

# PADnet® VEINnet USER GUIDE





### Contents

#### Preface

Symbols & Intended Use	1
Cautions	2
EMC Information	3
Warnings	6
Cleaning & Maintenance	6
Storage & Operation	6
Power Management	7
Assembly Instructions	7

#### Arterial Testing.....15

Ankle-Brachial Index (Pressures) &	
Pulse Volume Recording Waveforms	18
Segmental Pressures	21
Toe-Brachial Index	22
Post-Exercise*	23
Doppler Enabled Pressure Method	26
Doppler Enabled Post-Exercise*	28
Sending Tests for Interpretation	30
Retrieving Tests	30
Printing Tests	31

#### Venous Testing......33

Venous Outflow	35
Venous Refill	36
Sending Tests for Interpretation	38
Retrieving Tests	38
Printing Tests	39

Customer Support	
------------------	--

This is the quick start user guide for arterial and venous testing. For greater detail, additional disease information and complete technical training, please refer to the PADnet and VEINnet **Technical Training Guide**.

Note: Venous testing capabilities are optional for PADnet users. Arterial testing capabilities are optional for VEINnet users. Contact your sales representative or call 877-854-0014 to activate optional modules.

Some features listed in this document may not be available or activated in your version of PADnet or VEINnet. Screen images and photos in this guide are for illustrative purposes only. Actual appearance may vary. Data shown is for example purposes only and does not represent actual patient data. The information provided in this document is subject to change without notice as a result of changes in reimbursement laws, regulations, rules and policies. All content in this document is informational only, general in nature, and does not cover all situations or all payers' rules and policies. This content is not intended to instruct medical providers on how to use or bill for healthcare procedures including new technologies outside of Medicare national guidelines. A determination of medical necessity is a prerequisite that BioMedix assumes will have been made prior to assigning codes or requesting payments. Medical providers should consult with appropriate payers, including Medicare fiscal intermediaries and carriers, for specific information on proper coding, billing and payment levels for healthcare procedures. This document represents no promise or guarantee by BioMedix regarding coverage, coding, billing or payment levels. BioMedix specifically disclaims liability or responsibility for the results or consequences of any actions taken in reliance on information on this document.

BioMedix® • Saint Paul, MN 55101 • support@BioMedix.com www.BioMedix.com • Toll Free: 888-889-8997 • Fax: 651-762-4014





# Symbols and Intended Use

#### **Symbols**



Type BF Applied Parts



/4/

Attention, consult accompanying documents



Volts AC (Alternating Current Voltage)



WEEE Directive - Waste Electrical and Electronic Equipment Directive



Main Power Switch, Input/Output. (I = On and O = Off)

R Caution: Federal Law restricts this device to sale by or on the order of a physician.

#### Intended Use Statement

The BioMedix PADnet (or VEINnet) system is a non-invasive device used to assess the lower and upper extremity arterial and venous circulatory systems in order to assist in the identification of vascular disease. To assess the arterial system, the device uses pulse volume recording, arterial pulse contour analysis, and segmental systolic & diastolic blood pressure measurements. To assess the venous valvular system, the device measures venous refilling time. For identification of venous obstruction in the deep venous (below knee) system, the device measures venous outflow rate. It is intended to be used by healthcare professionals in a hospital or clinic environment. The device is not intended for pediatric or fetal use. It is also not intended for the use on or near non-intact skin.

#### Contraindications

The device is not intended for pediatric or fetal use. It is also not intended for use on or near non intact skin.

The device is not intended for use on patients with suspected Deep Vein Thrombosis (DVT).

### Cautions

Federal Law restricts this device to sale by or on the order of a physician.

This equipment has been tested and found to comply with Medical Equipment Standard: EN60601-1-2. This unit was tested to IEC/UL 60601-1. This testing shows the device provides reasonable protection against harmful interference in a typical medical installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to other devices or is negatively impacted by other devices, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the devices
- Increase the separation distance between the devices
- Connect the equipment to an outlet on a different circuit
- Consult the manufacturer or field service technician for help

At the end of the device's useful life, please contact your local garbage disposal municipality for proper disposal. Computers or printers should be tested and approved per IEC 60950 or equivalent standards prior to placing system into service.



### **EMC** Information

#### Important EMC information. Read prior to installing or using BioMedix<sup>®</sup> medical devices:

- Portable and mobile Radio Frequency (RF) communication equipment may interfere with the operation of • BioMedix medical devices.
- BioMedix medical devices have been tested and found to comply with IEC/EN 60601-1-2. .
- Computers, cables and accessories not tested to 60601-1-2 may result in increased emissions or decreased • immunity of BioMedix devices.
- Verify normal operation if utilizing BioMedix medical devices adjacent to or stacked with other electrical ٠ equipment.

Guidance	e and Manufacturer's Declaration – Electro	omagnetic Emission and Immunity
Emissions Test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 16.1.1 2006	Group 1	BioMedix® equipment uses RF energy only
ANSI C63.4-2004		for its internal function. Therefore, its RF emissions are not
		likely to cause any interference in nearby electronic
		equipment.
RF emissions CISPR 16.1.1.2006	Group A	BioMedix medical devices are suitable for
		use in all establishments including domestic establishments
		and those directly connected to the public low-voltage power
		supplies buildings used for domestic purposes.
Harmonic emissions	Not applicable	
IEC 61000-3-2		
Voltage Fluctuations/flicker	Not applicable	
emissions		
IEC 61000-3-3		

### **EMC Information**

Immunity Test	IEC 60601 Test Level	Compliance I	evel	Electromagnetic Environment Guidance
Electrostatic	$\pm$ KV contact	Pass		Floors should be wood, concrete or ceramic tile. If floors are
Discharge (ESD)	$\pm 8 air$	Criteria Class A		covered with synthetic material, the relative humidity should
IEC 61000-4-2				be at least 30%
Electrical fast	$\pm 2$ KV for power supply	Pass		Mains power quality should be that of a typical commercial
transient burst	lines	Criteria Class A		or hospital environment.
IEC 61000-4-4	± 1 KV for input/output			
	lines			
Surge	± 1 KV differential mode	Pass		Mains power quality should be that of a typical commercial
IEC 61000-4-5	$\pm 2$ KV common mode	Criteria Class A		or hospital environment
Voltage dips, short	< 5% UT (> 95% dip in UT	) Criteria Class A		Mains power quality should be that of a typical commercial
interruptions and	for 0.5 cycle			or hospital environment. If the user of BioMedix
voltage variations on	40% UT (60% dip in UT)	Criteria Class A		medical devices requires continued operation
power supply input	for 5 cycles			during power mains interruptions, it is recommended that the
lines	70% UT (30% dip in UT)	Criteria Class A		computer to be used is powered by an uninterruptible power
IEC 61000-4-11	for 25 cycles			supply or a battery.
	< 5% UT (> 95% dip in UT)	Criteria Class C		
D C	for 5 sec	2.4/		
Power frequency	3 A/m	3 A/m		Power frequency magnetic fields should be at levels
(50/60 Hz) magnetic		Pass Criteria Class	A	characteristic of a typical location in a typical commercial or
				nospital environment.
Note UT is the a c mai	ns voltage prior to application	a of the test level	Portable	and mobile PE Communications equipment should be used no
Conducted RF	3 Vrms 3	Vrms	closer to	and mobile RF Communications equipment should be used no
IEC 61000-4-6	150 KHz to 80 Mz	v IIIIS	cables t	than the recommended separation distance calculated
Recipted RF	3 Vrms 3	V/m	from the	e equation applicable to the frequency of the transmitter
IEC 61000-4-3	80 MHz to 2.5 GHz	v / 111	nomin	e equation applicable to the frequency of the transmitter.
ILC 01000-4-5	00 WHZ (0 2.5 GHZ		Recom	mended separation distance:
				$d = 1.2\sqrt{P}$
				$d=1.2\sqrt{P}$ 80 MHz to 800 MHz
				$d= 3.5 \sqrt{P} 800 \text{ MHz}$ to 2.5 GHz
			Where I	P's the maximum output power rating of the transmitter in watts
			(W) acc	ording to the transmitter manufacturer and d is the
			recomm	ended separation distance in meters (m).
			Field str	rengths from fixed RF transmitters, as determined by an
			electron	nagnetic site survey <sup>a</sup> should be less than the compliance level in
			each fre	quency range".
			T ( C	
			Interface	e may occur in the vicinity of equipment marked with the
			Tollowin	ig symbol:
			4. 5	
			((•))	
NOTE 1 At 80 MHz a	and 800 MHz the higher the f	requency range applies		
NOTE 2 These guide	lines may not apply in all situ	ations. Electromagnet	ic propaga	tion is affected by absorption and reflection from structures.
objects and people.			- L Laga	
a) Field strength	s from fixed transmitters, suc	ch as base stations for r	adio (cellu	alar/cordless) telephones and land mobile radios, amateur radio,
AM and FM 1	radio broadcast and TV broad	lcast cannot be predicte	ed theoretic	cally with accuracy. To access the electromagnetic
environment	due to fixed RF transmitters,	an electromagnetic site	survey sh	ould be considered. If the measured field strength in the

