From Furnace to Pharmaceuticals: Exploring Antimicrobial Resistance in Nepal's Steel Industry. (Preliminary findings – work in progress)

Rashmi Upadhyay and Jens Seeberg

ABSTRACT

Antimicrobial resistance (AMR) emerges and spreads in biosocial networks and meshes consisting of microbes and antimicrobials, human and non-human hosts, and environmental actors and conditions. This paper explores in ethnographic detail what it means to say that antibiotics constitute a critical infrastructure for steel production in Nepal, enabling hazardous working conditions.

Drawing on Rashmi Upadhyay's ethnographic work as part of the project 'Antimicrobial Resistance and Labour Migration across Healthcare Boundaries in Northern South Asia' (AMR@LAB), the paper explores a working environment where accidents are inevitable and where illness is part of workers' everyday lives and 'normalised', allowing them, for example, to work with materials at 1,600°C without protective equipment. While the hazardous work environment poses significant direct and visible health risks to workers, these are overlaid by invisible complications at the microbial level. The daily occurrence of injuries and illnesses that can be linked to the work environment results in frequent visits to the plant's health clinic, where antibiotics and painkillers are the standard treatment for wounds, pain and other common ailments. The wider health ecology surrounding the steelworks also feeds the biosocial web of antimicrobial resistance, as workers often become patients with conditions that require treatment beyond the capacity of the factory clinic. The steelworks remind us that heavy industrial production and its impact on microbial life is a present and future reality, unfolding unchecked in places that manage to escape regulation behind walled perimeters.

The paper seeks to develop the concept of biosocial life by linking the lives of workers in this particular work environment to the specific ways in which two gram-negative bacteria commonly found in the gut, E. coli and Klebsiella pneumoniae, develop resistance to antibiotics of particular concern for the treatment of a wide range of human infections. Based on the microbiological mapping of antimicrobial resistance found in participants' stool samples, we are beginning to unravel the biosocial network and the dynamics of the multi-species meshwork unfolding in the steel mill environment.