WUK BPS

Best Practice Statement

Ankle brachial pressure index (ABPI) in practice

The importance of ABPI

Addressing the challenges

The role of automated ABPI

Successful implementation

Making the case

Wounds UK

BEST PRACTICE STATEMENT: ANKLE BRACHIAL PRESSURE INDEX (ABPI) IN PRACTICE

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Foreword

The measurement of the ankle brachial pressure index (ABPI) has been identified as a crucial element of holistic assessment, which can enable early intervention and thus improve patient outcomes.

National data identified in the Burden of Wounds study (Guest et al, 2015; Guest et al, 2017) has demonstrated the cost of leg ulcers to healthcare systems, and proper diagnosis and early intervention have been shown to be key areas that require attention (Staines, 2018).

Gaps in practice have been identified and new developments in technology for ABPI testing – i.e. accurate automated assessment devices – may be beneficial in improving outcomes in practice (Dowsett & Taylor, 2018; Mullings, 2018).

Guide to using this document

This document was developed with the overall objective of supporting practitioners to improve the assessment of ABPI in practice by:

- Explaining the value and importance of ABPI as part of holistic assessment
- Describing the processes involved and underlying rationale, and summarising these as Best Practice Statements (BPS)
- Showing how correct assessment and the processes involved can be optimised and thus support best practice management of patients.

The BPS were derived from a one-day meeting of the Expert Working Group, which was convened to discuss ABPI assessment. The BPS were further developed by the Expert Working Group during an extensive review process.

To emphasise the importance of patient involvement, as well as BPS, Patient Expectation statements are also included, which can be used to explain to patients undergoing assessment and treatment what they should expect at each stage. The main text also provides more detailed information on the rationale for each BPS and provides guidance on its implementation. The BPS are highlighted in blue throughout the document, the Patient Expectations in green.

The Expert Working Group recognises that some elements of the BPS may be hard to achieve in some care settings. However, the hope is that, by setting out what is best practice and the processes required, practitioners may be supported in the quest for any organisational changes necessary for delivery of best practice in assessing ABPI to optimise patient outcomes.

What is ABPI and why is it important?

Defining ABPI

In simple terms, ABPI testing is a non-invasive way of assessing a patient's vascular status and establishing or excluding the presence of peripheral arterial disease (PAD). Terminology can vary, with terms also used such as ABI (ankle brachial index); ABPI testing may also be referred to as 'Doppler' testing, as the Doppler ultrasound is the traditional means used to conduct ABPI testing.

A Doppler ultrasound uses high-frequency sound waves to measure the amount of blood flow through the patient's arteries and veins, usually those that supply blood to the legs, comparing systolic blood pressure at the ankle with that in the arm. Vascular flow studies, also known as blood flow studies, can detect abnormal flow within an artery or vein. The purpose of all ABPI testing is to assess the strength of the arterial blood flow at the ankle.

While there are a number of tools that may be used (see Box 1), ABPI testing is considered the gold-standard for assessing patients for PAD, but there are limitations preventing this from being carried out as often as it should be in practice (Guest et al, 2017; Staines, 2018).

Box 1. Methods for assessing vascular status (Mullings, 2018)

- Ankle brachial pressure index (ABPI) – bedside test to exclude significant arterial disease by comparing systolic blood pressure at the ankle with the arm
- Toe brachial pressure index (TBPI) – similar to ABPI, but the cuff is placed on the hallux to obtain toe pressure (may be beneficial if a cuff cannot go around the ankle, e.g. due to painful ulceration, lymphoedema or obesity, or if unable to undertake an ABPI due to calcification)
- Pulse oximetry – a secondary diagnostic tool to measure blood oxygen levels, although not reliable at excluding PAD
- Arterial duplex scan – non-invasive ultrasound scan of the arteries, to visually assess structure and blood flow

ABPI should be used to identify the presence/absence of arterial disease in the leg, by comparing systolic pressures in the arm and leg

