

Google Scholar, Lens et WoS

Naik, A. K., Zabłocka-Godlewska, E.

[Bioaerosols in Indoor Environments: characteristic, health risk, sampling, analysis methodologies and challenges – a review.](#)

Atmospheric Environment, Vol. **373**, (2026)

A sudden outburst of COVID-19 disease has raised interest and concerns among people for the air quality, especially the importance of such components of air pollution which are bioaerosols present in the outdoor and indoor air. These present in the atmosphere, dead or live biological particles including bacteria, fungi, viruses, pollens, mycotoxins, endotoxins, β -glucans, etc. have a widespread human health effect as well as other organisms. Pandemics that have occurred in the past have had a decisive impact on the human population and still occur from time to time. Understanding bioaerosol phenomena in both indoor and outdoor environments is critical to determining potential threats to human health. The necessary knowledge on this subject includes the phenomena of their formation, spread, survival and factors influencing their concentration and composition. This review summaries topics related to bioaerosol characterization, sampling devices (it's pros and cons), health impacts and government regulations for the bioaerosol concentration in developing as well as developed countries.

Booth-Jones, A. D., Olmsted, R. N.

[The Built Environment and Reservoirs of Antimicrobial Resistance: Are Mitigation and Prevention Possible Using Design and Daily Facility Operations Strategies?](#)

Infectious Disease Clinics, (2026)

Antimicrobial resistance is a global concern, and the built environment needed for direct care of patients and residents and associated delivery of support services can be a significant reservoir of multidrug-resistant organisms (MDROs). The World Health Organization's latest report on antimicrobial resistance finds ??one in six laboratory-confirmed bacterial infections in people worldwide in 2023 were resistant to antibiotics, and between 2018 and 2023, antibiotic resistance rose over 40%.? This review will reflect growing awareness of the role the built environment plays in cross-transmission of MDROs and highlights the need for prevention to protect both patients and health care personnel.

Khayria, M. M., Alia, H. N., Alyasiri, T., Al-Khalidic, H. M., Amshaweed, A. M., Hussaine, M. A., *et al.*

[Design and Evaluation of Passive Disinfection Air Filters Coated with Metal-Based Nanoparticles to Combat Hospital-Acquired Airborne Pathogens.](#)

Cellular Physiology and Biochemistry, Vol. **60**, (2026), 116-126 p.

Aims : Nosocomial infections continue to be a serious problem in hospital settings, particularly in intensive care units (ICUs), where resistant germs can spread through the air. Air filters are often designed to capture particulate matter but not necessarily to kill live germs that remain on their surfaces. Materials: To address these issues, polypropylene filter media were imbued with silver (AgNPs), zinc oxide (ZnO), and copper oxide (CuO) nanoparticles to impart antibacterial activity. Chemical reduction was used to create AgNPs, while sol-gel and precipitation methods were used to prepare ZnO and CuO nanoparticles. Results: DLS and zeta potential measurements were utilized to calculate particle size distribution,

polydispersity index, and surface charge. The filters were coated with nanoparticle suspensions by an alcohol-based dip-coating process, followed by heat treatment to solidify the deposited layers. Antibacterial activity was measured against *Staphylococcus aureus* (ATCC 25923) and *Pseudomonas aeruginosa* (ATCC 27853) using agar diffusion and direct-contact assays, and reusability was assessed over three cycles. Different variations were observed among the tested materials. Silver nanoparticles demonstrated the largest inhibition zones (18.2 mm for *S. aureus* and 16.7 mm for *P. aeruginosa*), followed by copper oxide nanoparticles, which showed moderate inhibition. Under identical conditions, zinc oxide exhibited the lowest inhibition. Over three reuse cycles, AgNP-coated filters retained the majority of the antibacterial activity with minimal decreases in inhibitory zone diameters. ZnO and CuO coatings, on the other hand, showed significantly higher decreases after many cleanings. Treatment of filters with nanoparticles significantly increased antibacterial efficacy compared to untreated controls ($p < 0.05$). Conclusion: In general, the addition of metal nanoparticles to polypropylene filter media appears to improve efficacy in lowering viable airborne bacterial loads. Silver-based coatings exhibited the highest resistance and effective antibacterial response among the studied materials, indicating their potential applicability in ventilation systems for the control of airborne infection within the limitations of the present three-cycle experimental framework.

