

Solving Antibacterial Resistance

David Cole-Hamilton
President EuCheMS

Thanks to:

STOA

Paul Rubig MEP

Nineta Majcen

Bruno Vilela

Blood poisoning (Sepsis)



Physiology and Medicine
1945



Cut



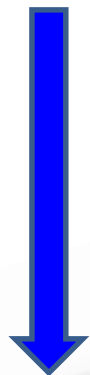
Infection



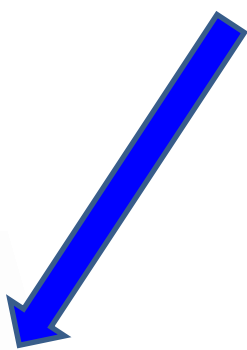
>6 M cases
per year



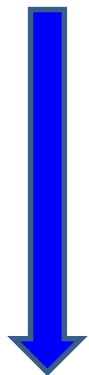
Death from
Sepsis



Cure



Antibiotic
resistance



Antibiotics



Cure



Alexander Ernst Fleming 1928
Howard Chain and Howard Florey 1940

Warning issued over strain of 'super-gonorrhoea'

- Only one antibiotic effective
- Safe-sex advice for new couples

By **LIZZY BUCHAN**
Health Correspondent

Senior medics have raised concerns about running out of treatments for a highly-resistant strain of "super-gonorrhoea" that has spread across parts of the UK.

Public health watchdogs warned yesterday that a virulent strain of the sexually transmitted disease had been found in the West Midlands and the south-east of England following a major outbreak in the north of England last year. The strain is resistant to an antibiotic called azithromycin so doctors are having to rely on a second drug, ceftriaxone, to treat it.

There are no other effective drugs to tackle the strain, sparking fears it could become untreatable if it builds up further resistance.

Chancellor George Osborne warned last week that antibiotic resistance could become a greater threat to humanity than cancer, if it continues unchecked.

Scottish public health leaders are monitoring the outbreak and people are urged to use condoms with new partners to reduce the risk of catching the disease, which can lead to infertility or severe complications if untreated.

Dr Gwenda Hughes, of Public Health England, which published the warning, said: "If strains of gonorrhoea emerge that are resistant to both azithromycin and ceftriaxone treatment options would be limited as there is currently no new antibiotic available to treat the infection."

There have been 34 confirmed cases since November 2014, she said.

Hugh Pennington, emeritus professor in bacteriology at Aberdeen University, said the strain was a major public health concern. "Gonorrhoea is the one bug I am most concerned about as it is very difficult to treat using anything other than antibiotics."

"Antibiotics have been the mainstay of treatment for patients but not for much longer. We are now on the edge of some quite hard times."

It is harder to prevent the spread of sexually transmitted superbugs than hospital-acquired infections, he added.

A Health Protection Scotland spokesperson said: "We continue to support and work... to minimise the risk of multidrug resistant bacteria to the population."



Health officials are monitoring the 'super-gonorrhoea' strain

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Family to
move south

SMAN.COM @THESCOTSMAN

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"I feel absolutely dev-
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came down to econo
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treatment works."

A ha
sexually
known as
is spreading a
doctors warning
untreatable.

The strain is "highly res-
a primary antibiotic, leaving
one drug available to treat it - I
ing the prospect of it becoming
untreatable if it builds resistance.

FULL STORY, PAGE 11



Causes of antibiotic resistance

- Natural evolution
- Over-prescription
 - Doctors pres
- Unfin:
 - more
 - agriculture
 - growth promotion (ba
 - Disease prevention (ba

Needs legislation on
Major advertising



What can Europe do?

- Enforce legislation on agricultural processes and imports
- Major publicity campaign (over prescription, completing doses)

Research

- Better understand mechanism of resistance
- Understand spread of resistance between species
- Better, earlier diagnosis → appropriate treatment
- New treatments
- New antibiotics

Proposed European response to AMR

Return on investment

New antibiotic

-\$50M

Musculoskeletal drug ~\$1 bn



EU Funding

- Network of Centres throughout Europe (Alderey Park, UK)
 - Structural funds?
 - Individual groups with good new ideas
- Horizon 2020

All working together and sharing results