BPS 1

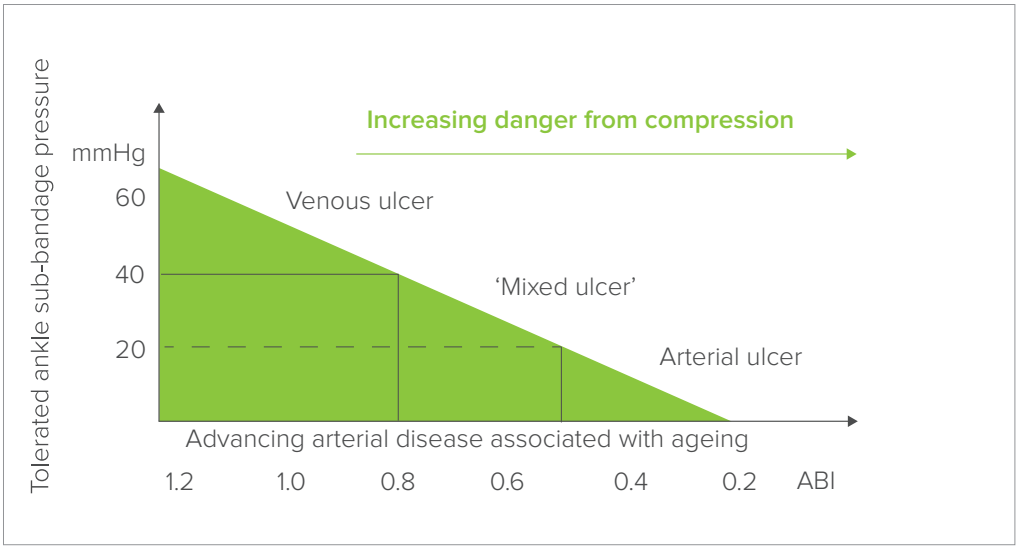
The role of ABPI assessment in wound management

All patients with a lower limb wound – but particularly a leg ulcer – should undergo ABPI testing, as should patients who are considered to be at high risk (e.g. due to diabetes or immobility) or presenting with lower limb-related changes (Wounds UK, 2015). A leg ulcer can be defined as 'a break on the skin, which fails to heal within 2 weeks' (NICE, 2016).

Box 2. All patients with a lower limb wound should be tested for PAD, including:

- Patients with stigmata of disease in the absence of ulceration, in order to halt progression and initiate early intervention
- Patients with any symptoms of PAD, in order to confirm or exclude disease
- Patients with early or established swelling of the lower limb, to inform treatment choices and instigate early intervention to halt disease progression and complications
- Falls and syncope patients prior to treatment with compression hosiery
- Patients undergoing compression therapy prior to being issued with repeat garments, with frequency based on individual risk factors associated with the patient
- Any patient with a lower limb wound irrespective of suspected aetiology to assess for sub-clinical PAD, which may then affect the patient's healing potential and suggest onward referral

Figure 1: ABPI measurement indicators for compression therapy (adapted from Vowden and Vowden, 2001)



ABPI must be recorded as part of an holistic assessment of all patients deemed to require compression therapy

BPS 2

Following assessment of clinical signs and symptoms and taking a full medical history, the ABPI result should be used to formulate an appropriate treatment plan

BPS 3

If you have – or are at risk of – a lower leg wound, you should expect to receive ABPI testing within 4 weeks or sooner

Patient expectation

Any patient with a lower limb wound, regardless of duration, must undergo holistic assessment and treatment should be commenced as early as possible (Wounds UK, 2016); see Box 2 for more information. Current guidelines recommend that assessment should be made within 6 weeks, but there has been suggestion that this should be reduced to 2 weeks (Staines, 2018). Patients initially presenting with any signs of venous disease (e.g. skin changes, oedema) should be assessed within a maximum of 10 days to aid diagnosis of aetiology (NICE, 2013; Wounds UK, 2013).

