

Letter to the Editor

The Energy-Saving Potential of Medical Devices—Anesthesia Machines as an Example

by Florian Anselm, PD Dr. med. Martin A. Schick in issue 43/2022

Ecological Implications of Anesthesia

We wish to add to this important article (1), which highlights an aspect of the ecological implications of anesthesia that—in contrast to climate damage as a result of volatile anesthetics (2)—has received little attention to date, using our own data from the anesthesia machine Heinen & Löwenstein Leon plus neo (version 3.5.21) that is mostly in use in our hospital. In three measurements/readings (measuring device: Tevion GT-PM-04), the following readings were obtained in terms of power consumption (active power $P=U \cdot I \cdot \cos \varphi$, mean \pm standard deviation): when switched off 2.6 ± 0.90 watt (w), while booting up 69.0 ± 0.8 w, standby 68.7 ± 0.6 w, while operational 81.2 ± 3.4 w. As for the Dräger machines, the power consumption was high in standby mode, which is hardly any lower than while operational. These insights, combined with short booting up times (62 seconds) without any additional need for power clarify that only switching the machines off completely outside operational

periods saves power to a relevant degree. Reducing the ecological effects of anesthesia should not be restricted to saving volatile anesthetics—especially desflurane—but needs to be multimodal (3). DOI: 10.3238/arztebl.m2023.0039

References

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In Reply:

We thank Drinhaus et al. for explaining their results. Further data from our measurement series showed the same trend for the model Carestation 650, software version 01 SP 08 manufactured by GE: power consumption in standby mode 56.8 ± 2.3 and switched off 10.7 ± 0.7 [w] (mean \pm standard deviation, $n=2900$ measurement points). The machine was operational without incurring higher power consumption after 51 ± 0.6 [s]. A complete disconnection of the devices from the electrical grid cannot (yet?) be recommended, in our opinion. Machine specific data are lacking in this context, such as for example the power balance after discharge of the internal batteries. Furthermore, in case of a complete disconnection from the grid, semi-automatic

switching on/off processes are no longer available—such as “auto on” (Perseus A500, Dräger).

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Reference

1. Anselm F, Schick MA: The energy-saving potential of medical devices—anesthesia machines as an example. *Dtsch Arztebl Int* 2022;119: 743–4.

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Conflict of interest statement

The authors of all letters to the editor declare that no conflict of interest exists.