

Facility based control of health care associated infection in maternities of Kyrgyzstan

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Background

Current existing monitoring systems of health care associated infection (HCAI) in most countries of the Commonwealth of Independent States fail to achieve its objectives due to underreporting of HCAI. This is due to punitive actions from sanitary-epidemiological stations (SES) and health care authorities. As a result the officially reported rate of HCAI in Kyrgyzstan's maternities varies from 0,3 to 1,5% among women, and only anecdotic cases among newborns. At the same time data from cross-sectional studies show that the prevalence of HCAI in maternities is ranging from 4 to 16%.

Infection control specialists, introduced in all health facilities in 2003, faced significant challenges to fulfill their duties due to insufficient technical knowledge and weak analytical skills. A pilot project on a new facility based infection control model was tested in Naryn and Talas oblast referral hospitals (see box 1). Based on the results of piloting, six training modules were developed by Republican Center of Infection Control and offered to the infection control specialists in all referral level facilities. On-site supportive supervision by national experts followed after each training.

Box 1. Chronology of pilot implementation of facility based infection control system in referral hospitals of two oblasts

- 2003** first pilot in Naryn: conducted first point prevalence study for HCAI
- 2004** focus on hand hygiene: shift to liquid soap and disposable towels, alcohol-based handrub with skin softeners
- 2006** trainings for management, clinicians, infection control team, and laboratory staff on use of prophylactic antibiotics; introduced special form for registration antibiotics in surgery ward; new system of healthcare waste management (HCWM) system; monitoring of costs for infection control, reinvestment of savings (from HCWM and rational use of antibiotics)
- 2008** second pilot Talas oblast hospital joined the project (including HCWM); introduced national instrument for the assessment of infection control (positive impact – common platform with SES); new registering and reporting system for HCAI, active internal monitoring at facility, regular assessment of prophylactic antibiotics in surgery ward
- 2010** training for clinical staff on infection control in maternity wards, introduced special form for registration of antibiotics in obstetrics and neonatology; additional focus on hand hygiene

Method

Two independent cross-sectional studies were conducted with one-year interval (2013 before the training and 2014 after training on HCAI) in the same settings of 13 maternity wards in all 7 oblasts. These maternities covered 46'994 (or 43,6% of all annual) births in the country. In all settings the prevalence of HCAI in the context of changing practices was assessed. HCAI definitions were adapted from those of Centre of Disease Control. No microbiology testing was used because of very limited availability and reliability of microbial culturing.