Compression is considered the gold-standard treatment for patients with, or at risk of, venous leg ulcers; it should be used wherever possible as a first-line treatment (Wounds UK, 2016). The primary aim of ABPI testing is to assess the health of the arteries at the ankle, and to determine whether it is safe to apply compression therapy. See Figure 1 for a guide to the ABPI measurement indicators for compression therapy, detailing how results can be interpreted and inform the next steps to be taken.

ABPI assessment is not intended for the diagnosis of venous disease, but rather for exclusion of significant arterial disease and therefore confirmation of safe practice – i.e. to confirm that use of compression treatment is safe (Wounds UK, 2016). As such, it is important that the clinician understands why this is being undertaken in order to appropriately interpret the results, and to confirm the purpose of testing and its implications, and to communicate this effectively to the patient.

Patients who are being managed with compression therapy should have regular testing to ensure that their arterial status has not deteriorated. Subsequent assessments, incorporating ABPI measurements, should be completed at 3, 6 or 12-month intervals. The frequency will depend on initial and ongoing assessment outcomes, cardiovascular risk profile, patient needs, and local guidelines (NICE, 2013; Wounds UK, 2016).

Recently it has been suggested that there is a need to focus on clinical assessment, rather than relying on an ABPI alone, and recognise that it may be more harmful for the patient to omit or delay compression therapy than to apply it; therefore, delaying treatment while awaiting an ABPI or if obtaining an ABPI reading is not possible, may lead to a deterioration of the patient's condition (BLS, 2018).

Early detection of PAD

As well as enabling commencement of compression therapy, ABPI testing can be used to confirm PAD in at-risk patients and trigger appropriate referral and treatment. PAD itself is a significant problem, potentially resulting in lower limb amputations and early death (APPG, 2016). A recent report found that access to appropriate testing technology can facilitate earlier and more accurate identification of people at potential risk of amputation, heart attack, stroke and early death from arterial disease, driving service improvement as well as patient outcomes (APPG, 2016).

Early detection and management of arterial disease significantly reduces morbidity and mortality, so accurate assessment and early intervention should be considered key

BPS 4

If PAD is diagnosed, it is important to emphasise to the patient that commitment to lifestyle modifications can positively affect their outcome and optimise any surgical interventions. Relevant lifestyle factors include:

- Nutrition and dietary advice
- Understanding of cholesterol control
- Exercise
- Smoking cessation

ABPI: What are the challenges?

While ABPI measurement is considered a vital part of assessment, evidence has shown that it is not being conducted widely enough in practice. This has a significant effect on healthcare systems, patient outcomes and costs. The Burden of Wounds study (Guest et al, 2015; Guest et al, 2017) found that 1.5% of the UK population are living with a leg ulcer, and the annual cost of management, along with associated comorbidities, is estimated at £5.3 billion.

A recent survey by Gray et al (2018) found that 40% of people with leg ulcers either had not received ABPI assessment, or it was unclear whether a recording had been taken. Additionally, 31% of patients whose most severe wound was a venous leg ulcer were not receiving compression therapy.

The lack of early identification and assessment means that more human and financial resources are spent on mistargeted care and treatments that may not aid healing of the wound, which can lead to increased chronicity, infection and other complications, and further increase in levels of intervention required (Mullings, 2018). The additional cost of non-healing wounds adds a further £3 billion to the total cost, and leg ulcer recurrence rates are estimated as being as high as 69% (Guest et al, 2015; Guest et al, 2017; Nelson & Bell-Syer, 2014).

Reasons for not conducting ABPI at the first assessment stage can include lack of clinician skill and resource, time and confidence. Healthcare system, patient and environment-related factors can also contribute to the lack of testing in practice.

System-related factors

Adequate resource and time are not always available to facilitate ABPI testing. This not only has an effect on patient outcomes, but can create a vicious cycle by which ABPI testing is not conducted due to time and resource limitations, and then clinicians lose confidence with undertaking ABPI. Thus the skillset may be lost and testing conducted even less frequently.

