AMR: PERSPECTIVES FROM SCIENCE AND TECHNOLOGY STUDIES (STS) & SOCIOLOGY

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Published work

- Meaning & interpretation
- How is AMR framed in public domains?
- Limits of some dominant framings
- Different framings
  - Implications for action
Framing of AMR

- Catastrophe metaphors
- Onus on individual behaviour
- Do they work?
ANTIMICROBIALS: A COMPLEX ECO-SOCIAL-TECHNOLOGICAL SYSTEM

Global Environmental Change

Source of graphic: Rebecca Irwin, Public Health Agency of Canada
Climate change and antibiotic resistance “entangle life processes and social, economic, and political forces so tightly and on such a range of scales that, first, it is often difficult to identify stable sites of causal and moral responsibility and, thus, suitable moments of intervention and, second, that responses often have perverse outcomes” (Lee and Motzkau 2012)
Controversy studies: Meaning (still) Matters

- Criteria for evidence
- Uses of evidence
- Values & priorities
- Questions & problem framings
- More evidence – prolonged disagreement
- Mechanisms for recognising & accommodating diversity
AMR: Lessons from Controversy Studies

- Hopes for global cooperation
  - “Science is less contested (than climate change)” (Observer editorial 2014)

- Controversy in the making?

- Priorities in Risk Assessment
  - What is a resistance gene? Ranking risk in resistomes

*Nature Reviews Microbiology 2015 (Martinez et al debate with Bengtsson-Palme & Larsson)*
Open system model – overall selection pressure

Transmission of resistance model – evidence for linking discrete zones

“We are not talking about zoonoses........It is exposure, surely, that is the issue.” (David Heath MP, House of Commons Science & Technology Select Committee report on AMR, 2014, 4)

Wallinga/Burch debate in BMJ 2012

“We call for the creation of an organization similar to the Intergovernmental Panel on Climate Change (IPCC) to marshal evidence and catalyse policy across governments and stakeholders” (Woolhouse and Farrar, 2014 in Nature on AMR)

Questions for research (1)

- Which uses of antimicrobials matter – where, to whom and why?
- Cultures of disposal
- Role for sociology/STS: methods for creative engagement across practices, meanings & forms of expertise
Questions for research (1)

Embedded uses of antibiotics

How do cultures of mundane ‘waste’ management practices work?

How to dispose of antibiotics from cell culture?

I'm trying to get some advice for disposal of antibiotic-containing cell culture medium. I'm just talking about standard DMEM/RPRMI with pen/strep. Does everyone just pour this down the drain? I've read the inactivation of the antibiotics can only be done by autoclave or incineration which I'm willing to take the time to do but I'm wondering if this is really necessary. Are the levels considered so low that it doesn't make sense to go to this trouble?

TOPICS

In our lab we just bleach them first then dispose them into bio-waste. You can also autoclave them first and then dispose them into bio-waste. Either is OK.

Thanks, my understanding though is that bleach will only kill organisms within it and will NOT inactivate any antibiotics.
Questions for research (2)

- Can resistance be reduced by reducing prescribing?

- “Growing evidence argues against the likelihood of achieving major reductions in resistance by reducing prescribing” (Livermore 2005 in Lancet)

- Role for sociology: Methods for anticipating controversy (‘upstream’) and engaging across contexts and criteria for judgment (e.g., precautionary principle)

- Scientific literature and debates within this literature need to be understood in their context — scientific and policy contexts vary
Questions for Research (3)

Global Politics of how resistance travels
South to North focus vs North to North &
North to South

Methods to restore balance

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The Enemy Within: A new superbug, KPC/CRKP

by Marlyn Morshead March 28, 2011 | 12:10 pm | Categorized: Science topics, superbug

I have a story in the April Scientific American ("The Enemy Within," just previewed online) about a new and very troubling form of antibiotic resistance: Carbapenem resistance, spreading through Gram-negative bacteria such as Klebsiella (above, from the CDC) and E. coli.

Remember NDM-1, the "Indian supergene" that created a media furor last fall and then fell below the news horizon? This is worse.

I have a story in the April Scientific American ("The Enemy Within," just previewed online) about a new and very troubling form of antibiotic resistance: Carbapenem resistance, spreading through Gram-negative bacteria such as Klebsiella (above, from the CDC) and E. coli.

Naming superbug after Delhi triggers ethical debate

Kanu Sehgal, TNN April 4, 2011 04:43 am IST

NEW DELHI: To name or not to name seems to have triggered a huge debate.

CDC says NDM-1 has been reported in 35 states, and is associated with high mortality—40 percent in one report. It may be in the other 25 states as well, but has not been reported.

NDM-1 is actually just one type of CRE and represents a larger antibiotic resistance issue that we already have, right now, in this country. CDC has been working with partners to prevent a type of CRE known as KPC (carbapenemase producing Klebsiella pneumoniae). The KPC gene also makes Enterobacteriaceae bacteria resistant to beta lactam/carbapenem antibiotics, just in a different way than NDM-1. KPCs have been reported in about 35 states and are associated with high mortality—40 percent in one report. It may be in the other 25 states as well, but has not been reported.
References

• Please do not cite without checking with me first - slides are particularly liable to be misinterpreted!

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