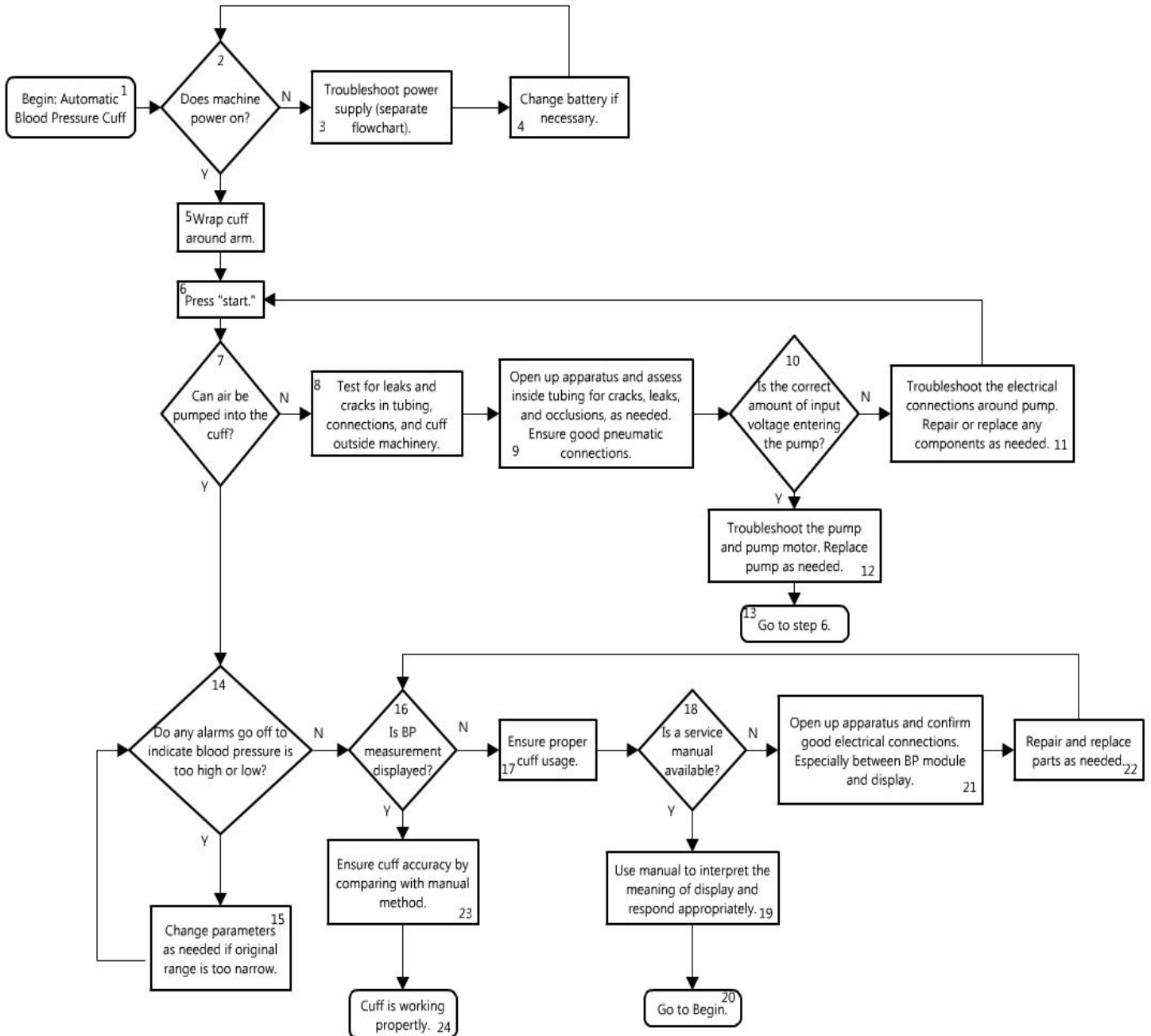


Blood Pressure Monitor (Automatic) Troubleshooting Flowchart:

Flowchart



Description

#	Text Box	Comments
1	Begin: Automatic Blood Pressure Cuff	Testing and maintenance is advised when the automatic blood cuff fails to give out a complete or accurate blood pressure.
2	Does machine power on?	Lights, displays, and sounds are signs that the device is powered on.
3	Troubleshoot power supply (separate flowchart).	NIBP (Noninvasive Blood Pressure) machines have varying sources of power. Some require batteries, and others can be plugged directly into the wall. It is always best to ensure that the proper power is being administered. Machines requiring 110-120V, for example, should not be plugged into a socket with a power of 220-240V without the proper transformer. See Flowchart on Power Supply, or BTA skills on Power Supply.
4	Change battery if necessary.	If batteries are required, test that they are able to receive and hold a charge. See BTA skills on Batteries.
5	Wrap cuff around arm.	Try wrapping cuff around your arm before beginning function test. NIBP will require either pulses or vibrations brachial artery, so it is important that the cuff is on correctly. Follow the User Guide for more detailed instructions.
6	Press "start."	For some machines, a flashing light or image will suggest the machine is ready to begin the blood pressure measurement.
7	Can air be pumped into the cuff?	Once engaged, the machine's pump will begin inflating the cuff. Does the cuff readily inflate? Is a reading able to be obtained?
8	Test for leaks and cracks in tubing, connections, and cuff outside machinery.	Use BTA skills on Connections, Leaks and Blockages to assess for cracks, leaks, or occlusions.
9	Open up apparatus and assess inside tubing for cracks, leaks, and occlusions, as needed.	If cuff still has difficulty inflating, carefully open the apparatus and observe what happens to inside tubing when the pump is activated. Listen for escaping air and use BTA skills on Connections, Leaking, Seals and Blockages to assess, replace, repair, or clean tubing and parts as needed.
10	Is the correct amount of input voltage entering the pump?	Test the voltage going into the pump using a multimeter. Compare the measured voltage to the required DC input voltage, which can usually be found as a marking somewhere on the pump.
11	Troubleshoot the electrical connections around pump. Repair or replace any components as needed.	If the pump is not receiving the proper input voltage, this has something to do with the electrical circuitry or connections supplying power to the pump. Use BTA skills on Electrical Simple to observe, assess, and repair any circuit components and connections.

12	Troubleshoot the pump and pump motor. Replace pump as needed.	If the pump is receiving the proper input voltage, but still not properly inflating the cuff, try troubleshooting the pump and its motor using BTA skills on Motors and Mechanical. Pump may have to be replaced if irreversibly damaged.
13	Go to step 6.	Restart cuff inflation to see if the corrective measures have repaired the machine.
14	Do any alarms go off to indicate blood pressure is too high or low?	Some NIBP machines are equipped with alarms that indicate whether or not a blood pressure is within an acceptable healthy range, preset by the machine's parameters.
15	Change parameters as needed if original range is too narrow.	If machine parameters are causing alarms to go off when a healthy blood pressure is causing the alarms to go off, it may be possible to change them. Check parameters by pressing the "menu" button, if applicable. Consult with clinical staff to see how these parameters should be set.
16	Is BP measurement displayed?	After pressing start, is a numerical value for blood pressure displayed? NIBPs will usually display a systolic, diastolic, and pulse rate after measurement.
17	Ensure proper cuff usage.	Is the cuff the proper size for your arm or the patient's arm? Are the leads in the cuff over the brachial artery? NIBPs can be very sensitive. Check the User Guide to ensure proper machine usage.
18	Is a service manual available?	Many service manuals will instruct the user on the meaning of displayed error messages for the specific NIBP system. These messages can also point to general areas of the device that can be troubleshoot using the relevant BTA skills.
19	Use manual to interpret the meaning of display and respond appropriately.	Most of the time these messages are accompanied by a proposed set of actions.
20	Go to Begin.	Restart diagnostic process to see if the corrective measures have repaired the machine.
21	Open up apparatus and confirm good electrical connections. Especially between BP module and display.	Sometimes a problem in the circuit is to blame for inaccurate or incomplete measurements. Use BTA skills on Electrical Simple to observe, assess, and repair any circuit components and connections.
22	Repair and replace parts as needed.	If there is any obvious damage, repair connections and replace necessary parts using the appropriate BTA skills.

23	Ensure cuff accuracy by comparing with manual method.	After obtaining a blood pressure measurement, have the clinical staff take a blood pressure on the same individual using a working manual blood pressure cuff. A good NIBP will be within 5 mmHg, but ultimately it is up to the staff whether or not the cuff should be used on patients.
24	Cuff is working properly.	Return apparatus to appropriate clinical staff.