This is creating a gap in care, as evidenced by the fact that nearly 1 in 5 people with a leg ulcer receive no differential diagnosis (Guest et al, 2015; Guest et al, 2017), meaning that the underlying cause of the wound has not been determined and so treatment cannot be targeted correctly (Staines, 2018).

It is key that the importance of ABPI testing, and how it determines ongoing treatment, is fully understood. Clinicians should have a good understanding of the processes required and should be able to put these into practice.

Patient-related factors

Many patients lack knowledge about the process, and this can lead to issues in conducting ABPI. This is why communicating the process, how it works and why it is being conducted is vital, using plain language and terms that the patient can understand. This will help to ensure that the correct pathway is followed.

Anxiety and pain issues may be elements that need to be considered. It is possible that a patient may have had a previous bad experience, and will need to be reassured about the process.

It is important to communicate the relevance that the testing and subsequent treatment has to the patient individually and to their condition. This can be used as an opportunity to open a discussion with the patient; for example, this could be about smoking or nutrition.

On a practical level, some patients may find complying with the procedure challenging – e.g. they are unable to lie down flat due to pain, mobility, breathing or weight issues. They may also have issues regarding their ability to make informed consent.

It can be a misconception that conducting ABPI testing in the incorrect position is 'better than not doing it' but this can cause problems, and results should be interpreted with caution and any potential discrepancies considered.

Medical factors that may affect a patient's ability to undergo ABPI testing in the usual way include:

- Deep vein thrombosis (DVT)
- Cellulitis
- Surgery to arm/leg
- Lymph node clearance
- Cancer-related treatment
- Amputation
- Friable skin
- Mental health-related issues
- Dementia
- Neurological disease (e.g. that may affect the patient's ability to stay still)

The clinician will explain to you how this test relates to your medical history and current condition, and how this may influence your treatment

Patient expectation

EIDO leaflets are a resource designed to assist clinicians in communicating with their patients, and to enable patients to make informed consent about their own treatment. Patients can be supplied with EIDO leaflets to obtain more information and to inform them about the processes and their relevance (Eido Healthcare, 2018).

The clinician will explain to you why you need to lie down during the procedure and will make sure you are as comfortable as possible

Patient expectation

As well as more general health conditions, factors relating to the patient's specific wound/limb condition may also affect their ability to undergo ABPI testing. These can particularly relate to pain, or to severe swelling/oedema affecting the patient's capacity to undergo ABPI testing. As above, it is important that the patient is as comfortable as possible and has had the process explained to them properly.

Measures should also be taken to ensure that any symptom-related factors affecting testing are minimised as much as possible. For instance, if swelling/pain is an issue, making the patient more comfortable, ensuring they have had appropriate analgesia, and using the most appropriate equipment (e.g. ABPI testing device with different sized cuffs).

Clinical staff should be taught both anatomy and physiology of the leg, in order to understand the clinical relevance of ABPI testing and how to apply this in practice

BPS 5

Clinical staff should be assessed and supported in practice to apply their knowledge and skills

BPS 6

Clinicians must have the relevant resource – staff, time, equipment – to support ABPI testing

BPS 7

Environment-related factors

The environment in which ABPI testing is conducted can have an effect on the outcome. For instance, the environment may be unsuitable in some home settings – e.g. if there is no room for the patient to lie down properly, or if temperature is an issue because there is no heating.

Across all care settings, measures should be taken to ensure that the patient is as comfortable as possible and that the test can be properly carried out. If there is any doubt about this, care should be taken in interpreting results, and further testing or referral should be made if necessary.

If ABPI testing is conducted using the traditional Doppler method, environmental factors can affect how the results are interpreted and care should be taken to avoid potential confusion. For instance, a noisy environment can make it difficult to listen to the results of a Doppler ultrasound test.