location in which BioMedix medical devices are used exceeds the applicable RF compliance level above, BioMedix

medical devices should be observed to verify normal operation. If abnormal performance is observed, additional measures

may be necessary, such as reorienting or relocating BioMedix medical devices.b) Over the frequency range 150 KHz to 80 MHz, field strengths should be less than 3 V/m.

4 BioMedix<sup>®</sup> • Saint Paul, MN 55101 • support@BioMedix.com www.BioMedix.com • Toll Free: 888-889-8997 • Fax: 651-762-4014



### **EMC** Information

#### Recommended separation distances between portable and mobile RF communications equipment and BioMedix\* medical devices.

BioMedix medical devices are intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of BioMedix medical devices can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and BioMedix medical devices as recommended below, according to the maximum output power of the communications equipment.

Related maximum output power of transmitter	Separation	distance according to frequency of	f transmitter
W	150 KHz to 80 MHz d = 1.2 VP	80 MHz to 800 MHz d = 1.2 VP	800 MHz to 2.5 GHz d = 2.3 VP
0.01	0.12	0.12	0.23
0.1	0.33	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a minimum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz, and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

### Warnings

- Never store PADnet or VEINnet near an air conditioning or heating ventilator.
- Never place liquid containers on top of or near the device.
- The device should never be opened. There are no user-serviceable parts inside.
- Shock hazard could result if opened.

### **Cleaning and Maintenance**

Note: PADnet and VEINnet do not contain parts that require preventative maintenance.

- Clean the exterior of the device with alcohol and a cloth only when the unit is unplugged from the AC wall socket.
- Leave the device off when not in use.
- Device cuffs and probe should only be cleaned with mild soap and water. They should never be cleaned with alcohol.

For more information about Welch Allyn Trimline cuff care, visit: http://tiny.cc/w-allyn

For more information about W.A. Baum cuff care, visit: http://www.wabaum.com/docs/english.pdf

Notice: Unauthorized servicing of the unit will void the factory warranty. Only authorized service personnel can service this device. For further information please contact BioMedix<sup>®</sup> at 651-762-4010.

### Storage and Operation Specifications

#### Storage

- Storage/Transport temperature range: -40°C to +50°C (-40°F to +122°F)
- Storage/Transport humidity range: 5% to 95%

#### Operation

- Operational temperature range: 0°C to +40°C (32°F to +104°F)
- Operational humidity range: 0% to 90%





### **Power Management**

The power management features of the included PC laptop have been optimized for use in the PADnet/VEINnet system. If this configuration is modified, the interface ports between the DTU and the PC might shut down to save power, resulting in performance issues. Do not alter the default power settings of the PC.

### **Assembly Instructions**

COMPONE	INT LIST
Description	BioMedix <sup>®</sup> Part Number
Laptop	9002 or 9011
PADnet or VEINnet Device	9020
PADnet or VEINnet Cart	9303
Cuff Kit <sup>®</sup>	9200 or 9230
Extension Hose <sup>P</sup>	9216 or 9221
Venous Sense Cuff <sup>v</sup>	9226
Venous Occlusion Cuff <sup>v</sup>	9227
Venous Occlusion Cuff Extension Hose <sup>v</sup>	9228
Photoplethysmographic Probe (PPG)	9004
Double-sided Tape <sup>v</sup>	9304
Circumference Measuring Tape <sup>v</sup>	9332
Lower Limb Pillow <sup>v</sup>	9331
Printer*	9016
Mouse	9302
USB Cable	9300
Surge Protector	9301
Marketing Launch Kit	9403

P PADnet only or VEINnet with arterial upgrades V VEINnet only or PADnet with venous upgrades \*Printer is optional. Contact your sales representative or call 877-854-0014 to activate optional modules or to purchase a printer.

#### A. Device Power Switch

The green On/Off switch displays the "I" and "O" symbols, and is located on the right front side of the unit. When the switch is in the "I" position, the unit is powered on and the switch is illuminated. When the switch is in the "O" position, the device is powered off.

#### **B.** Laptop

Supplied laptop with PADnet or VEINnet software.

#### C. Color Printer (optional)

Connects to the laptop via wireless network or USB cable to allow test results and reports to be printed.

#### D. Arterial/Occlusion Cuff Port

Cuffs are connected to the device via ports to the left of the power switch. Insert the plastic connector on the cuff tube onto the port on the front panel. Twist gently clockwise until it is tight. Do not overtighten.

#### E. PPG Probe Port

The PPG probe (used for venous refill testing and added sensitivity during arterial testing) is connected to the device via the PPG Probe port to the left of the Arterial/ Occlusion Cuff port. Insert the connector by pushing it in until it snaps into place.

#### F. Venous Sense Cuff Port

The Venous Sense Cuff port to the left of the PPG Probe port is connected for venous testing only. Insert the plastic connector on the cuff tube onto the port on the front panel. Twist gently clockwise until it is tight. Do not overtighten.

#### **G.** Auxiliary Port

The Auxiliary port to the left of the Venous Sense Cuff port allows an external device to be connected. Insert the connector by pushing it in until it snaps into place.

#### H. Cart Drawer

Slide-out compartment for convenient storage of cuffs.

#### I. Cart Handles

Plastic handle attachments allow easy movement of cart.

#### J. Cart Wheels

Wheels roll and swivel to allow easy maneuverability and have the ability to lock the cart in place.

#### OVERVIEW



Example image. Diagram applies to PADnet or VEINnet devices and carts.







#### A. Device Power Switch

The green On/Off switch displays the "I" and "O" symbols, and is located on the right front side of the unit. When the switch is in the "I" position, the unit is powered on and the switch is illuminated. When the switch is in the "O" position, the unit is powered off.

#### **B. Arterial/Occlusion Cuff Port**

Cuffs are connected to the device via ports to the left of the power switch. Insert the plastic connector on the cuff tube onto the port on the front panel. Insert the plastic connector on the cuff tube onto the port on the front panel. Twist gently clockwise until it is tight. Do not overtighten.

#### C. PPG Probe Port

The PPG probe (used for venous refill testing and added sensitivity during arterial testing) is connected to the device via the PPG Probe port to the left of the Arterial/ Occlusion Cuff port. Insert the connector by pushing it in until it snaps into place.

#### **D. Venous Sense Cuff Port**

The Venous Sense Cuff port to the left of the PPG Probe port is connected for venous testing only. Insert the plastic connector on the cuff tube onto the port on the front panel. Twist gently clockwise until it is tight. Do not overtighten.

#### **E. Auxiliary Port**

The Auxiliary port to the left of the Venous Sense Cuff port allows an external device to be connected. Insert the connector by pushing it in until it snaps into place.



