

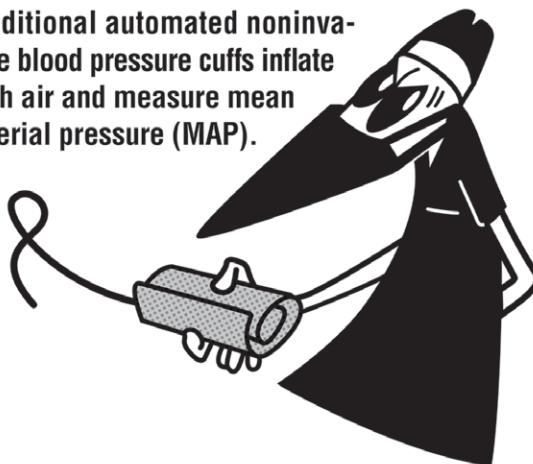
INFOGRAPHICS IN ANESTHESIOLOGY

Complex Information for Anesthesiologists Presented Quickly and Clearly

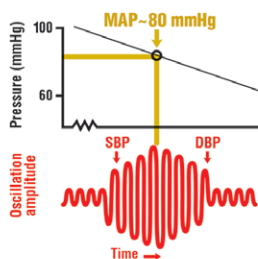
CUFF VS CUFF

Does A New Blood Pressure Device Measure Up?

Traditional automated noninvasive blood pressure cuffs inflate with air and measure mean arterial pressure (MAP).



Air inflates until arterial blood flow stops, and is then deflated while oscillations are measured.



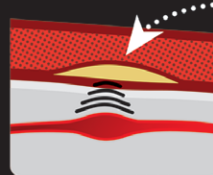
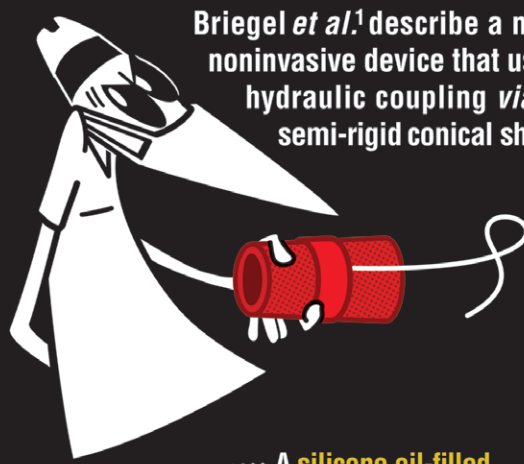
Because compliance of the cuff and tubing is high, the oscillation amplitude is small compared to changes in tissue pressure.



Oscillations peak at MAP, and systolic (SBP) and diastolic blood pressure (DBP) are computed.

This results in unreliable measurements at BP extremes.

Briegel *et al.*¹ describe a new noninvasive device that uses hydraulic coupling *via* a semi-rigid conical shell.



A silicone oil-filled sensor pad sits underneath the conical shell, which is encased in an actuator cuff.

With the cuff inflated, SBP and MAP are measured two different ways and averaged, while DBP is computed.



- * The sensor's hydraulic coupling reduces compliance, and increases signal-to-noise in the transduced waveform.
- * The device was compared to BPs from femoral arterial lines in 110 patients and performed well in all BP ranges.

It is unknown how the new device performs compared with traditional oscillometric devices as they were not compared in this study.

Infographic created by Jonathan P. Wanderer, Vanderbilt University Medical Center, and James P. Rathmell, Brigham and Women's Health Care/Harvard Medical School. Illustration by Annemarie Johnson, Vivo Visuals. Address correspondence to Dr. Wanderer: jon.wanderer@vumc.org.

1. Briegel J, Böhner T, Kreitmeier A, Conter P, Fraccaroli L, Meidert AS, Tholl M, Papadakis G, Deunert A, Bauer A, Hoelt A, Pfeiffer UJ: Clinical evaluation of a high-fidelity upper arm cuff to measure arterial blood pressure during noncardiac surgery. ANESTHESIOLOGY 2020; 133:997-1006