The role of automated ABPI

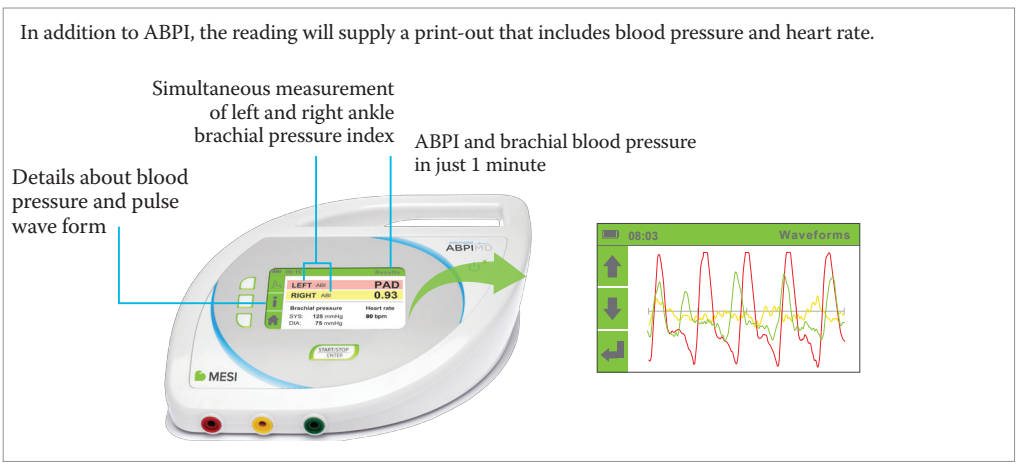
In recent years, advances in technology have resulted in new developments for ABPI testing. Automated devices have been developed that can simplify and speed up the accurate recording of the ABPI compared to traditional Doppler testing. This document focuses on the MESI ABPI MD (medi UK), based on product information (medi UK, data on file) and the findings of a recent quality improvement project (Dowsett and Taylor, 2018). However, it should be noted that other automated ABPI testing devices are available.

Table 1. Comparison between MESI ABPI MD and other methods

	Doppler probe	MESI ABPI MD	MESI ABPI MD rationale
Measurement duration	30 min	1 min	Plethysmographic method
Pre-measurement resting	10-20 min	0 min	Elimination of blood pressure drift error and time-savings
Measuring process	One extremity at a time	Simultaneous	
Additonal education	Yes	No	Medical staff familiar with the cuffs
Calculations	Manually	Automatic	Instant left and right ABPI and more accuracy
Measurement report	No	Automatic via PC	For patient records
Clothes removal	Yes	No	Increased patient comfort
Gel appliance	Yes	No	

The MESI device measures ABPI based on volume plethysmography. The blood pressure on the upper and lower extremities is measured simultaneously with three colour-coded cuffs. The colour-coding shows where to position each cuff: the upper arm, right ankle and left ankle. The cuffs come in two different sizes (standard and large) and there is also a setting that can be used in the case of an amputee. See Figure 2 for an example of the MESI automated ABPI testing system. The device measures the pressures within 1 minute and shows the ABPI, pulse wave form, blood pressure and heart rate a few seconds later. For more information on comparison between the MESI device and traditional Doppler testing methods, see Table 1.

Figure 2: The MESI ABPI MD automated testing device



When is automated ABPI advocated?

The group agreed that automated devices are suitable across healthcare settings, and are advocated in most clinical scenarios where traditional ABPI testing would usually take place.

The expert group suggested using automated ABPI testing as standard, and using Doppler testing as a potential second-line assessment in patients requiring more extensive investigation.

As the automated device is lightweight (600g), battery-powered and portable, it is suitable for use in most care settings, including community visits. The device itself stores the last 30 readings, enabling a clinician to run a clinic or visit community patients and retrieve the data later. One charge of the battery will provide enough power to take 40–50 readings.