#### A CLOSER LOOK: Device back panel



#### **A. Power Connector**

The AC power supply is plugged in to this port. Use only a factory-supplied power cord to power the device.

#### **B. USB**

The USB connector is plugged in to this port. This is the communication link between the laptop computer and the device.

#### **C. Serial Label**

The serial label is located in the lower right corner of the rear panel and contains information about the device.







#### A. Calf & Arm Cuff (Part Number 9203 or 9208)<sup>P</sup>

Durable, latex-free cuff placed on calf or arm during arterial testing.

#### B. Ankle Cuff (Part Number 9204 or 9209)<sup>P</sup>

Durable, latex-free cuff placed on ankle during arterial testing.

#### C. Toe Cuff (Part Number 9205 or 9211)<sup>P</sup>

Durable, latex-free cuff placed on toe during arterial testing.

#### D. Above Knee Cuff (Part Number 9201 or 9206)<sup>P</sup>

Durable, latex-free cuff placed above the knee during arterial testing.

#### **E. Extension Hose (Part Number 9216 or 9221)**<sup>P</sup> Allows for increased distance between the device and the patient.

#### F. Venous Sense Cuff (Part Number 9226)<sup>v</sup>

Slightly conical cuff that fits entire length of the lower leg. Used for venous studies.

#### G. Venous Occlusion Cuff (Part Number 9227)<sup>v</sup>

Slightly conical cuff that fits entire length of the upper leg. Used for venous studies.

### H. Venous Occlusion Cuff Extension Hose (Part Number 9228)<sup>v</sup>

Allows for increased distance between the device and the patient during venous testing.

### **P** PADnet only or VEINnet with arterial upgrades **V** VEINnet only or PADnet with venous upgrades

Image for illustrative purposes only; acutal cuffs and accessories may vary.



#### A. USB Cable

One end of the cable is connected to the device USB port. The other end of the cable plugs in to the USB port on the laptop.



#### B. Mouse

The mouse is connected to the laptop to provide easy computer navigation during testing.



#### D. Photoplethysmographic (PPG) Probe<sup>v</sup>

The probe is connected to the device for venous refill testing and added sensitivity during arterial testing.



#### E. Double-Sided Tape<sup>v</sup>

Pressure-sensitive tape with adhesive on both sides is used to place the PPG probe onto the patient's skin for testing.



#### **C. Surge Protector**

The surge protector will protect the device from electrical system surges.



#### F. Circumference Measuring Tape<sup>v</sup>

Measuring tape used to measure the circumference of the limb to provide additional information during testing.





#### G. Lower Limb Pillow<sup>v</sup>

Provides comfort for patient and place to rest lower extremities during testing.



#### I. PADnet and VEINnet User Guide

PADnet<sup>®</sup> AND VEINnet<sup>™</sup> USER GUIDE

L-128 Rev B Jan 2013

The User Guide (this document) gives easy-to-follow instructions on the arterial and venous testing processes. It is available for download at www.BioMedix.com. Log in with your customer credentials and click "Medical Professional Resources", then "Manuals and Guides".



#### H. Marketing Launch Kit

The Marketing Launch Kit will help raise awareness of vascular disease in your community and support the success of your detection program.



Enables integration of optional Doppler-captured pressures during arterial testing via USB input.



**P** PADnet only or VEINnet with arterial upgrades V VEINnet only or PADnet with venous upgrades

Note: Some items applicable only for VEINnet or PADnet with venous upgrades. Contact your sales representative or call 877-854-0014 to activate optional modules. Item images are for general reference only. Actual items may vary.



PADnet<sup>®</sup> AND VEINnet<sup>™</sup> USER GUIDE L 129 Por/R Jon 2013 BioMedix L-128 Rev B Jan 2013

# **Arterial Testing**

FOR PADNET USERS AND VEINNET USERS WITH **ARTERIAL UPGRADES** 

Warning: If DVT is suspected, do not perform any tests; instead, it is recommended to refer the patient to a vascular lab.

1. Double-click the program icon (Figure 1.1).



A Launching Application window will appear (Figure 1.2).



FIGURE 1.2 - Launching Application Window

### 2. Enter user name and password, then click "Login" (Figure 1.3).



FIGURE 1.3 - Login Screen

Note: Passwords are required for each user and must be at least 6 alpha-numeric characters. Passwords will expire after 90 days for each user. After 20 minutes of inactivity, the user is logged off automatically. This interval can be customized from 0 to 1,440 minutes by administrative users. To disable automatic logoff, select 0 minutes. To reset the user password, click the "Reset Password" button and follow the prompts. The temporary reset password link will expire 24 hours after it is sent. 3. Click "Perform New PAD Test" (Figure 1.4).

w <u>T</u> ools <u>A</u> dmin <u>H</u> elp	
🛪 Delete 🛛 🗙 🗃 🖹 🗸 🔒	
Home	
Perform New PAD Test	Send/Receive
Porterm New Veneue Test	unuu DioModiv
<u>renominew venous rest</u>	WWW.DIUMeuix
Scheduled Patients	
	w Iools Admin Help  Perform New PAD Test Perform New Venous Test Scheduled Patients

FIGURE 1.4 - Perform New PAD Test

#### 4. Enter patient data (Figure 1.5).

Home Patient Table Test D	etails					
Patient Dourance History	Indicatio	ns PAD Test	Interpretation R	leport		
Personal						
First Name		Last Name			Primary Insurance Type	
Margaret	_	Hughes		Eind	PPO .	Secondary Coverage
Title		Patient Identifi	ation Number		and a second	
Mex.		12345	End		Primary Care Physician	
Date of Birth	Ace	Sec			Promoti Con	(100)
11/27/1965	at	Temale	-		Account #	
and the second	1.5	1.4			37553992056	
Check this box if p	abent is y	ounger than 50	or older than 100			
face and the second second	Emper	V.	Presented Langu	age		
Address	1 INOT H	ispanic or La •	Itngish	-	Last Updated	12/5/2012 11:06:22 AM
555 Main Street Sout	6			-		
City		State	ZIP			
Minneapolis		• MN •	55434			
Home Phone	Work	Phone	Extension			

FIGURE 1.5 - Patient Tab

Tip: To save time while a patient is present, enter Last Name and Patient Identification Number, and return after the test to complete the remaining required fields (marked with a red exclamation mark) before signing (finalizing) the test.

5. Enter the patient's insurance information (Figure 1.6, next page).

If the carrier is not available from the dropdown menu, click "New", enter carrier information and save.

of Box 4 x	Home Test Test Details Patient Insurance History Indic	ations PAD Test   Interpretation   Repo	n	
New Incomplete Signed Submitted	Primary Policy First Name Margaret	Last Name Hughes	Secondary Pulicy First Name	Last Name
Reviewed	Carrier Medica	• New	Carrier	T New
	Policy Number 12345678	Group Number  999999	Policy Number	Group Number
	Referral Required	Notes	C Referral Required	Notes
	City	State ZIP	Cry.	State ZP

FIGURE 1.6 - Insurance Tab

6. Click the History tab. Enter any Risk Factors and Associated Diseases on the Risk Factors tab (Figure 1.7).

OFFICE BY H	and Dations Table Test De	alla a				
cts - Pa	tight Insurance Hittory	Indications PAD Test 1	terpretation Rep	at		
New R	isk Factors Vascular Proced	ares Notes		cu 1		
Incomplete Signed	Risk Factors					
Submitted Interpreted	Hypertension	Unknown •				
Reviewed	Tobacco	Unknown 🔹				
1 48	Diabetes	Unknown 💌				
	Hyperlipidemia.	Unknown •				
	Cardiac	Unknown 🔹				
	Cardiac Cardid Pulmonary Renal	Unknown • Unknown • Unknown •				

FIGURE 1.7 - Risk Factors and Associated Diseases

Height, weight and general information should be updated prior to each test. Body Mass Index (BMI) will be calculated and sent with the study for interpretation.

