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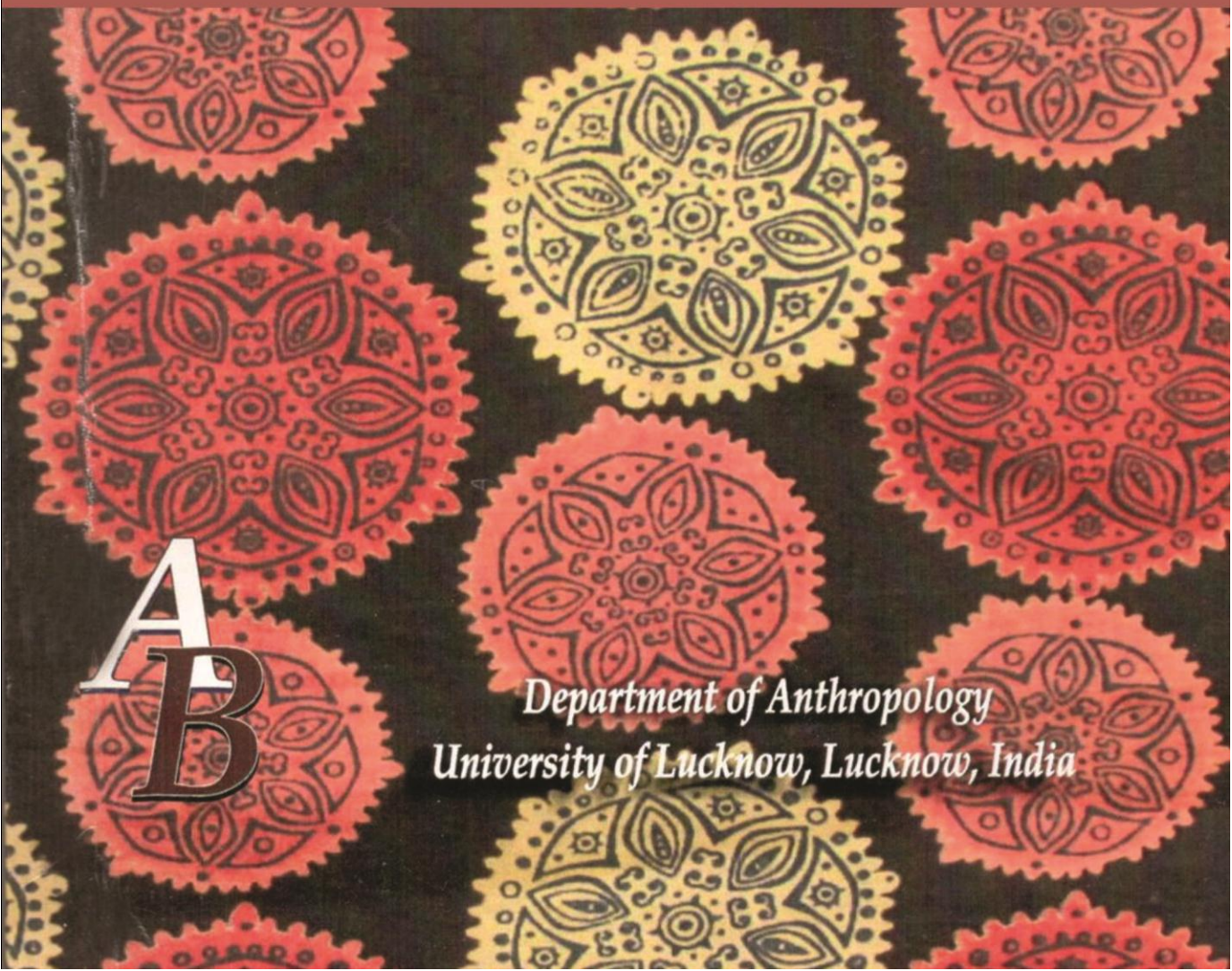

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Commentary

Anthropogenic and Behavioural Links to Anti-microbial Resistance

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Antimicrobial resistance (AMR) is not solely a biological issue; it is a multifaceted global health crisis that jeopardizes our ability to combat infectious diseases effectively (National Academies of Sciences, Engineering, and Medicine, 2017). While the biological mechanisms of AMR are well-understood, this commentary delves into the intricate tapestry of human behaviors and societal factors that propel the emergence and proliferation of AMR. Our examination emphasizes the interplay between microbiology, healthcare, culture, and economics in driving this critical challenge.