Advantages and limitations

The principle advantages of the automated ABPI testing device are that the process is quicker and easier than a traditional Doppler assessment. The traditional method usually takes at least 30 minutes in total, including patient resting time of 20 minutes. The MESI ABPI automated system performs the measurements in 1 minute, using 3CUFF™ technology, with the results being clearly displayed a few seconds later. Resting of the patient prior to a traditional assessment is to ensure that the blood pressure is consistent between individual cuff measurements. This device was developed to streamline the process of ABPI. There is a potential risk in simultaneously inflating cuffs on all four limbs – therefore, the 3CUFF™ technology was developed, ensuring patient safety throughout the testing. The device inflates 3 cuffs simultaneously and the results at each cuff are compared literally from each heartbeat – therefore there is less chance of error and no need to rest the patient beforehand (although it should be noted that the patient still needs to stay as still as possible to avoid error).

This time-saving element makes a significant difference to the number of patients who can be seen, as well as freeing up time in individual appointments that can be spent with the patient. This saving in clinician time results in knock-on cost and resource savings (Mullings, 2018). It is important to note that the initial assessment to achieve differential diagnosis must include full holistic assessment and accurate history-taking; time will only be gained in the long run if these processes are completed properly.

The simple nature of the device means that only one member of staff is required to carry out the assessment, further freeing resources for patient care. This simplified process helps staff to address current barriers to ABPI testing, such as clinician confidence and loss of skill due to not carrying out the testing regularly using the Doppler method. The results are clearly displayed after the measurement; this removes the need for calculations and ensures that there is no ambiguity in the interpretation of the readings. The measurement is repeatable and clear, leading to greater consistency of assessment (Mullings, 2018). MESI ABPI MD is based on a PADsense™ algorithm, which detects severe disease and alerts the operator to it, displaying a PAD message.

Initially, education and training will be needed for the new system (see the following section, page 13, for tips on successful implementation in practice). There is an initial financial outlay to purchase the device; however, the cost is less than in purchasing new Doppler equipment, and further savings are soon realised with the reduction in time needed to accurately assess ABPI. The base unit is guaranteed for 3 years and life expectancy is more than 5 years.

From a patient point of view, clinicians in the group said they found that patient comfort was increased by using the automated device compared to individual Doppler readings, and that

it also improved patient confidence in the process. The automated system is consistent when used in practice, and patients like the consistency of the process and the clear colour-coded results that are displayed.

Box 3. Summary of the main advantages and limitations of automated ABPI testing

Advantages:
- Reduces clinician time
- Releases staff and resources
- Simplifies the testing processes and increases staff confidence
- Increases accuracy of results
- Suitable in most care settings
- Facilitates early detection of PAD

Limitations:
- All diagnostic technology can be fallible and should be used in conjunction with full assessment and clinical judgement
- Potential for loss of skill and confidence in traditional Doppler testing methods where technology is not available (although already underused in practice)
- Training and education required in adopting new processes

Interpretation and recording of results

The most important element of ABPI testing is that the results should be used to trigger the appropriate treatment plan, or referral where necessary. When the testing has been conducted, the most important question is: 'what next?'

Particularly when using automated systems, it is important that the emphasis is put on interpretation of the results – interpretation is vital and depends on the knowledge of the clinician. However, a benefit of having the results clearly displayed is that it is not necessary to rely on human calculations, meaning that there is potentially less room for error.

On a practical level, when using an automated system, the displayed results mean that it can be easier to make sure the process is appropriately documented and recorded. There is free software included that allows users to upload the results to the patient's notes; alternatively, clinicians have reported photographing the readings that are displayed and then uploading the picture to the patient's notes (note that all photography should be subject to local Trust guidelines).