Note: In the History tab, fill out any vascular procedures and details the interpreting physician may need to be aware of.

7. The Notes tab is used to document observations about the patient (Figure 1.8).

Information entered into the "History/Conditions/ Medications etc." field will not print on the report, but will be visible to program users. This information will not be sent to the reading physician.

The lower field, "Report Notes", will print on all studies for the patient and will be sent to the Read site with the report.

*Tip: The "Report Notes" field is helpful for entering information regarding the patient that the test site would like the Reader to know, such as edema, obesity, or anything else that could affect how the Reader interprets the study.* 

- 8. Click the Indications tab (Figure 1.9) and enter: a. Name of referring physician
  - b. Physical signs and symptoms (reason for study)



FIGURE 1.8 - Notes Tab

₽× H	Home Patient Table Test Details								
P	atient Insurance Histoir Indications PAD Test In	terpretation Report							
	Reterral								
	induction.								
ed be	Releating Physician	Referral #							
	Howard,William	0001							
		Side	Site						
	V Gaudication	Both							
	(y) Rest pain	Both 👻							
	Extremity ulceration		-						
	-	-							
	C Extremity gangrene		Additional Information						
	Extremity trauma	1	Diminished pedal pulses, both sides.						
	Lower extremity embolism or thrombosis								

FIGURE 1.9 - Indications Tab



ol Box # × Hon	Patient Table Test D	Netalls	-					
sts - Patie	ant Insurance History	Indication PAD	Test anterpre	etation Re	port			
New		-	-					
Incomplete								
Submitted			Technologist					Test Signed
Interpreted	Perform_	View_	Read Site			•	Update Read Sites	
Reviewed	Resting Data Post East	tite Data Summa						-
At	The second second							
	Bight				Left			
	Pressures / AEI				Pressures / AEI			
	Brachial				Brachial			
	Above Knee		581		Above Knee		581	
	0.0		100		Core .		58	
	Ankle		ABL		Ankle		ABL	
	Toe		782		Toe		THE	
	PVR Waveform				PVR Waveform			
	Above Knee	Not commed	-4		Aboue Knee	Not evenined	-	
	C-8	This summer			6.14	the exercised	-	
	Car	first medical			Car	The second second	_	
	Ande	fiel extenined	~		Anide	life examined	-	
	Toe	fict examined	- 14		Toe	Not examined		

FIGURE 1.10 - Test Tab

**To complete the test using the default protocol, continue to step 9 below.** If performing alternative method Doppler enabled or manual pressure testing, proceed to the Doppler enabled instructions on page 26 to complete the test.

9. Click the Test tab, then click "Perform..." to begin the test. Before testing, a progress bar will appear to indicate progress of automatic calibration, or pressure zeroing. (Figure 1.11).



FIGURE 1.11 - Zeroing Pressure Sensor

### Ankle-Brachial Index (ABI) (Pressure Testing) and Pulse Volume Recording (PVR)

*Note: To complete pressure testing using Doppler enabled or manual method, reference page 26 before starting the test.* 

10. Connect tubing to the Arterial/Occlusion cuff port on the front of the device. Connect the PPG probe (if applicable) to the PPG port on the front of the device. 11. Apply cuffs to the patient at all indicated anatomical locations (Figure 1.12). The patient should be lying supine for test (except when contraindicated) and be instructed to remain as still as possible.

12. The test starts from the Test Summary screen. Click inside the red Right Brachial box to begin testing (Figure 1.12). Values will appear in the testing location boxes after the test is completed.



FIGURE 1.12 - Test Summary Screen - Right Brachial Box

13. Connect tubing to the Right Arm cuff. Place PPG probe on the third finger of the right hand. Click "Start" (Figure 1.13).



FIGURE 1.13 - Right Arm - "Start" Button





14. When recording arm pressures, the software will first display a reading from the PPG probe on the finger and ask for confirmation of a pulse (Figure 1.14).

Note: If a PPG probe is not available, the user may skip the confirmation of pulse.



FIGURE 1.14 - Right Arm - Pulse Confirmation



FIGURE 1.15 - Right Arm - Pressure Measurement

15. After a pulse has been confirmed or "No, Continue Anyway" is clicked, pressure in the Right Arm cuff will gradually increase (Figure 1.15) and then decrease.

16. The PPG Pulse screen will appear. Click the point of return of flow as detected by the PPG probe (Figure 1.16). If a PPG probe is not available, the user may skip the confirmation of return of flow. However, this

measurement is recommended, as it provides additional clinical information and supports pressure accuracy. Click "Done" to continue. (Figure 1.16).



FIGURE 1.16 - Right Arm -Return of Flow Marking and "Done"

Note: If physiological data is missing from a segment, a pop-up reminder will appear with options to Exit or Continue Testing. If "Exit" is selected, the user will be prompted to explain why the physiological data is not included.

17. Click "Next", or press 4 (Figure 1.17) and move the cuff tube and probe to the next location, Left Arm.



FIGURE 1.17 - Right Arm - "Save" and "Next" Buttons

Note: The software will automatically advance to the next anatomical location as the test progresses. Testing alternates sides to allow each limb resting time between cuff inflations.

18. Repeat steps 13–17 for the Left Arm. When complete, proceed to Right Above Knee Pulse Volume Recording.

Note: Before starting PVR testing, move the probe from the finger to the toe of the limb being tested. The probe will be used again when pressure testing is completed on the ankles and toes.

19. Connect the cuff tubing to the Right Above Knee Cuff and click "Start", or press 1 (Figure 1.18).

20. After a full screen of consistent quality waveforms has appeared, click "Stop" ("Start" button changes to "Stop"), or press 1 (Figure 1.19).



FIGURE 1.18 - Right Above Knee PVR - "Start" Button



FIGURE 1.19 - Right Above Knee PVR - "Stop" Button

21. To record the amplitude (height measurement of the waveforms), click on the lowest point and then on the highest point of one of the waves. The amplitude will display in the bottom left "PVR Amplitude" box. Record the waveform amplitude and click "Save", or press 2 (Figure 1.20).



FIGURE 1.20 - Right Above Knee PVR - "Save" and "Next" Buttons

22. Click "Next", or press 4 (Figure 1.20) to move to the next location, Left Above Knee.

23. Repeat the PVR process from steps 19–22 for Left Above Knee, Right Calf, Left Calf, Right Ankle and Left Ankle.

24. Complete pressure measurements at the Left Ankle, then the Right Ankle using the pressure measurement method in steps 13–17.

Note: At the Ankle locations, confirmation of pulse is not required, but return of flow as recorded by the PPG probe on the toe must be indicated. Click to mark the return of flow, then click "Continue".

#### Ankle-Brachial Index (ABI) Calculation

To calculate the left ABI, the software uses left ankle pressure for calculation. For the right ABI, the software use right ankle pressure for calculation. (Normal ABI: 1.0 to 1.40)



If performing additional Segmental Pressures testing, Toe-Brachial Index testing or Post-Exercise testing, continue to step 25. If not, the arterial test is complete.

#### Segmental Pressures Testing

*If performing Segmental Pressure testing, continue to step 25. If not, proceed to Step 28.* 

Note: Segmental Pressures testing is an optional module. To purchase this feature, contact your sales representative or call 877-854-0014.

25. Segmental pressures follows the same process as pressures taken at the ankle locations. To begin, connect tubing to the Left Calf Cuff. Ensure the PPG probe is on the toe of the limb being tested (left Great toe). Click "Start" (Figure 1.21).



FIGURE 1.21 - Left Calf - "Start" Button

26. After pressure is released from the cuff, click the point of return of flow as detected by the PPG probe. Click "Done" (Figure 1.22).



FIGURE 1.22 - Left Calf Return of Flow - "Done" Button



FIGURE 1.23 - Left Calf - "Next" Button

27. Pressures will populate on the Left Calf pressure screen. Click "Save" and "Next" to continue to the next Segmental Pressures testing location (Figure 1.23).

