The impact of a novel clinical decision support system on antimicrobial stewardship at an Acute NHS Teaching Hospital

S Hughes[1], KL Heard[1]
1.Chelsea and Westminster Foundation Trust, 369 Fulham Road, London, SW10 9NH

Advancing Antimicrobial Stewardship (AMS) in the fight against Antimicrobial Resistance (AMR)

What is AMR?: The development of AMR among micro-organisms is a natural response to selective pressures from antimicrobial agents. Although many antimicrobials are derived from natural products, it is the excess use of antimicrobials in human health (in both primary and secondary care), veterinary medicine and animal production which have contributed to the global rise of AMR. Antimicrobial resistance impacts greatly upon our most vulnerable patients in the hospital, typically those requiring multiple antimicrobial therapies and those in critical care areas.

What is AMS?: AMS focuses on optimisation of antimicrobial prescribing to improve patient outcomes, whilst minimising the development of AMR for our patients and wider society. The context, strategies, and delivery of AMS vary markedly between countries and healthcare providers, but central to all AMS programmes is the overarching goal of ensuring that patients who require an antimicrobial receive the right agent, at the right dose, at the right time, for the right duration.

I|C|NET

Chelsea & Westminster

What was done?

A real-time clinical decision support system (CDSS) has been tested and implemented for the first time in an acute NHS hospital. IC-NET (Baxter), an integrated software system, has been used by infection control teams since 2000 in the NHS to support clinical surveillance and reporting. A new module was created that combined real-time electronic prescribing data with microbiology and clinical pathology results.

Why change the AMS strategy?

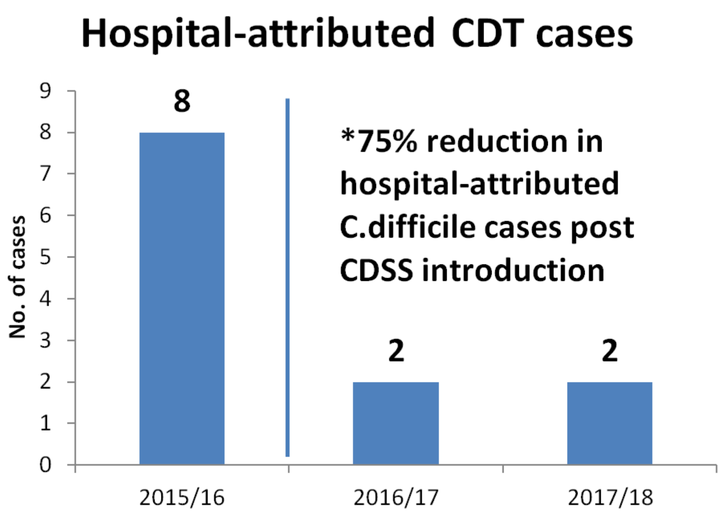
The AMS vary markedly between hospitals, largely falling within two headings, that of restriction or enablement. Restricted access to broad-spectrum antimicrobials through pharmacy and microbiology control of supply is the most common approach as requires minimal resource and implementation. This controls antimicrobial misuse but the long term benefits are less clear. The negative professional culture this restriction develops may erode inter-professional trust and delay time to first-dose, negatively impacting upon sepsis management whilst approval is sought. CDSS was used to transform the team to a more desirable enablement service, where the team aspires to support all prescribers to take responsibility for good AMS practice

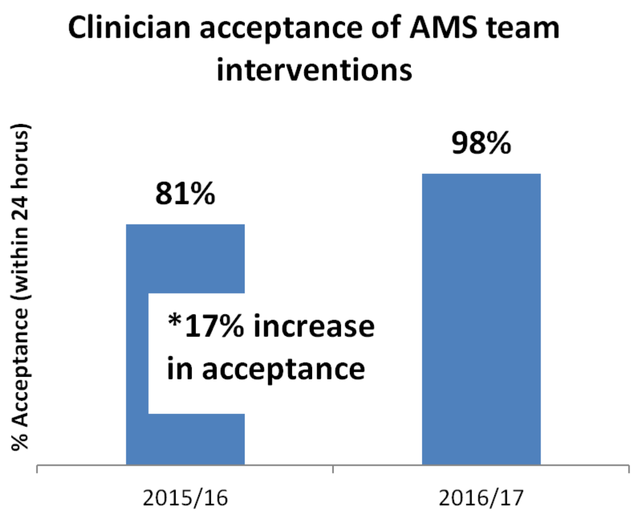
How CDSS was introduced and assessed?

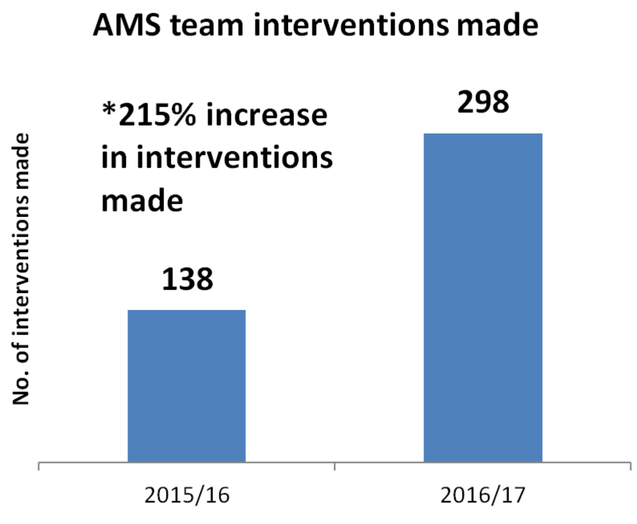
In April 2016 a commercial CDSS was introduced at a single site London teaching hospital with an established, multi-professional AMS team. A service evaluation was conducted to understand the impact of CDSS on practice. Data was collected for three months pre and post implementation, including time spent compiling data for AMS daily ward round, the number and types of AMS-related interventions made and total antimicrobial use (defined daily dose [DDD] per 100 occupied bed days [OBDs]).

Results of GPI implementation

Implementation of CDSS saw a transformation of the AMS service from tele-consult service from the microbiology labs to a patient-facing ward based service, through use of mobile technology. The relocation of AMS team staff resource allowed for increase ward presence and daily ward rounds on surgical, medical and admission wards. Total antimicrobials (DDD/100OBD) reduced by 18% over study period.







What is next?

The CDSS is being used to evolve the service to further support AMS practice. Patient orientated outcome data is being collected and used to drive further service improvements