It is important to remember that all diagnostic equipment can be fallible, and clinical judgement should also be used

BPS 8

As best practice care, you will receive access to diagnostic technology that will facilitate accurate assessment, diagnosis and ongoing treatment

Patient expectation

When procuring ABPI testing equipment, you should take into account the advantages and disadvantages for: 1. the organisation, 2. the clinician, 3. the patient

BPS 9

The outcome of the ABPI assessment should become an integral part of the holistic assessment and ongoing care

BPS 10

Automated ABPI: Successful implementation

A recent quality improvement project (Dowsett & Taylor, 2018) focusing on improving VLU assessment and management for housebound patients, identified lack of time and confidence to undertake ABPI assessments as one of the key challenges in care delivery. This issue was addressed by procuring ABPI MESI MD devices for the teams involved, which led to more patients being seen in shorter spaces of time, and thus improving assessment and targeted treatment rates of patients receiving appropriate compression therapy. Use of the MESI has also led to identifying patients on the caseload with PAD and appropriate referral of these patients to vascular services. See Table 2 for information on the project's baseline data and the improvements made. Implementation of automated ABPI devices has been found to have a positive impact on patients, clinicians and healthcare systems. Guidance on initial education and training, and ongoing use of automated systems in practice, may be useful to optimise implementation.

Table 2: Improvement reviews for quality improvement project (Dowsett & Taylor, 2018)

Date	Leg ulcer assessment complete	ABPI measured (current)	Receiving compression therapy	Care plan reviewed in the last 4 weeks
Baseline data	50%	50% (handheld Doppler)	50%	20%
November 2017	100%	100% (MESI available)	100%	35–100%
April 2018	100%	100% (MESI available)	100%	88%
July 2018	100%	100% (MESI available)	100%	90%

Education and training

All users/clinical staff (including registered and non-registered staff) should be trained in using the relevant device and in the general principles and importance of ABPI. Competence, combining knowledge and skill, is important in undertaking assessment and, for relevant staff, interpreting the results to trigger the appropriate action. All staff should be trained in conducting ABPI, but some support workers may not need full training in how to interpret results and trigger care pathways.

As well as understanding the importance of assessment, staff should be educated on when ABPI testing should be carried out, and when it should not, making sure that all suitable patients receive the required testing. Accountability is a key consideration in this area: it is important that one person has responsibility for the full process.

Areas of education for successful implementation of automated ABPI testing should include:

- Undertaking the test itself
- Effective communication with the patient when undertaking the test
- Documentation of testing and results
- Onward path – compression therapy, referral, etc
- Care and maintenance of equipment, ensuring effective infection prevention and control

Education and training tips in practice:

- Consider varied education and training methods – e.g. face-to-face training, videos, train the trainer methods, module-based education

Competence should be assessed before use of equipment in practice

BPS 11

Use a variety of educational approaches to deliver training relevant to the user's role and practice setting

BPS 12

Follow manufacturer's instructions for use for cleaning, storage and maintenance

BPS 13

Check equipment is present, clean, fully charged and working before commencing a visit and upon return

BPS 14

- Focus on competencies and translating knowledge into practice
- Build user confidence and give reassurance
- Emphasise to staff how new methods will benefit them by simplifying the process and releasing time to care

Care and maintenance

Ongoing care and maintenance should be considered, including the following:

- Read and follow the manufacturer's instructions for use regarding care and maintenance of devices
- Cleaning of equipment as per manufacturer's instructions and local infection control policy
- PAT testing for electrical devices as per local policy
- Appropriate storage (keeping the device in its case, removing the cuffs and spigots from the machine before storing, folding the cuffs using the trifold method)
- Warranty (3 years)
- The MESI device will show on screen when it is due for yearly calibration
- Check equipment before going out on visits – make sure all elements are kept together (e.g. different sized cuffs) and device is charged – and check again on return

Summary: practical tips for success

- Follow the manufacturer's instructions for use
- Only use the correct medical-grade charger that is supplied with the device
- Remember to keep equipment together and charged – assign a nominated member of the team to be responsible for the kit and to check before and after visits
- Communicate a clear message and expectations to the team regarding use of the device
- Have a roll-out plan and implement an ongoing training programme for all staff users
- Ensure that all relevant staff have been trained and competence has been assessed

Practical benefits: Making the case

When putting a business case together for new systems and equipment, it is vital to communicate a clear and concise message, considering the cost and quality advantages and other benefits (e.g. releasing time to care).