28. Repeat steps 25–27 for Right Calf, Left Above Knee and Right Above Knee locations.

Note: The arterial test report will display "200+" when the Above Knee or Calf systolic pressure is above 200 mmHg.

#### Segmental-Brachial Index (SBI) Calculation

SBI =

Left or right segmental pressure Highest systolic brachial pressure

To calculate the left SBI, the software uses left ankle pressure for calculation. For the right SBI, the software use right ankle pressure for calculation.

Segmental Pressures testing is complete. If performing Toe-Brachial Index testing or Post-Exercise testing, continue to the next steps. If not, arterial testing is complete.

#### **Toe-Brachial Index Testing**

*If performing Toe-Brachial Index testing, continue to step 29 below. If not, proceed to Step 34.* 

Note: Digit (toe) testing is recommended in addition to ankle pressure if patient had noncompressible ankle vessels (calculated ABI is >1.40). The arterial test report will indicate "NC" when the ankle systolic pressure is above 200 mmHg, which is deemed noncompressible.

29. Toe pressure measurements follow the same procedure as ankle pressures. Place the toe pressure cuff on the Right Great Toe. The PPG probe must be placed distal to the cuff on the Great Toe for this test. Connect the tubing to the cuff and click "Start", or press 1 (Figure 1.24).

240	Systolic	
160	Mean	
120-	Diastolic	
40		Manual Pressure

FIGURE 1.24 - Right Toe - "Start" Button

30. After pressure has been released from the cuff, indicate the return of flow as recorded by the PPG probe and click "Done" (Figure 1.25).



FIGURE 1.25 - Right Toe Return of Flow - "Done" Button

31. Pressures will populate on the Right Toe pressure screen. Click "Save" and "Next" to continue (Figure 1.26, next page).





FIGURE 1.26 - Right Toe - "Next" Button

32. Continue to PVR testing on the toes. (Pressure testing for the Left toe is completed following PVR testing.) Toe PVR testing follows the same procedure as the other PVR segments. Click "Start", or press 1 (Figure 1.27).



FIGURE 1.27 - Right Toe - "Start" Button

33. After a full screen of consistent quality waveforms has appeared, click "Stop" ("Start" button changes to "Stop"), or press 1

34. To record the amplitude (height measurement of the waveforms), click on the lowest point and then on the highest point of one of the waves. The amplitude will display in the bottom left "PVR Amplitude" box. Record the waveform amplitude and click "Save", or press 2 (Figure 1.28).



FIGURE 1.28 - Right Toe - "Save" Button

35. Click "Next" to move on to record Left Toe PVR, repeating steps 32–34 on the left side.

36. After recording and saving the PVR for the Left Toe, click "Next" to continue to record pressures for the Left Toe using steps 29–31.

#### **Toe-Brachial Index (TBI) Calculation**

To calculate the left TBI, the software uses left toe pressure for calculation. For the right TBI, the software use right toe pressure for calculation. (Normal TBI: > 0.60)

Toe-Brachial Index testing is complete. If performing Post-Exercise testing, continue to the next steps. If not, arterial testing is complete.

#### Post-Exercise Testing

*If performing a Post-Exercise test, continue to step 37 below. If not, proceed to step 40.* 

Note: Post-Exercise testing is an optional module. To purchase this feature, contact your sales representative or call 877-854-0014

37. After at-rest ABI values and PVR waveforms are recorded, click "Post-Excercise Test..." from the Test Summary screen (Figure 1.29).



FIGURE 1.29 - "Post Exercise Test ... " Button

Note: After Post-Exercise test results have been saved, the initial at-rest test will no longer be accessible for changes.

38. Remove Above Knee and Calf Cuffs, and have the patient walk on a motorized treadmill until the onset of symptoms, or for up to five minutes.

39. To start the exercise timer, click "Start", or press 1 (Figure 1.30).



FIGURE 1.30 - Exercise Period - "Start" Button and Notes Field

40. Under "Notes", record the treadmill speed (2 mph), grade (12%) and any reported symptoms (Figure 1.31).

41. At the onset of symptoms, click "Stop" ("Start" button changes to "Stop") (Figure 1.31).

	Exercise Period
	00:31
Notes:	
Patient per until sympt	formed supervised treadmill (2 mph at 12% grade) * coms were too painful to continue.
1	

FIGURE 1.31 - Exercise Period - "Stop" Button

42. Click "Save" (Figure 1.32).

43. Click "Next", or press 4 to move to the test screen (Figure 1.32).

00:32	
Notes:	
Patient performed supervised treadmill (2 mph at 12% grauntil symptoms were too painful to continue.	ade) *
Please ensure your post exercise time period does not exceed the PADnet"+ auto-logout	+ setting:

FIGURE 1.32 - Exercise Period - "Save" and "Next" Buttons





44. At the "0" minute interval immediately following exercise, the software will prompt the user to take the pressure of the arm with the highest recorded at-rest pressure. Properly position the patient for testing. Click "Start" or press 1 (Figure 1.33).

45. After the values display, click "Save", or press 2 (Figure 1.33).



FIGURE 1.33 - Right Arm - "Stop", "Save" and "Next" Buttons

46. Click "Next", or press 4 (Figure 1.33).

47. Quickly move the hose to the Right Ankle Cuff and click "Start", or press 1 (Figure 1.34).

48. After the values display, click "Save", or press 2 (Figure 1.34).

49. Click "Next", or press 4 (Figure 1.34).



FIGURE 1.34 - Right Ankle - "Start", "Save" and "Next" Buttons

50. Quickly move the hose to the Left Ankle cuff and repeat the pressure taking process using steps 44–49.

51. After ankle pressures are complete, record the PVR of both ankles and the arm with the highest pre-exercise pressure.

52. Click "Start" to record the Right Ankle PVR (Figure 1.35).



FIGURE 1.35 - Right Ankle - "Start" Button

53. After a full screen of consistent quality waveforms has appeared, click "Stop" ("Start" button changes to "Stop"), or press 1 (Figure 1.36, next page).

**BioMedix** PADnet<sup>®</sup> AND VEINnet<sup>™</sup> USER GUIDE L-128 Rev B Jan 2013

### **Arterial Testing**



FIGURE 1.36 - Right Ankle - "Stop" Button

54. To record the amplitude (height measurement of the waveforms), click on the lowest point and then on the highest point of one of the waves. The amplitude will display in the bottom left "PVR Amplitude" box. Record the waveform amplitude and click "Save", or press 2 (Figure 1.37).

55. Click "Next", or press 4 (Figure 1.37).



FIGURE 1.37 - Right Ankle - "Save", "Next", and "Exit" Buttons

56. Repeat steps 52–55 for the Left Ankle PVR.

57. For the 2 minute interval, the software will prompt the user to repeat pressure testing on the arm with the highest at-rest pressure and both ankles. Wait for a two-minute interval. Then, click record the arm and ankle pressures again by repeating steps 44–51.

58. Continue performing and recording these followup pressures every 2 minutes for 10 minutes, or until the patient's leg pressures return to the at-rest (preexercise) level, whichever comes first. If the patient's leg pressures returns to the pre-exercise level before 10 minutes, click "Exit".

59. Click "Exit" when finished (Figure 1.37). The study can then be signed and sent to the interpreting physician (Reader).

Arterial testing is now complete. Proceed to Sending Tests for Interpretation steps on page 30.

#### Arterial Testing Using the Doppler Enabled or Manual Pressure Method

If performing Doppler enabled or manual pressure testing, proceed to step 1 below. If not, reference default testing procedure instructions starting on page 18.

Note: This is an alternative testing method, not an additional test.

1. Complete steps 1–8 of the Arterial Testing section.

2. Set the software to include Doppler enabled pressures. Start from the Home screen, click on "Admin" at the top, then click "Office Settings..." (Figure 1.38).

