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Drivers that Increase the Burden of Infection Map

Description

Purpose

The aim of the "Drivers that increase the burden of infection" map is to provide an overview of the key drivers of infection (i.e. those influences that increase the burden of infection), the factors that affect them, and interventions that may mitigate the impact of these factors. The burden of infection has been identified as a key influence on the development of antimicrobial resistance (AMR) and we hope this map will increase awareness of how Infection Prevention & Control (IPC) can be used to combat the rise of AMR.

Background

The drivers of infection were identified as a key influence on the development of AMR in both the "GP Care & Community" and "Hospital" AMR Systems Maps previously published on GOV.UK¹. It is well understood that the first step in tackling the rising trend in AMR is to prevent infection from occurring in the first place and understanding the drivers of infection is crucial to this process.

Subsequent to the publication of the AMR Systems Maps, a workshop on IPC was held by Public Health England in February 2015 and the output from this workshop was used to develop the "Drivers that increase the burden of infection" map.

Description

The map provides a visual representation of the various influences driving increased infection within the population. This increase will in turn lead to an increase in the number of resistant infections both directly, through a higher number of infected individuals, and indirectly, through increased antimicrobial usage causing natural selection of resistant microbes.

Structure of the map

At the centre of the map is the increased burden of infection and use of antimicrobials influencing increased incidence of AMR.

Moving outwards from the centre are concentric rings showing:

1) Examples of infections in the population

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https://www.gov.uk/government/publications/antimicrobial-resistance-amr-systems-map

- 2) Causes of infection with microbes split into their major groups
- 3) Drivers of infection i.e. things that directly increase the risk of infection
- 4) Factors affecting the drivers of infection
- 5) Interventions that may mitigate these factors

Note – the causes of infection have been split into their major groups: Gram +ve Bacteria e.g. S.aureus; Gram -ve Bacteria e.g. E.coli; Mycobacteria e.g. M. tuberculosis; Respiratory Viruses e.g. Influenza; Blood Borne Viruses e.g. Hepatitis B; Vector Borne Infection e.g. Lyme's Disease; Fungi e.g. C. albicans; and Parasites e.g. Threadworm.

Drivers that increase the burden of infection Department of Health Public health measures Compression bandages to decrease incidence of shouldn't be used until Record and discuss Factors affecting drivers of infection chronic conditions ulcer is evident long term catheter use Reduce unnecessary visits to healthcare Intermittent self environments Poor diet causes catheterisation Pressure ulcers diabetes Immunocompromised children require very strong support. There could be a 'home co-ordination' to Over use of catheters ensure continuity of care and develop a Obestiy relationship with the family **Drivers of infection** Don't inform care homes **Smoking** of upcoming IPC Ineffective inspections - care inspections homes know in advance Prolonged, repeated Non intact skin contact with healthcare (e.g. leg ulcers, Ineffective laundering system Chronic conditions (e.g. New research and burns) diabetes, cystic fibrosis, COPD) literature reviews of clothes Causes of infection Gaps in Poor IPC in understanding Revamp salaries healthcare Under staffed and employment Mental health environments contracts Transplantation Increased infection Vaccination programmes Vector borne High turnover of staff in the population Mycobacteria infection Better public faciltiies for Implanted devices Vertical (mother to homeless such as toilets Assess efficacy of current Bloodstream e-learning packages. baby) infections and showers Poor training. Einfections Gram +ve Gram -ve Balance between over and Patient nonlearning tests are bacteria bacteria under testing Chemotherapy, compliance too easy and you Surgical site Self neglect and STIs Increased burden dialysis etc have unlimited goes infections isolation of infection Direct Bone and joint Transmission Indirect Use patient Respiratory infections Transmission e.g. aerosol, Homelessness expertise **Immunosupression** Increased infections e.g. equipment, droplet, incidence contaminated ingestion. surfaces inoculation, Ventilator of AMR or other fomites or hands Urinary tract associated Fragmented Intravenous infections pneumonia Poor prescribing Linked medical records. drug use care Increased use of Could give patients their Poor personal own medical records antimicrobials Parasites Skin/soft hygiene (Patient Knows Best) Line Drugs imported Poor tissue infections Treat patient as a whole, from abroad nutrition infection Fungi not just their current Gastrointestinal Unhygienic Bacteraemia condition Infections cultural practices Blood borne Medical equipment viruses Cultural education -Poor healthcare to and other fomites General especially in formative patient communication Respiratory complacency in years Dehydration viruses population -Contaminated health/ especially the young care environment Patient confusion Culture of not drinking **Building works** Physical much water incapability to wash Comorbidities 'National Hydration Pack' to Overcrowding publicise the importance of Contaminated drinking water all year food/water round Some older people report not feeling thirsty More community awareness disabilities Poor environment through public information films like the ones currently being <u>Key</u> Incontinence shown for strokes Urology referrals Language barrier Age Drivers of infection Staff and carers trained to recognise dehydration - dry Factors affecting armpits drivers of infection More funding for

Culture sensitive

approach

incontinence pads in care

Interventions



Acknowledgements

Map design

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Created on Microsoft Visio 2010 by George Chappelle & Caitlin Robinson - Department of Health

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Contact

If you have any comments or suggestions regarding the map please contact us at AMRmaps@dh.gsi.gov.uk.