



MAC Values

Anesthesia potency measurement for clinical decision support

MAC, the minimum alveolar concentration of an inhaled anesthetic, provides anesthesiologists with a convenient mental model of anesthetic potency as a basis for clinical decisions. Philips IntelliVue patient monitors calculate MAC and MAC-awake values for display on the monitor using the gas concentration measurements provided by Philips gas modules. (Please note: MAC-awake is not available in the US.)

Anesthesia decision support at the point of care

The partial pressure of the brain and alveoli are in equilibrium; therefore, alveolar concentrations can be used to gauge the anesthetic effect of an inhaled agent.

A MAC value of 1 is defined as the alveolar concentration at which 50% of a patient population do not respond with movement to

a noxious stimulus, such as skin incision. MAC is a valuable measure because it applies to any inhaled agent, including N₂O.

Similarly, a MAC-awake value of 1 signifies the anesthetic agent concentration at which 50% of patients respond again to verbal comment.

MAC is a useful indicator of anesthetic potency in one normalized value since the required concentrations of different agents to achieve a MAC value of 1 vary widely.

An algorithm to help control the patient's anesthetic status

In addition to the standard MAC calculation, our algorithm can also calculate a corrected and enhanced MAC value (not available in the US).

Corrected MAC takes into account ambient barometric pressure.

Enhanced MAC also takes into account patient age and body temperature.

PHILIPS

Compatibility

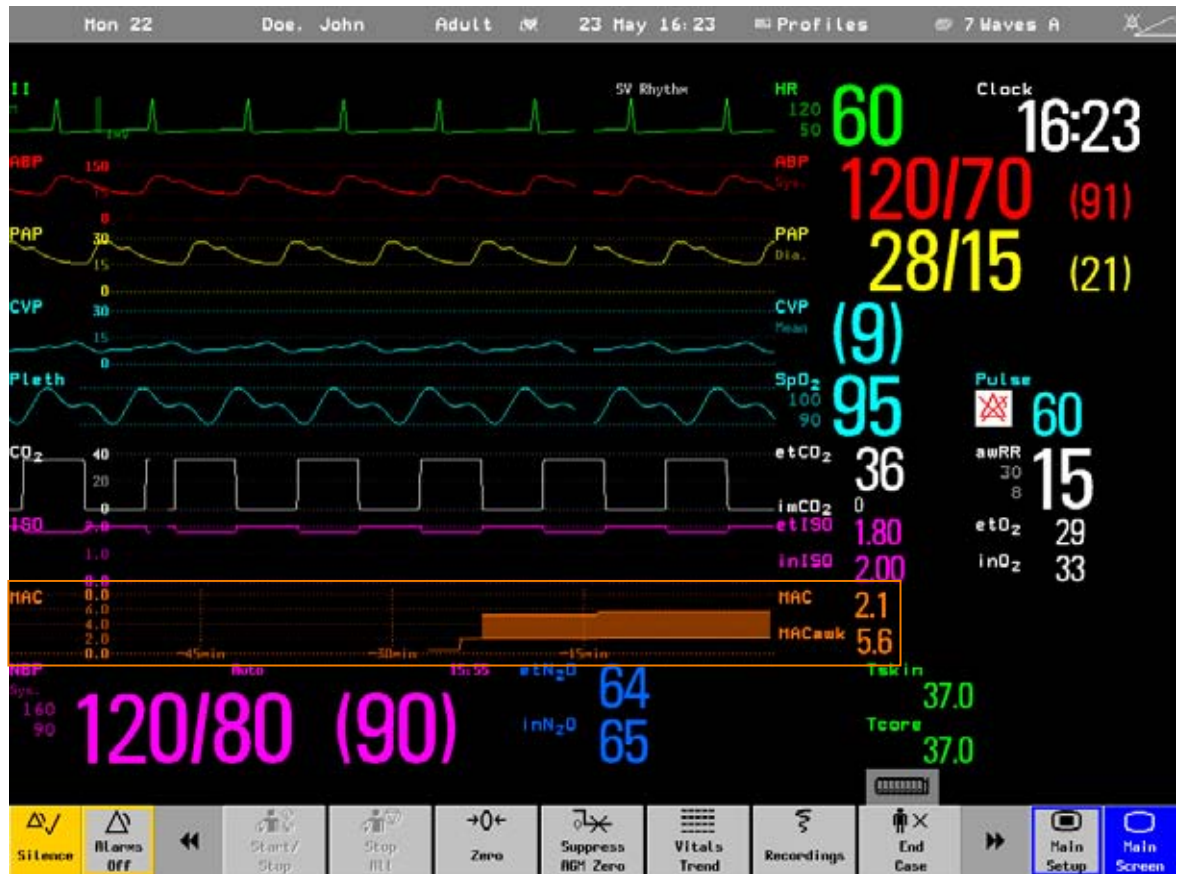
MAC values via the Anesthetic Gas Module and the IntelliVue G5 Module for display on these Philips patient monitors:

- IntelliVue MP40 and above, revision C.0 and higher (IntelliVue G5 with MP20 and above in the US and Canada only)

MAC values via the IntelliVue G1 Module for display on these Philips patient monitors:

- IntelliVue MP20 to MP50, revision C.0 and higher

Please ask your sales representative for details on compatibility.



MAC values are displayed alongside other anesthesia and respiratory measurements on the IntelliVue patient monitor.

A coherent overview of patient status

IntelliVue patient monitors display waveforms and numerics for MAC values and anesthetic and respiratory gases plus vital signs, providing a comprehensive patient overview in one glance.

Philips Commitment to Clinical Decision Support

Philips is committed to advancing technologies that help clinicians collect, combine, and cross-reference physiologic data for a coherent picture of their patients' status. Our expanding portfolio of clinical decision support tools ranges from rules-based event detection and smart alarms to sophisticated algorithms that present information in eye-opening ways.

References

Eger II, Edmond. Age, Minimum Alveolar Anesthetic Concentration, and Minimum Alveolar Anesthetic Concentration-Awake. *Anesth Analg*. 2001 Oct;93(4):947-53. Review.

M1013A IntelliVue G1 Anesthetic Gas Module

M1019A IntelliVue G5 Anesthetic Gas Module

M1026B Anesthetic Gas Module (AGM)



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