Sive in Unde 🔀	Delete Auto Fill To Form Lette	10/es •	-				
ests - Pa	tient In KD-9 Cod	e.,	PAD Test Interpo	etation Report			
Incomplete	Database 8	lackup					
Signed	Office Sett	ings	Technologist				El Test Signed
Interpreted	Perform	View	Read Site	1	•	Update Read	Sites
Reviewed As	Resting Data Post Exe	rcise Data Sur	nmary				
	Right			Left			
	Brachial			Brachial			
	Above Knee		SEL	Above Knee		SBI	
	Calif		581	Calf		581	
	Ankle		ABI	Ankle		ABI	
	Toe		780	Toe		TBI	
	PVR Waveforms			PVR Waveforms			
	Above Knee	Not examines	d _=	Above Knee	Not examined	-	
	Call	Not exercise	d e	Calf	Not examined	*	
	Ankle	Not earnine	d _	Ankle	Not partitud	-	
	Tor	Not examined	d v	Toe	Not examined		

FIGURE 1.38 - Admin Menu - "Office Settings ... "





3. Click the checkbox to select "Use Doppler enabled pressures" in the upper right. Then click the "OK" button (Figure 1.39). This activates Doppler pressure input for each anatomical pressure location for the duration of the test. The device will inflate the pressure cuffs and allow Doppler-indicated return of flow to be recorded as part of the test.

3b. Plug in a foot pedal or other device to signal return of flow.



FIGURE 1.39 - Office Settings Window -"Use Doppler enabled pressures" Checkbox and "OK" Button

4. Click the PAD Test tab. Click "Perform..." to begin the test. Before testing, a progress bar will appear to indicate progress of automatic calibration, or pressure zeroing (Figure 1.11).

5. Click inside the Right Brachial box to begin the test with Doppler enabled pressure testing (Figure 1.40).

Note: When Doppler enabled pressures are correctly activated, "AT(DP)" and "PT" appear on the Test Summary screen next to the Ankle pressure locations.



FIGURE 1.40 - Right Brachial Box

6a. Properly position the Doppler device and click "Start" to begin inflating the cuff (Figure 1.41).

240-	Systolic	
200	-	
120		
80- 	N Pi	Manual ressure
40	- P	ressure

FIGURE 1.41 - Right Arm - Doppler Enabled Pressure

Note: Only systolic pressure can be recorded when in Doppler enabled pressure mode.

6b. Alternatively, if you do not wish the cuffs to be inflated by the device, you may click "Manual Pressure", complete the process by hand, and record your measurement in the Manual Pressures window. Then click "OK" (Figure 1.42, next page).



FIGURE 1.42 - Right Arm Manual Pressure Window

7. As the pressure is released from the cuff, click the foot pedal (or other device) or press "1" on the keyboard at the point of return of flow. The recorded pressure will appear in the Systolic field (Figure 1.43).

8. Click "Save" and "Next" to move to the next location (Figure 1.43).



FIGURE 1.43 - Right Arm - Systolic Pressure, "Save" and "Next" Buttons

9. Repeat steps 6-8 for the Left Arm.

Note: For consistency, use the same method (deviceinflated cuff or manual pressure) for each subsequent location. 10. After arm pressures, the software will move to PVR testing. Complete PVR testing as directed in the *Ankle-Brachial Index (ABI) (Pressure Testing) and Pulse Volume Recording (PVR)* section on page 20 (steps 18–22).

12. Record the Left Ankle PT, Left Ankle DP, Right Ankle PT, and Right Ankle DP systolic pressure using the method from steps 7–8. Click "Save" and then click "Next" to move to the next location.

If performing Segmental Pressure testing with the Doppler enabled or manual pressure method, proceed to Step 13. If not, proceed to Step 14.

13. If you are completing additional Segmental Pressures, repeat the pressure process used in steps 6–8 at the Right Calf, Left Calf, Right Above Knee and Left Above Knee locations.

If performing Toe-Brachial Index (TBI) testing with the Doppler enabled or manual pressure method, proceed to Step 14. If not, proceed to Step 15.

14. For TBI testing, repeat the pressure (steps 7–8) and PVR (steps 18–22 on page 20) process at the Right and Left Toe locations.

### Arterial Post-Exercise Testing Using the Doppler Enabled or Manual Pressure Method

If performing Post-Exercise testing with the Doppler enabled or manual pressure method, proceed to step 15 below. If not, proceed to the Segmental Pressures Testing section below.

15. Complete the Doppler-enabled Arterial Testing section (steps 1-14).

16. Next, administer Post-Exercise testing. For guidance, see steps 22 through 28 of the Arterial Testing section.

17. The software will prompt the user to take the pressure of the arm with the highest pre-exercise pressure. Wait for a two-minute interval. Then, click "Start" and take the arm pressure.





FIGURE 1.44 - "Manual Pressure" Button and Manual Pressure Window - "OK Button"

18. Click "Manual Pressure" and input the indicated arm systolic brachial pressure. Click "OK" (Figure 1.44).

19. Click "Next". Take the pressure on the next vessel indicated. Enter the pressure and then click "Save".

20. Click "Next". Take the pressure on the next vessel indicated. Enter the pressure and then click "Save".

21. Click "Next". Fill in the remaining vessel pressures and complete the Post-Exercise testing as prompted by the software. Complete the Right and Left Ankle PVRs at 0 minutes; then take one brachial and two ankle pressures at 2, 4, 6, 8 and 10 minutes.

22. Click "Next" after the final 10th minute pressure to bring up the overview of the study. Click "Exit" when finished (Figure 1.45).



FIGURE 1.45 - Completed Study with Post-Exercise Values and "Exit" Button



### This completes Doppler enabled or manual pressure arterial testing.

FIGURE 1.46 - Test Summary Screen - "Exit" Button

PVR \_ S:123 \_ 1.02

Exit

LIA

RI PV

#### Sending Tests for Interpretation

1. Select a Read site to which to send the study for interpretation and click "Test Signed" to complete the study. If no Read sites appear in the dropdown list, ensure that the internet connection is active, then click the "Update Read Sites" button (Figure 1.47). Read site(s) attached to the Site ID will populate the dropdown.

fome   Test Table Test Det	als							
atient Insurance History	Indications PA	D Test Interpreta	tion Report					
		Technologist		-	-	El Teit Signet		
Perform.	View	Read Site		- 4	indate Read Sites	)		
Resting Data Post Exer	cise Data Summ	ary			$\sim$	·		
Eish				Left				
Pressures / All				Pressures / Apr				
Stachial				Brachial				
Above Knee		586		Above Knee		385		
Call		382		Call		581		
170700		**		18.000		**	-	
a.((LP))		n	405	ar(LP)				
Toe			Tat	Toe			TEL	
PVR Waveforms				PVR Waveforms				
Above Knee	Not incented	2		Above Knee	Nut essentisted	-		
Gif	Not examined	-		Cat	7012 essentinesi			
Arate	Not ensured			Anthe	Not examined			
	Dura and				This second			

FIGURE 1.47 - Test tab - "Update Read Sites" Button

Note: If patient information is incomplete, the user will be prompted to make changes before signing the test. Once the test is signed and sent, new physiologic or clinical data cannot be collected and a test cannot be resent.

2. From the Main Menu/Home Screen, click "Send/ Receive Tests" (Figure 1.48).

Tool Box • × Septo - D New D New D Supred D Sub-street D Sub-street D Sub-street D Sub-street D Sub-street	News Perform New PAD Lost Perform New Vences Test www.llioMidia.com		
	Streeted Privat	-	
ppoliting+ ilenty ling lyscans ktiveloptis connce			

FIGURE 1.48 - Home screen - "Send/Receive Tests" Link

Note: A working internet connection is required to send and receive tests.

