Palmar, Plantar</td>
<td>Direct and Pulsed Current</td>
<td>Mains (UK)</td>
<td>-</td>
<td>£362.18</td>
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<tr>
<td>Axillae electrodes (x2)</td>
<td>Axillae</td>
<td></td>
<td></td>
<td>-</td>
<td>£45.05</td>
</tr>
<tr>
<td>Hidrex PSP1000</td>
<td>Palmar, Plantar</td>
<td>Direct and Pulsed Current</td>
<td>Mains (UK)</td>
<td>£549.00</td>
<td>£668.80</td>
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<tr>
<td>Axillae only</td>
<td></td>
<td></td>
<td></td>
<td>£539.00</td>
<td>£646.80</td>
</tr>
<tr>
<td></td>
<td>Palmar, Plantar and axillae</td>
<td></td>
<td></td>
<td>£569.00</td>
<td>£682.20</td>
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<tr>
<td>Hidrex GS4000</td>
<td>Plantar only</td>
<td>Direct Current</td>
<td>Mains (UK)</td>
<td>£379.00</td>
<td>£454.80</td>
</tr>
<tr>
<td>ALT</td>
<td>Palmar, Plantar</td>
<td>Pulsed Current</td>
<td>Mains (UK)</td>
<td>£545.00</td>
<td>£654.00</td>
</tr>
<tr>
<td>Galvan DE20</td>
<td>Palmar, Plantar and axillae</td>
<td>Direct and Pulsed Current</td>
<td>Rechargeable batteries</td>
<td>£329.00</td>
<td>£394.80</td>
</tr>
</tbody>
</table>
Cost estimates

Iontophoresis for hyperhidrosis is a nurse led service, and costs are expected to be limited to activity costs for the initial treatment schedule. All patients referred for iontophoresis will have been seen by a Consultant, a Specialist Registrar or a Clinical Assistant and have been diagnosed as suitable for treatment.

Based on 2017/18 National Tariff prices (table 3), a typically course of iontophoresis consisting of seven treatment sessions undertaken in a dermatology outpatient setting would cost £528. Based on the more intensive treatment course of 12 sessions, the cost would be £808. Both costs assume that the first attendance would be multi-professional and include one treatment session, with follow-up attendances involving only a single professional. However, the costs would be significantly higher if patients not purchasing a home device were to receive ongoing maintenance therapy at one to four weekly intervals in an outpatient setting.

Table 3. Dermatology outpatient attendance National Tariff prices 2017/18.

<table>
<thead>
<tr>
<th>First Attendance – Single Professional</th>
<th>First Attendance – Multi Professional</th>
<th>Follow Up Attendance – Single Professional</th>
<th>Follow Up Attendance – Multi Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>£133</td>
<td>£192</td>
<td>£56</td>
<td>£69</td>
</tr>
</tbody>
</table>

A range of iontophoresis devices suitable for home-use are commercially available in the UK from recognised manufacturers and suppliers, with prices ranging from around £360 to just under £1,300 inclusive of VAT (table 2). The iontophoresis devices most widely used by UK dermatology departments are those manufactured by Idrostar.

If the NHS were to provide iontophoresis devices for patients to administer their own treatment at home instead of in a hospital setting there may be some scope for cost savings to be made. However, the margin would depend upon the acquisition cost of the device (inclusive of VAT), and ultimately the number of outpatient sessions replaced. In addition to the acquisition costs, all patients referred for iontophoresis treatment would still require at least one dermatology outpatient attendance for consultation, and adequate training in the use of the device. With a combined cost of £552 for the initial outpatient attendance (MP) and purchase of the cheapest device, home use would need to replace at least seven further outpatient attendances to be a cost-effective option. Nonetheless, self-treatment at home negates the need to spend time in hospital, and is likely to provide significant cost savings to patients in terms of time off work and other non-medical costs such as transportation costs.

The prevalence of hyperhidrosis was reported as 2.8% in a large US national survey. Applying this value to the NTAG population as a whole, around 87,000 people have hyperhidrosis. However, only a very small minority of these would be expected to present for treatment.

Although we were unable to obtain exact patient numbers, the dermatology department at the Newcastle Royal Victoria Infirmary treats around three patients per week with tap water iontophoresis for hyperhidrosis. Based on the typically course of iontophoresis used in the department (12 sessions over four weeks), this equates to around 39 patients receiving treatment per year. The department uses the Idrostar pro pulse for demonstrating the treatment to patients, but they don’t recommend any particular brand, so most patients buy whatever is cheapest.
Points to consider

- Hyperhidrosis is a common disorder characterised by sweating in excess of that needed for normal thermoregulation. It is a socially distressing condition, which can have a significant impact on a patient’s quality of life.

- Iontophoresis is a non-invasive process in which a low intensity electrical current is applied to the affected area of skin through water baths or wet contact pads. It is widely used in the UK, and most dermatology departments treat palmar and plantar hyperhidrosis, but not all provide a service for those suffering in the axillae. Patients typically receive one course of iontophoresis consisting of 7 to 12 sessions over a four week period in the hospital setting. If a course of treatment is successful, it will need to be repeated at one to four weekly intervals, and for this patients are encouraged to purchase their own iontophoresis device for home-use.

- Published data evaluating the efficacy and safety of home iontophoresis is limited to two small cohort studies. Only one small study has assessed the efficacy of home iontophoresis using a device readily available in the UK. In this study involving patients with primary palmoplantar hyperhidrosis, most (72%) found that hospital iontophoresis was an effective and well-tolerated therapy. However, home iontophoresis was less effective with 62% of patients reporting that it was ‘much less effective’ than hospital treatment. The majority of patients applied lower currents at home compared with those administered by nursing staff in the hospital, which may explain the reduced efficacy.

- Tap water iontophoresis has a long history of safe and well tolerated use when administered correctly in a clinical setting. Iontophoresis using a home device is not expected to result in any additional side effects.

- Iontophoresis is a nurse led service, and costs are expected to be limited to activity costs for the initial treatment schedule. Based on National Tariff prices a typically course of iontophoresis in an outpatient setting cost £528 to £808. The costs would be significantly higher if patients were to receive ongoing maintenance therapy at one to four weekly intervals in an outpatient setting.

- A range of iontophoresis devices suitable for home-use are available in the UK, costing from £360 to £1,300 (inc VAT). If the NHS were to provide a device for patients to administer their own treatment at home instead of in a hospital setting there may be some scope for cost savings to be made. However, the margin would depend upon the acquisition cost of the device, and ultimately the number of outpatient sessions replaced.

- In addition to the acquisition costs, all patients referred for iontophoresis treatment would still require at least one dermatology outpatient attendance for consultation, and adequate training in the use of the device. With a combined cost of £552 for the initial outpatient attendance and purchase of the cheapest device, home use would need to replace at least seven further outpatient attendances to be a cost-effective option.
Author’s declaration: The author has no relevant interests to declare.

References