The Human Behaviors Contributing to AMR:

One of the most significant drivers of AMR is the overuse and misuse of antimicrobial drugs, particularly antibiotics (Dadgostar, 2019; Kardos, 2017). This problem is compounded by healthcare providers, who often overprescribe antibiotics due to patient demand, diagnostic uncertainty, or concerns about potential bacterial complications (Krockow, et al, 2019; Zetts, et al, 2018). Patients themselves contribute to this issue by not completing the full course of antibiotics, often discontinuing treatment once they feel better, inadvertently leaving surviving bacteria more prone to developing resistance.

Agricultural Practices and Their Role:

Agricultural practices also play a pivotal role in AMR. Antibiotics are frequently employed in farming to boost animal growth and prevent disease (Peng, Salaheen, & Biswas, 2014). In some systems, antibiotics are administered routinely to animals, even in the absence of illness, leading to the selection of resistant bacteria within animal populations (Call, Davis, & Sawant, 2008). These resistant bacteria can be transmitted to humans through the food supply chain or direct contact with animals, further propagating AMR (Ayukekbong, Ntemgwa, & Atabe, 2017).

Globalization and Its Impact:

Globalization and international travel significantly contribute to the spread of AMR (Arcilla, et al, 2014; Zhang, et al, 2006). People traveling across borders can carry resistant bacteria with them, introducing them to new regions and communities (Okeke, & Edelman, 2001). Medical tourism is another critical factor, exposing patients to different antibiotic regimens and resistant bacteria, which can then be imported back to their home countries (Frost, et al 2019; Hill, 2011).

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Socioeconomic Factors:

Socioeconomic factors are also deeply intertwined with AMR. Limited access to healthcare often drives individuals to self-medicate and use substandard or counterfeit antibiotics, increasing the risk of resistance development (Okeke, Lamikanra, & Edelman, 1999). Poverty and resource constraints exacerbate AMR, as poor sanitation, overcrowding, and limited access to clean water can facilitate the spread of resistant infections.

Cultural Beliefs and Behaviors:

Cultural beliefs and behaviors exert a significant influence on antibiotic use (Harbarth, & Monnet, 2008). In certain cultures, traditional remedies are preferred over Western medicine, leading to delayed or inappropriate antibiotic use (Peeters Grietens, et al, 2012). Patient expectations can also drive antibiotic overuse, as patients may expect antibiotics for viral infections, and healthcare providers may prescribe them to meet patient demands, even when they are not indicated (Fletcher-Lartey, Yee, M., Gaarslev,& Khan, 2016).

A Comprehensive Approach to Addressing AMR:

To tackle the multifaceted challenge of AMR effectively, a holistic approach is imperative (Founou, Founou, & Essack, 2016). This approach should encompass not only advancements in medical science but also transformative changes in healthcare practices, agricultural policies, and public education (Roco, & Bainbridge, 2002). Efforts to combat AMR must recognize and address the intricate interplay of behavioral and anthropogenic factors that contribute to this global health challenge (Heesterbeek, et al, 2015).

In conclusion, AMR is a complex and multifaceted issue rooted in human behaviors, socioeconomic factors, agricultural practices, and cultural beliefs. To safeguard the effectiveness of antibiotics in modern medicine and preserve public health, we must adopt a comprehensive approach that encompasses medical advancements, changes in healthcare practices, agricultural policies, and public education. By understanding and addressing these interconnected factors, we can work towards a future where antibiotics remain a cornerstone of modern medicine, ensuring the well-being of our global population.

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