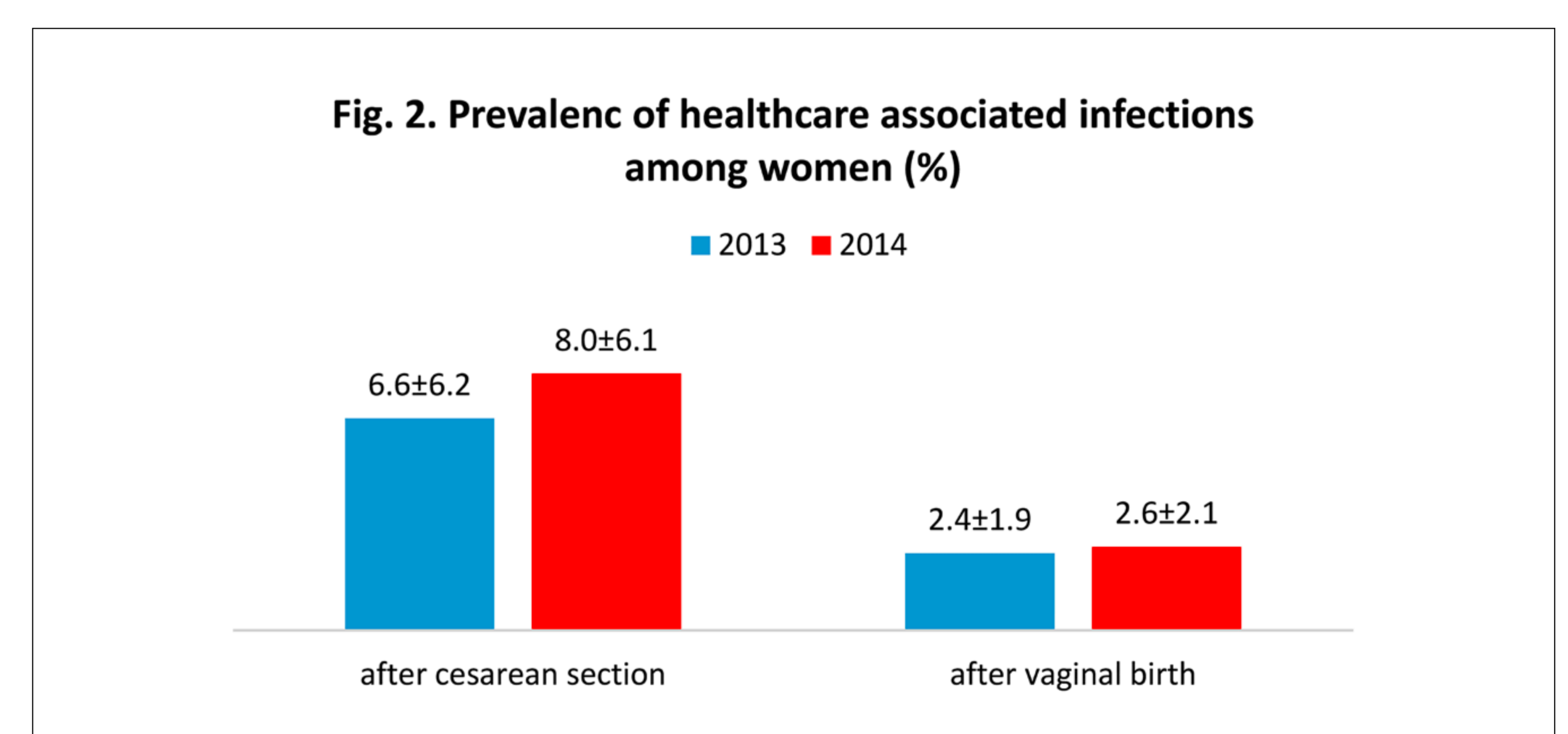
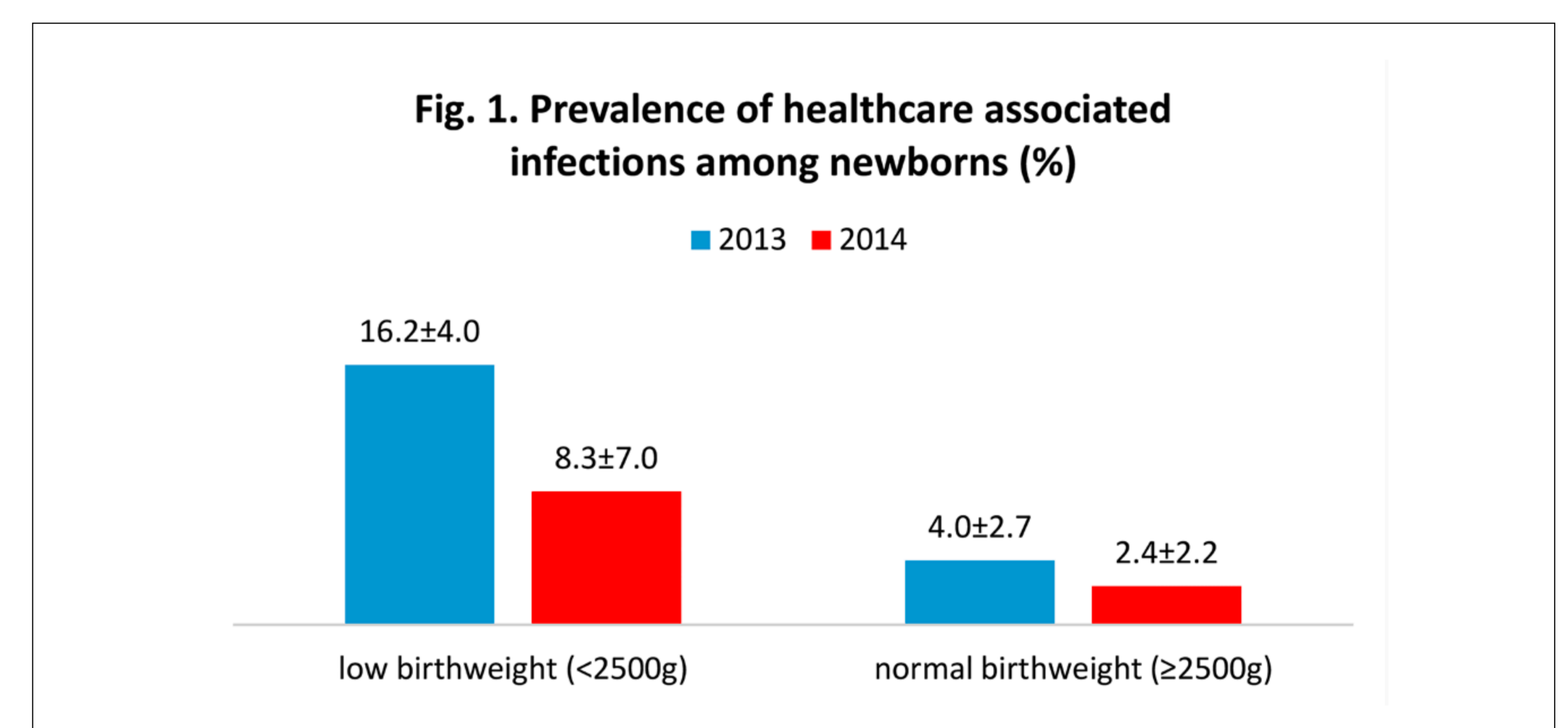
The first study covered 316 women after delivery, including 61 (19,3±4.4%) with caesarean section (CS) and 342 newborns, including 68 (19,9±4.2%) with low birth weight (LBW) below 2500g). The second study covered 302 women after delivery, including 75 (24,8±4,9%) with CS, and 307 newborns, including 60 (19,5±4,4%) with LBW.