3. Click "Update" and then "Send Signed Tests" (Figure 1.46).



FIGURE 1.49 - Send/Receive Tests Window - "Update" and "Send Signed Tests" Buttons

#### Retrieving Tests After They Have Been Scored

1. From Main Menu, click "Send/Receive Tests" (Figure 1.48).

2. Click "Update" and then "Get Scored Tests" (Figure 1.50).

Ready		^
Test Status		-
1	Tests Signed and Ready to Send	_
0	Tests Scored and Ready to Receive	
ſ	Send Signed Tests Get Scored Tests C	lose

FIGURE 1.50 - Send/Receive Tests Window - "Update" and "Get Scored Tests" Buttons





Note: Once a test has been signed by a Reader, an automated email notification will be sent to the test site. To edit the email address to which the notification email is sent, start from the Home screen, click on "Admin" at the top, then click "Office Settings" and go to the Office tab.

3. Under the "Tests" list, click "Interpreted" to display all interpreted studies. Select a study by patient name, and double-click to the left of that name to view (Figure 1.51).

ave vi Undo. X	Deleter 2 12 8 . 3. 8						
en a x m	Perform New PAD Test Perform New Venous Ter	Send/Room	ive Test				
	Scheduled Pasients						
					-		
	Inter	preted Tests	_	_			
		Date/Time	Туре	Status	SSN/PIN	Last Name	First Name
	•	05/05/2010 12:42 PM	PAD	Signed by P	6754653426	Patient	Test
1 815	_						

FIGURE 1.51 - Home Screen - "Tests" and Interpreted Tests Window

#### **Printing Arterial Tests**

1. Click the Report tab. Be sure "Summary" and "PVR" boxes are checked, then click "Print..." (Figure 1.52).

Bos #× Home Test Table Test Det	als	$\frown$						
- Patient Insurance History	Indications PAD Test Interpretation	Report						
New Incomplete Print Selection Digned		Co-pny Required	Generate HL7 Results Print.					
ubmitted [2] Summary	Vien_	Status	$\smile$					
Inversed		Sent for interpretation	Current Status					
U Z P/R	Ven		Incomplete					
HE POIL SA	Warw_	Signed by Physician						
214	Ven-	Interpretation received						
C) Letter	VenModi/y		Un Sign Test					
Coding/Billing	Coding/Billing							
CETrode	(PT modifier(s)							
	-	ICD9 Check						
Acres 100 Acres								
Primary Score oc	(d#,1)							
1								
Secondary ICD-9	code(s)							

FIGURE 1.52 - Report Tab - Checkboxes and "Print..." Button



PADnet® AND VEINnet<sup>™</sup> USER GUIDE 120 Por P. Jon 2013 BioMedix L-128 Rev B Jan 2013

# **Venous Testing**

FOR VEINNET USERS AND PADNET USERS WITH **VENOUS UPGRADES** 

Warning: If DVT is suspected, do not perform any tests; instead, it is recommended to refer the patient to a vascular lab.

To reset a user password, click the "Reset Password" button and follow the prompts. The temporary reset password link will expire 24 hours after it is sent.

1. Double-click the program icon (Figure 2.1). A Launching Application window will appear (Figure 2.2).



FIGURE 2.2 - Launching Application Window

Database Server:
User User Name: biomedia Password:
Seret Pressoord Loop

FIGURE 2.3 - Login Screen

2. Enter user name and password, then click "Login" (Figure 2.3).

Note: Passwords are required for each user and must be at least 6 alpha-numeric characters. Passwords will expire after 90 days for each user. After 20 minutes of inactivity, the user is logged off automatically. This interval can be customized from 0 to 1440 minutes by administrative users. To disable automatic logoff, select 0 minutes. 3. Click "Perform New Venous Test" (Figure 2.4).



FIGURE 2.4 - Login Screen

#### 4. Enter patient data.

*Tip: To save time, fill in Last Name and Patient Identification Number to complete the test. Come back later to fill in the fields marked with a red exclamation mark before "signing" (finalizing) the test.* 

5. Enter the patient's insurance information. If the carrier is not available from the dropdown menu, click "New", enter carrier information and save (Figure 2.5).

<b>*</b> ×	Home	Test Details								
	Patient	Insurance	History I	Physical	Indications V	enous Test In	terpretation	Report		
plea		ersonal						-		
ed		First Name			Last Name			Primary Insuran	ice Type	
mitted		Namy			Johnson		End	PPO.		Secondary Coverage
erpreted		Title			Patient Identific	ation Number		Diana Can D		
rviewed		Miss		Ť	444442	Find		Howard Willia	nyisician m	· New
		Date of Birth		Age	Sex					
		11/15/1977	(4)	35	Female	•		Account #		
		Check this box if patient is younger than 30 or older than 10					0	poorsis		
	1.1	Race		Ethnici	ty .	Preferred Lang	uage			
		White		Not H	ispanic or La 💌	English		Last 11	Indated	11/27/2012 2-28-43 PM
		Address						LESCO	-pueles	
		1234 Main D	mie				_			

FIGURE 2.5 - Patient Tab and Primary Insurance Type Dropdown





6. Click the History tab, and enter any Risk Factors and Associated Diseases on the Risk Factors tab. Height, weight and general information should be updated prior to each test. A Body Mass Index (BMI) will be calculated and sent with the study for interpretation.

Note: In the History tab, fill out any vascular procedures and notes the reading physician may need to be aware of.

Home Text Details	and had a second second second	and Brook			
Primary Policy	cel ( indications   venous ( est   interpret	Allon   Neport			
First Name	Last Name	First Name	Last Name		
Nancy	Johnson				
Carrier		Carrier			
Medica	· Nex		<u>+</u> im-		
Policy Number	Group Number	Policy Number	Group Number		
Q555x	005555				
[9] Co-payment Required	Paid 25.00				
Referral Required	Notes_	() Refertal Required	Notes_		
Address		Address			
			100		
City	State 20P	Qty.	State ZIP		

FIGURE 2.6 - Insurance Tab

- 7. Click the Indications tab (Figure 2.7), then enter: a. Name of referring physician
  - b. Physical signs and symptoms (reason for study)

New	Referral							
igned .	Referring Physician		~	Referral #				
britted	Holmberg,Don		<u>ار «</u>	00022222				
erpreted		-	<u></u>					
beweit	Providers are advised that medical	specific payers or plans before testing.						
	Telephone of them (	Side	-	Ste	_			Additional Information
	III Superficial Thrombophlebitis	Both	-	Calf				
	Thrombophlebits Migrans	-						
	Varicose Veina	_		-	-		-4	
						-		
		_	-	-		_	-	
	Postphieb.tic Syndiome		-21		-		-	
	2 Ovonic Venous Hypertension	Both	٠	Catt	٠	Varicose veins	•	
	III Ulcer of Lower Extremity	-	-			2		
						-		
		-						

FIGURE 2.7 - Indications Tab and "Referring Physician" Dropdown

8. Click on the Physical tab. Have the patient resting in a supine position while performing the following observations:

- a. Asymmetry of Limbs
- b. Measurement of thickest part of calf
- c. Wells Assessment
- d. CEAP Classification

9. Click Venous Test tab, then click "Perform..." to begin test. A status bar will indicate the progress of the zeroing. Click "OK" when the process is complete (Figure 2.8).

n # H Hone Test Details	Record Distance Test Records and Record
A complete real analysis of the complete resistant analysis of the complete reported Parlow.	Rear ( Andreases) Rear Day Rea
Ven	Riels Left
	Fill Time Fill Time
	Findings Findings
	Zeroing Pressure Sensor
	Zeroing complete. You may re-attach the hose and select OK to continue testing
	OK

FIGURE 2.8 - Venous Test Tab - "Perform" Button and Zeroing Pressure Sensor Window

#### Venous Outflow Testing

10. The patient should lay supine with the feet elevated at approximately 30 degrees using the positioning cushion, and the leg being tested externally rotated in order to relieve the pressure on the iliac veins. Apply the Venous Occlusion cuff to the patient above the knee (contacting the skin but not overly tight) and connect to the Arterial/Occlusion Cuff port. Snugly apply the Venous Sense cuff around the calf and connect it to the Venous Sense Cuff port. *Note: By default, testing begins with the right limb (Figure 2.9).* 



FIGURE 2.9 - Venous Testing - "Start" Button

Maximum Venous Outflow (MVO) and Segmental Venous Capacitance (SVC)

11. Click the "Start" button or press 1 to inflate the Venous Sense cuff (Figure 2.9). When the Sense cuff is inflated, the Occlude cuff will then automatically inflate.