Flahault, A., Elbel, J., Buzyn, A.

[Éradiquer les maladies infectieuses : une utopie multilatérale.](#)

Politique étrangère, Vol. **Printemps** n°(1), (2026), 205-216 p.

Pendant la guerre froide, l'opposition entre Moscou et Washington n'a pas empêché un succès majeur de la coopération globale dans le domaine de la santé : l'éradication de la variole. Les tensions géopolitiques actuelles ne doivent pas faire dévier les responsables politiques d'un objectif qui paraît utopique à l'heure du retrait américain de l'Organisation mondiale de la santé : l'élimination, voire l'éradication, d'autres maladies. politique étrangère

Kavanagh, K.

[From Droplets to “Through the Air”: Why Ventilation and Respirators Matter More Than Ever in Infection Prevention.](#)

Infection Control Today, Vol. **30** n°(1), (2026)

The COVID-19 pandemic has accelerated a shift away from droplet-based precautions toward a “through the air” framework that recognizes aerosol transmission across a continuum of particle sizes. As measles, SARS-CoV-2, and influenza circulate simultaneously, this article explains why ventilation, respirators, and higher air change rates must become core infection prevention strategies in health care facilities.

Spielmanns, M., Brülisauer, C., Furlakis, C.

[Herbst und Winter, Hauptsaison für Atemwegsinfektionen: Schicksal oder vermeidbar?](#)

Atemwegs- und Lungenkrankheiten, Vol. **52** n°(2), (2026), 57 p.

Infektionsprophylaxe in Rehabilitations-kliniken ist insbesondere im Herbst und Winter ein wiederkehrendes Thema. Neben Impfungen (Influenza, COVID-19, Pertussis) ist als zentrale Maßnahme eine ausgewogene Ernährung (Ballaststoffe, ausreichende Energie- und Eiweißzufuhr) zu nennen. Sie unterstützt das Immunsystem. Vitamine und Mikronährstoffe können bei Mangelzuständen sinnvoll sein. Regelmäßige Bewegung und ausreichender Schlaf stärken die Immunabwehr. Ein professionelles Verhalten bei Symptomen, Maskenpflicht je nach Situation und strikte Hygienepraktiken schützen Personal und Patienten. Rehaspezifische Besonderheiten (Gruppentherapien, Aerosolbildung, belüftete Räume)

erfordern regelmäßiges Stoßlüften, reduzierte Gruppengrößen, Raumlufmanagement und multimodale Präventionskonzepte. Impfungen sollten leicht zugänglich sein. Hingegen wird eine routinemäßige antivirale oder antibiotische Prophylaxe nicht empfohlen. Die Implementierung einer suffizienten Infektionsprophylaxe erfordert interprofessionelle Zusammenarbeit, Schulungen, klare Anweisungen und Feedback. Fazit: Atemwegsinfektionen können nicht vollständig vermieden werden, doch durch kombinierte, settingspezifische Maßnahmen lassen sich Häufigkeit und Verlauf deutlich verbessern.

Saini, J., Dutta, M., Marques, G.

Indoor Air Quality Risk Assessment and Modeling in Healthcare Facilities: A Systematic Review and Analysis.

J Appl Toxicol, (2026)

The presence of an extensive range of chemicals in healthcare facilities leads to repeated inhalation of polluted air. This affects the functionality of the respiratory system, including mental health, physical health, and overall well-being, by a considerable level. As patients in healthcare facilities are already experiencing some health issues, repeated exposure to chemicals may worsen their conditions. This systematic review provides details on the harmful chemicals present in the hospital environment while establishing a link between degraded air quality and human health. It also highlights the potential sources of toxic chemical generation in healthcare facilities and methods used by existing researchers to assess these conditions. Furthermore, the essential recommendations provided by existing researchers to improve environmental conditions in healthcare facilities are disclosed along with potential challenges that are required to be addressed. This study included analysis and synthesis regarding five different RQs from 29 research papers included as per the PRISMA methodology. 68.97% of studies report that particulate matters are the most common pollutant available in hospital environments; however, CO₂ was considered among the most prevalent pollutants by 65.52% of studies. Among the included studies, 41.4% preferred conducting medium-term monitoring and 82.8% of studies preferred considering main hospital buildings for assessment. This study will be useful for upcoming researchers, environmentalists, and government agencies to understand the public health challenges due to degraded environmental conditions.
