Review of: "When a Cluster Is a Cluster"

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Potential competing interests: No potential competing interests to declare.

The article has a significant contribution to the debate regarding the importance of spatial analysis in management and control of epidemics particularly COVID-19. It strongly advocates for the use of computer-based dot maps and sophisticated statistical techniques which include artificial intelligence in order to look at how infectious diseases spread. However, there are areas where the paper could be improved for clarity, depth, and overall impact. Here is a section-by-section critique:AbstractThe abstract clearly explains why it is important that we should focus on spatial analysis rather than temporal only when dealing with infectious diseases' spread. However, it could be enhanced by briefly summarizing the main findings or highlighting what makes this article special to trigger further reading.IntroductionThe introduction effectively contextualizes the significance of identifying spatial clusters in containing epidemics. Nonetheless, it would benefit from explicitly stating what the article intends to achieve or its hypothesis (es). A brief outline of the organization of this article may also assist readers.Statistical Approaches to Cluster RecognitionThis part offers an extensive review of statistical tests used for detecting clusters but needs some improvement:* Technical Complexity: The discussion is highly technical and may not be accessible to all readers. Simplifying explanations or providing more context around how these statistical methods apply to epidemic studies could make the section more engaging.* Examples and Case Studies: Incorporating examples or case studies where these methods have been successfully applied, particularly in the context of COVID-19, would help illustrate their practical utility.* Comparison and Contrast: A more explicit comparison of the advantages and disadvantages of each method, including any limitations, would provide valuable insights into their applicability in different scenarios.Managing the Uncertainty of the Early Stages of an EpidemicThis section is insightful but leaves room for further development:* Methodological Detail: While the application of the Topological Weighted Centroid (TWC) algorithm is fascinating, the article could provide more detail on the methodology, including how the algorithm compares to more conventional approaches.* Impact Assessment: Discussing the impact of these approaches on public health decision-making more explicitly would strengthen the article. For instance, how have these methods influenced policy decisions or resource allocation during the COVID-19 pandemic?General Suggestions* Literature Review: The article notes the vast amount of literature on COVID-19 but doesn't delve deeply into how the current work situates within or advances that body of knowledge. A more detailed literature review could highlight gaps or controversies that this article addresses.* Data and Reproducibility: Given the focus on specific statistical methods and algorithms, providing access to data sets or code, if possible, would enhance the article's transparency and allow for replication and validation of the findings.

* Conclusion: The article would benefit from a stronger concluding section that succinctly summarizes the key findings, discusses the broader implications for public health policy and epidemic management, and suggests avenues for future research.