12. Once the maximum volume has filled, and waveform has plateaued, click the "Release Occlusion" button. The air in the Occlude cuff will evacuate quickly and the trace will return to the baseline (Figure 2.10).



FIGURE 2.10 - Wave Plateauing and Returning to Baseline

13. When the trace returns to baseline (Figure 2.11), the waveform will automatically stop within 10 seconds. A marker will appear on the screen indicating the release of the occlusion cuff. If the users clicks "Stop", the test will be aborted.



FIGURE 2.11 - Trace and Baseline

Note: If the marker on the screen does not correctly mark the release of the occlusion, the user may click the correct area on the chart. 14. Click the "Save" button to save the test (Figure 2.12).

15. Click the "Next" button to continue testing the left side (Figure 2.12).



FIGURE 2.12 - "Save" and "Next" Buttons

16. Repeat the steps 11–14 for the left side. After the left side is complete, go back to the Test tab to start Venous Refill testing.

#### **Venous Refill Testing**

17. Choose one method:

#### Cuff Placement (Pneumoplethysmography):

Wrap the Venous Sense cuff so that it extends from just above medial malleolus at the ankle to below the knee. The cuff should be wrapped snugly so a finger cannot be easily placed under the cuff on either side.

#### Probe placement (Photoplethysmography):

Place the probe three finger widths above the medial malleolus and slightly posterior to the midline of the right ankle. Fasten with double-sided tape.

Note: The default mode of testing is to utilize a cuff. To change the default setting to a probe, go to "Office Settings", "General" and click the checkbox to use the PPG as default for the Venous Refill test.

To change the current mode of testing while on the Venous Refill testing screen, click the buttons located in the upper right corner of the screen.

For both testing methods, the patient should be in a seated position, upright (not leaning forward) and towards the edge of a stationary chair.





Both the right and left segments should be tested with the same method. If data is captured or saved for one side of testing, the method testing **must** be the same for right and left side.

18. To begin the test, click "Start", or press 1 (Figure 2.13). For Pneunoplethysmography, the Venous Sense cuff will inflate. For Photoplethysmography, waveforms will begin.



FIGURE 2.13 - Right Lower Extremity Test Screen - "Start" Button

19. When a steady baseline appears and the segment indicator has turned yellow, have the patient perform five (5) forceful dorsiflexions.

20. If at that time the segment indicator has turned green, the patient should remain as still as possible (Figure 2.14). If not, reposition the probe or cuff, allow the limb 5 minutes of resting time, and then repeat.



FIGURE 2.14 - Right Lower Extremity Test Screen -Green Segment Indicator and "Stop" Button

21. Click "Stop" ("Start" button changes to "Stop"), or press 1 when the waveform reaches the left edge of the screen (Figure 2.14). Click "Save", or press 2.

Note: To record the venous refill time, click on the lowest point after the five (5) dorsiflexions, then the highest point of the refill line. The refill time will display in the bottom right corner.

22. Click on "Next", or press 4 to move to the next screen (Figure 2.15).



FIGURE 2.15 - Right Lower Extremity Test Screen - "Next" Button

Note: Be sure to accurately measure the refill time by clicking on the end of exercise and the plateau (return to baseline) points.

23. Repeat steps 17–21 for the contralateral limb.

Note: If physiological data is missing from a segment, a pop-up reminder will appear with options to Exit or Continue Testing. If "Exit" is selected, the user will be prompted to explain why the physiological data is not included.

This completes venous testing.

#### Sending Tests for Interpretation

1. From Main Menu or Home screen, click "Send/Receive Tests" (Figure 2.16).

e	
Perform New PAD Test	Send/Receive Tests
Perform New Venous Test	www.BioMedix.com
Scheduled Patients	

FIGURE 2.16 - Home Screen - "Send/Receive Tests"

Note: A working internet connection is required to send and receive tests.

2. Click "Update" and then "Send Signed Tests" (Figure 2.17).



FIGURE 2.17 - Send/Receive Tests Window - "Update" and "Send Signed Tests" Buttons

#### Retrieving Tests After They Have Been Scored

1. From Main Menu or Home screen, click "Send/Receive Tests" (Figure 2.16).

Note: A working internet connection is required to send and receive tests.

2. Click "Update" and then "Get Scored Tests" (Figure 2.18).

Ready					*
Test Status	(				
1	Tests Signer	d and Ready	to Send		idate
0	Tests Score	d and Ready	to Receive		
(	Send Signed	Tests	Get Scored T	ests	Close

FIGURE 2.18 - Send/Receive Tests Window - "Update" and "Get Scored Tests" Buttons

Note: Once a test has been signed by a reader, an automated email notification will be sent to the test site. To edit the email address to which the notification email is sent, start from the Home screen, click on "Admin" at the top, then click "Office Settings" and go to the Office tab.

3. Under the "Tests" subdirectory list, click "Interpreted" to display all interpreted studies. Select a study by patient name, and double-click to the left of that name to display it (Figure 2.19).



Pe	erform New PAD Te: erform New Venous	st Test		Send/R www.B	leceive Tests ioMedix.com	
Int	erpreted Tests					
	Date/Time	Туре	Status	SSN/PIN	Last Name	First Name
•	05/05/2010 01:50 PM	l Ven	Signed by P	111223333	Johnson	Nancy
	05/05/2010 12:42 PN	I PAD	Signed by P	111223333	Hughes	Margaret
						-

FIGURE 2.19 - Tests - Interpreted Tests

#### **Printing Venous Tests**

1. Click the Report tab. Be sure "Summary" and "Venous" boxes are checked, then choose "Print..." (Figure 2.20).

i Box # x Horn ta = Pate New Incomplete Signed	Print Table Test De Int Insurance History Print Selections	reads y   Jockcations   Venous Test   Joterp	ation Report	Generate HUT Results	
Submitted Intergrated Reviewed A8	E Surreacy E Venues Part Is Define	Ven Ven Ven Ven	Status Sant for interpretation. Interpretation received	Current Salus Incompiles Un-Sign Test	
pointine = Sents ing yocans	Cading Billing CPT code Primary ICD-9 c Secondary ICD-	CPT muldifier(s)	K00 Ows.		

FIGURE 2.20 - Report Tab - Print Selection Checkboxes and "Print" Button



#### **BioMedix® Customer Support**

Support@BioMedix.com www.BioMedix.com/support Toll Free: 888-889-8997 Fax: 651-762-4014

#### www.BioMedix.com

Some features listed in this document may not be available or activated in your version of PADnet or VEINnet. Screen images and photos in this guide are for illustrative purposes only. Actual appearance may vary. Data shown is for example purposes only and does not represent actual patient data. The information provided in this document is subject to change without notice as a result of changes in reimbursement laws, regulations, rules and policies. All content in this document is informational only, general in nature, and does not cover all situations or all payers' rules and policies. This content is not intended to instruct medical providers on how to use or bill for healthcare procedures including new technologies outside of Medicare national guidelines. A determination of medical necessity is a prerequisite that BioMedix assumes will have been made prior to assigning codes or requesting payments. Medical providers should consult with appropriate payers, including Medicare fiscal intermediaries and carriers, for specific information on proper coding, billing and payment levels for healthcare procedures. This document represents no promise or guarantee by BioMedix regarding coverage, coding, billing or payment levels. BioMedix specifically disclaims liability or responsibility for the results or consequences of any actions taken in reliance on information on this document.