

# Analysis of models describing a pathogen spread in a hospital network

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In the poster we present mathematical methods applied in the analysis of selected modifications to a model describing a pathogen spread in a single hospital, introduced in [1]. The altered models allow us to describe the pathogen spread in a network of  $n$  facilities [2]. We introduce further adjustments, such as replacing the hospitals with hospital wards to create more detailed structure of the network, or dividing patients into groups based on e.g. a risk of contracting the pathogen [3]. We discuss how the changes affect both mathematical methods and theoretical results.

## References

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- [2] M.J. Piotrowska, A. Puchalska, K. Sakowski, *On the network suppression of the pathogen spread within the healthcare system*, *Appl. Math. Comput.* 457, 128169 (2023)
- [3] P. Brachaczek, A. Lonc, M.E. Kretzschmar, R.T. Mikolajczyk, J. Horn, A. Karch, K. Sakowski, M.J. Piotrowska, *Transmission of drug-resistant bacteria in a hospital-community model stratified by patient risk*, *Sci. Rep.* 13, 18593 (2023)

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