

# Paradigm shift needed to combat drug resistance

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When people travel, bacteria and other infectious agents travel with them. As about a billion people cross international borders each year, many more billions of the bugs come along for the ride.

However, the trend is contributing to substantial domestic and international public health threats and risks, as seen with SARS and more recently with the H1N1 flu virus.

In a paper published today in *Emerging Infectious Diseases* (EID), a journal of the U.S. [Centers for Disease Control and Prevention](#), a McMaster University infectious disease expert explores the relationship between population mobility, globalization and antimicrobial [drug resistance](#).

In collaboration with a team of international scientists, Douglas MacPherson, an associate professor in the Department of Pathology and Molecular Medicine of the Michael G. DeGroote School of Medicine, assesses the link between human travel and the international movement of drug-resistant infectious diseases around the world.

Citing published data, the authors conclude that population mobility affects the spread and distribution of resistant organisms. But despite this, it has not been considered a primary factor in developing approaches for disease control. The authors propose a paradigm shift is needed to tackle the problem, as well as greater international collaboration and standardization across borders.

"The movement of human beings is introducing many of the greatest risks to our health and health systems today," said MacPherson, a physician and medical microbiology specialist.

"For example, if you go down south on a Florida holiday and break your leg and end up in a Florida hospital, when you come home, you're going to be carrying institutional bugs back to Hamilton and you're going to introduce that variety of antimicrobial resistance into your local environment. Mobile populations are probably the most common way of moving drug-resistant organisms around the world."

Using H1N1 influenza and other infectious diseases as examples, the EID paper concludes that the complexity of human movement exceeds current international disease control policies and practices.

The researchers suggest that an effective response requires engagement at the local level, standardization of practices, partnerships between a variety of sectors and rigorous health information gathering along with threat and risk assessment. They also recommend that mobile populations need to be taken into consideration when modelling drug resistance.

"It's not just about being reactive or responsive to the problem. We now have the ability to be more proactive in decision making, more integrative and more collaborative. That's how we'll get to better solutions," MacPherson said.

The authors recommend a new approach be developed to integrate population factors into health policy and processes, which have traditionally focused on specific diseases.

"A shift in the existing paradigm of pathogen-focused policies and programs to include the 'human factor' in health and disease would

contribute to a healthier future for everyone," MacPherson said.

The ideas contained in the *Emerging [Infectious Diseases](#)* paper originated with the work of the Infectious Disease Information Expert Committee of the Council of Experts of the United States Pharmacopeia , an arm's length organization working with the U.S. government that establishes technical and analytic standards for all prescriptions, over-the-counter medicines and dietary supplements manufactured or sold in the United States and many other countries around the world, including Canada. MacPherson is the chair of the infectious disease committee and a member of the Council of Experts.

Source: McMaster University ([news](#) : [web](#))

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