It is important to consider the aims and objectives of care, and whether these are being met. Aspirations to consider include:

- Gold-standard care
- Best practice
- Meeting targets, in terms of CQUIN requirements, national audits and Quality and Outcomes Framework (QOF) points

To achieve the best results, preparation is necessary – knowing the process required and using any relevant templates if these are available. It is beneficial to seek advice of colleagues who know the process and can provide practical guidance.

It is important to think about the following elements:

- Current situation
- Background
- Challenges in practice
- Assessment
- Recommendations
- What can be implemented to improve outcomes

Know the process you should follow, know the stakeholders involved – share knowledge and experience

BPS 15

In order to present the financial and practical benefits of adopting new technology and processes, the initial cost should be considered in the context of potential future savings, emphasising the following:

- The need to invest in order to save
- What is the cost if new measures are not taken, for the care providers and the patient?
- The knock-on benefits of saving clinician time as well as money – explaining how this time could be redirected (e.g. time to see more patients or to gain CQUIN payments)
- Be clear on the outcomes you are suggesting and the effect on your service if these are not commissioned

Consider the audience and language, and the main levers for success, and use national and local data to support your case

BPS 16

Stakeholder analysis should also establish the teams that are involved and the information they will need. There may also be scope to bid jointly with separate departments – e.g. in the case of procuring equipment for ABPI testing in wound care, the community nursing teams, wound clinics, leg ulcer clinics and podiatry or cardiology departments may also be able to use the equipment. Providing evidence and data to back up the case is key: national data is useful where it is available, but collecting your own data, and citing real local case studies and patient experience can also be helpful.

Economic and time benefits

One of the key benefits of automated ABPI testing is the time saved, and the knock-on benefits of this. In practice, the timesaving element has been found to make a significant difference to the number of patients that can be seen. This results in less waiting time and more time spent with the patient in individual appointments.

Recent data of 137 readings taken using the MESI ABPI MD reported average ABPI measurement time of 3 minutes 45 seconds on the couch, with results generated in 1 minute, compared to the usual 30 minutes for the traditional Doppler method. The saving in clinician time results in knock-on cost and resource savings (medi UK, data on file).

Automated testing also enables an ABPI reading to be taken within the routine GP or practice nurse appointment slot, reducing the costs associated with referring for specialist treatment. Only one clinician is needed to carry out the assessment, further freeing resources for patient care.

As detailed in the previous section (p13), the recent quality improvement project (Dowsett & Taylor, 2018) illustrated that use of the MESI ABPI MD automated device helped to raise levels of holistic assessment and the implementation of appropriate evidence-based treatment. This can result in increased healing rates, reduced risk of potential infection and improvement in patients' quality of life, while also saving time and resources for staff.

Summary and conclusions

The importance of ABPI assessment cannot be overstated. It has been demonstrated that conducting the correct assessment has a significant effect on ongoing care pathways and resulting patient outcomes (Staines, 2018).

Utilising new technology to optimise ABPI testing has been proven to improve assessment levels and resulting patient outcomes (Dowsett & Taylor, 2018).

One main advantage is that automated testing makes the process significantly quicker and simpler in practice (Mullings, 2018). An accurate reading is produced within 1 minute, compared to approximately half an hour for the traditional Doppler method, including patient resting time. Calculation of the results is reliable and is not susceptible to potential human error.

Research including the Burden of Wounds study (Guest et al, 2015; Guest et al, 2017) has shown that assessment is vital in order to trigger efficient treatment pathways. This results in optimised healing and therefore saves time and resources in the long run. Lack of proper assessment can cause mistargeted treatment that does not address the underlying cause, and thus results in wasted expense (Staines, 2018).

PAD led to 11,500 lower limb amputations in England in 2016, 80% of which could have been prevented if the condition was picked up sooner and referred appropriately (APPG, 2016). The key recommendations from this paper suggest early adoption of technology that will help to detect PAD.

Simplifying the process using automated devices represents a significant advance that can improve outcomes for patients, clinicians and healthcare systems.

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Notes

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