Results

HCAI was numerically lower among newborns in 2014 vs. 2013 (fig. 1), particularly in LBW group (16,2% vs. 8,3%, $p>0.05$) suggesting that changing practices may have had an impact on reduction of HCAI. Prophylactic prescription of antibiotics in case of cesarean

section (in line with national recommendations) was close to universal in both studies, thus prevalence of HCAI after CS didn't change (fig. 2). Updated infection control standards for health facilities based on internationally accepted and validated criteria allowed for reaching consensus between hospitals and SES, which, in return, is improving the quality of internal registration of HCAI. This did empower professionals and managers for critical appraisal of traditional routines. In many cases appropriate planning of financial resources, rational use of medical supplies and antibiotics allowed for savings that could be reinvested into hospitals infrastructure.

Since 2014 an updated model of facility based infection control is being replicated in all regional and Bishkek city hospitals and maternities all over the country.



Conclusions

- Systematic regular analysis of HCAI at facility level allows hospitals to identify necessary resources, improve diagnostic and curative practices, and reduce in many cases unjustified prescription of antibiotics.
- Within the context of external infection control enforced by SES it is extremely important to equally educate SES, facility's infection control specialist, managers and clinicians.
- National guidelines and facility protocols based on internationally valid recommendations are essential pre-requisites, in particular, to reduce still prevailing and often unjustified curative antibiotic prescription.
- There is high likelihood that after a nationwide rolling out of the upgraded HCAI control system, a measurably significant reduction of HCAI-related maternal and neonatal morbidity, and, possibly, mortality will follow.