Reducing Unnecessary Antibiotic Use in Elective Caesarean Sections: A Resident-Led Clinical Quality Improvement Project

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Background: Current recommendations advocate that single use of prophylactic antibiotics given at least 15 minutes before skin incision is as effective as a 5 day course of therapy after an uncomplicated Caesarean section. However, , the traditional practice of the hospital used intravenous (IV) antibiotics pre-operatively followed by 24 hour IV course, and oral antibiotics for 1 week subsequently. Preliminary survey also revealed that the first dose of antibiotics is not necessarily given at least 15 minutes before knife to skin.

Aim: This was a resident-led clinical quality improvement project **which aims to promote single use of IV antibiotics for elective subsidized uncomplicated caesarean section cases, to be given at least 15 minutes before knife to skin**, so as to eliminate unnecessary and variation in antibiotic use.

Methods: Five Plan-Do-Study-Act (PDSA) cycles were carried out between 23 April to 23 August 2013 to achieve our aim, and this was done mainly through education of our clinical staff of current evidence regarding antibiotic use for uncomplicated caesarean cases.

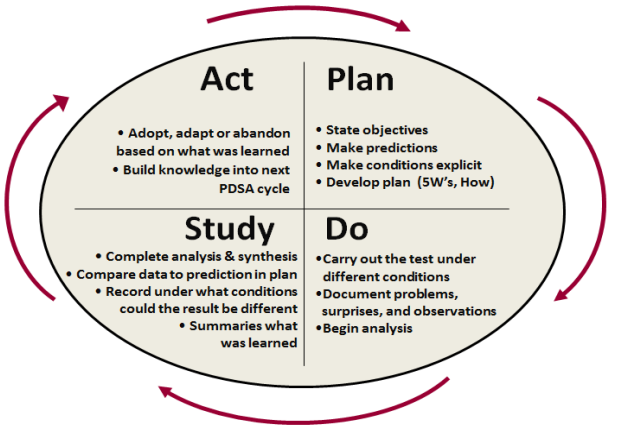

Figure 1: Pictorial representation of a PDSA cycle

PDSA Cycle 1: Our system work flow was analysed, and an audit on the current work practice on the use of routine post-operative antibiotics , as well a appropriate timing of pre-operative IV antibiotics was done. All cases received post-operative antibiotics, and only 22.7% received the first dose of antibiotics at least 15 minutes before knife to skin.

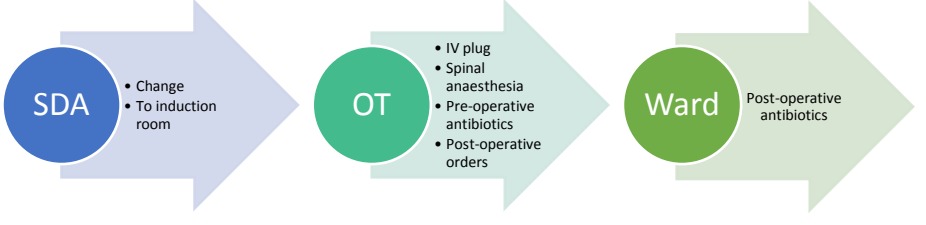

Figure 2: Old work flow

PDSA Cycles 2-5: A change of work flow was implemented. The main mode of promoting the desired change was via education to change the mindset of our team. A huge poster was placed in the elective Caesarean section operating theatre to raise awareness. Education sessions were organised in conjunction with our infection control unit reaching out to our obstetric and anaesthesia teams, ward sisters and operating theatre staff.

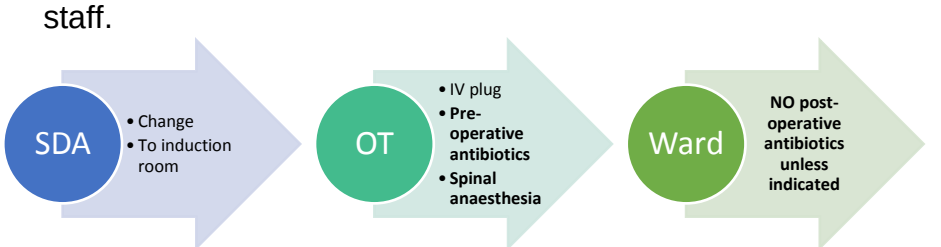

Figure 3: New workflow

Results: A total of 102 cases were included in our study over the given time frame of 18 weeks.
The compliance to single dosing of antibiotics increased from 0% to 100% by the 10th week, with no reported surgical site infections in uncomplicated elective subsidized caesarean sections despite the elimination of post-operative antibiotics.

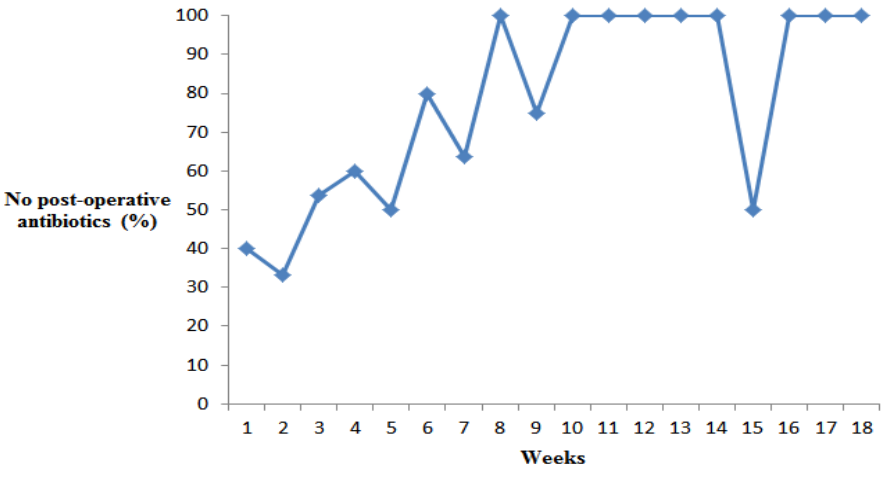

Figure 4: Run chart for compliance to single dose prophylactic antibiotic regime (no post-operative antibiotics)

Conclusion: There was a reduction in usage of unnecessary antibiotics. The benefits of extension of this move to non-subsidized and/or uncomplicated emergency caesarean section will be multifold.