Appendix 1. Evidence tables

Study reference	Journal	Study characteristics	Methods	Data collection	Outcomes	Interpretation	Comments
Alsved (2018)	Journal of Hospital Infection Journal information The Journal of Hospital Infection is the editorially independent scientific publication of the Healthcare Infection Society. The aim of the Journal is to publish high quality research and information relating to infection prevention and control that is relevant to an international audience. Critical review: Peer reviewed article. Not in specific LCA journal.	Type of study: Comparative study Objective: To evaluate three types of ventilation systems for ORs with respect to air cleanliness, energy consumption and comfort of working environment as reported by surgical team members. LCA-method: N/A Setting and country: Three different ORs in a hospital in Sweden. Facility: Helsingborg General Hospital, Helsingborg, Sweden Years of data collection: 2015-2016 Surgical discipline(s): Orthopedics Funding and conflict of interest: -	Comparison: a) Vertical laminar airflow (LAF) and turbulent mixed airflow (TMA) b) Temperature-controlled airflow (T_cAF) Cfu concentrations were measured at three locations in an OR during 45 orthopaedic procedures: 1. Close to the wound (<40 cm) 2. At the instrument table 3. Peripherally in the room A questionnaire answered by the OR team evaluated the comfort of the working environment. Energy consumption was evaluated.	Measurements were taken at three ORs between January 2015 and February 2016 at the ortophaedic surgery department. Total 45 operations were included. Different airflows of the three OR ventilation systems were modelled. For specifications of the ventilations systems see table 1 (Alsved, 2018). Characterization: -	1. Climate Change No results. 2. Energy use Energy use for ventilation power per type of airflow was expressed in kW. For TMA this resulted in 2.8 kW, LAF in 8.0 kW and T_cAF in 5.7 kW.	LAF lead to the greatest energy use, followed by T_cAF and TMA. To reduce the energy use, and thereby environmental impact, airflow using a lower energy setting can be used. T_cAF is more energy efficient than LAF, and still provides high air cleanliness.	Authors conclusion Comparison of three ventilation systems in three identical ORs showed that LAF and T_cAF provide high air cleanliness. Cfu levels of TMA are too high. T_cAF is more energy efficient and comfortable to work in than LAF, and still provides high air cleanliness. Limitations study Many designs exist for TMA and LAF ventilations (e.g. higher/lower airflows). Many other versions are available and not included in the study.
Marsault (2021)	Journal information The Journal of Hospital Infection is the editorially independent scientific publication of the Healthcare Infection Society. The aim of the Journal is to publish high quality research and information relating to infection prevention and	Type of study: Comparative study Objective: To compare how large, high volume, laminar airflow (LAF) and turbulent airflow (TAF) ventilation systems perform during standardized simulated	Comparison of: a) Laminar airflow (LAF) b) Turbulent mixed airflow (TMA) During total hip arthroplasty surgery (THA). 32 THA mock-up operations were completed. Primary outcomes were	Measurements were taken at two ORs between October 2014 and January 2015 at two identical full-size operating theatres. One was equipped with a large, high volume LAF system and the oteher with TAF ventilation. Total 32 simulations were included. LAF uses 2 HEPA filters, airflow rate of fresh	1. Climate Change No results reported. 2. Energy use When decreasing air influx from 100% to 50% using LAF, energy consumption was reduced by 41% (P = 0.0007) (Table V, Marsault, 2021). For TAF energy consumption was reduced by 51% (P =	Decreasing air influx leads to lower energy consumption. Next to that, TAF has a lower energy consumption compared to LAF, however it is a small difference.	Authors conclusion Lowering air influx by 50% in LAF did not significantly affect cfu or particles, but reduced energy consumption. Limitations study A heated dummy was used instead of a patient, as a result there was no bleeding or moisture what

	control that is relevant to an international audience. Critical review: Peer reviewed article.	total hip arthroplasty (THA). LCA-method: N/A Setting and country: Operating room, Denmark. Facility: Genthofte Hospital's Department of Orthopaedic Surgery Years of data collection: 2014-2015 Surgical discipline(s): Orthopedics Funding and conflict of interest: -	comparison of particle counts, cfu, and energy consumption between LAF and TAF at 100% fresh air influx. Secondary, same parameters were evaluated but with different comparisons: LAF_{100} and LAF_{50}, TAF_{100} and TAF_{50}, LAF_{50} and TAF_{100}.	air is 2760 m^3/h and recirculated air is 7075 m^3/h. TAF ventilation uses 1 HEPA filter and airflow rate is 2533 m^3/h, which is all outside air. Characterization: -	0.0007) when reducing air influx from 100% to 50%.		could have influenced results on e.g. particle count.

[1]Goals and scope: 'Phase of life cycle assessment in which the aim of the study, and in relation to that, the breadth and depth of the study is established'

[2]Functional unit: Quantified description of the function of a product or process that serves as the reference basis for all calculations regarding impact assessment.