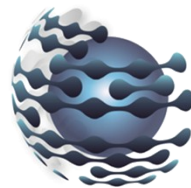


Case Study – Maternity

Baselining quality in maternity care



C2-Ai

Providing deeper insight while reducing clinician time spent on review

ABOUT THIS CASE STUDY

Obstetrics is an unusual discipline in that it does not sit neatly in either standard medical or surgical care and can involve elements of both, as well as specialist interventions focused specifically on mother and baby.

CRAB therefore assesses the quality of maternity using a blend of risk adjustment methodologies in relation to surgical interventions, combined with specialty-specific triggers of avoidable harm that analyse care for both mother and baby in an aggregated dashboard.

ABOUT C2-Ai

Our systems deliver the safety and savings hospitals need! C2-Ai helps hospitals worldwide to demonstrably reduce avoidable harm and mortality, generate significant savings on operating expenditure (potentially millions per hospital) and reduce complaints/clinical negligence claims by up to 10%.

We uniquely and accurately risk adjust for each patient and can tell which hospitals, specialties, consultants etc. are doing well (given their specific case-mix), where the hospital has issues for mortality and complications, what the causes are, their economic impact, and how to resolve them. We can then support hospitals with forward-looking applications to triage and manage patients more effectively, thereby optimising outcomes and cost-effectiveness.

Our suite of tools is not limited to hospitals, but has wider application for regulators and purchasers/insurers.

“CRAB just makes sense. It presents data in a way that is easy to understand and interpret. It has been immensely useful for me both personally in my appraisal and in my role as a Clinical Director. It helps me to pick up early warning of problems with intelligence that can be believed and acted upon”

Jeremy Cundall,
Consultant Colorectal and General Surgeon,
Executive Medical Director CDDFT

“Accurate benchmarking of outcomes was a real challenge to us ... however our work with CRAB analytics has provided invaluable quality assurance. The risk adjusted reporting has provided confidence that our outcomes are better than comparable organisations and the level of detail enables us to focus on improvements in specific areas. It was particularly useful during our regulatory inspection and follow up meetings with the CQC to show how this strengthens our clinical governance...”

Dr Jenny Davidson, Director of Governance, King Edward VII's Hospital.

“The problem with [HSMR systems] is that they tell you there might be a problem, but not where or why. CRAB® tells you exactly what and where the problem is, and even which patients are involved. Then you can do something about it.”

Dr. Aresh Anwar, Medical Director Royal Perth Hospital, Australia

Understanding quality in maternity care

Maternity care is assessed using a combination of risk adjustment and specialty-specific triggers of avoidable harm in an aggregated dashboard

Built from academic research in the UK combined with C2-Ai's unique expertise in case-mix adjustment, 16 key variables have been identified to give an overall assessment of performance by obstetric units.

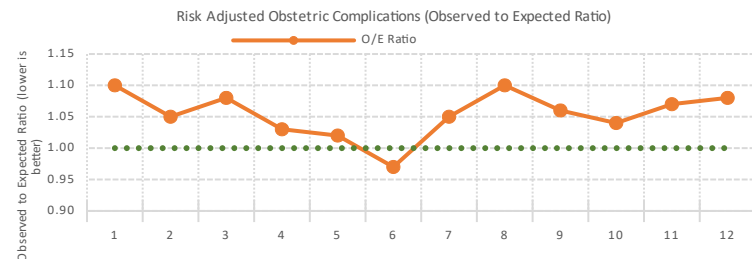
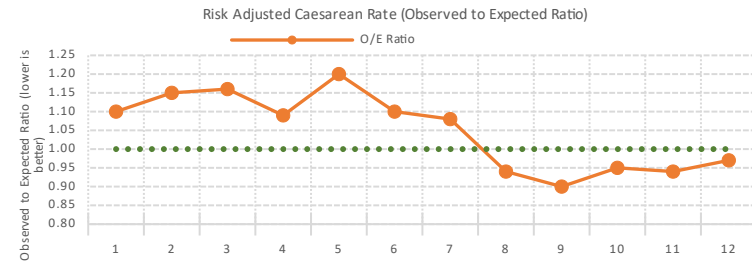
The objective is to give a holistic assessment of care for both mother and baby.

Wider inpatient is also still monitored more generally using the CRAB Medical module (automated version of the UK Global Trigger Tool), and surgical interventions using the Surgical Module

O&G DASHBOARD

	This Month	Last Month	Average For Year
Women Delivered	504	504	498.8
Babies Born	560	514	508.2
Multiple Birth Rate	1.08%	1.98%	1.84%
Preterm Rate	12.68%	12.45%	12.59%
> Preterm Rate	3.39%	4.09%	3.66%
SCBU at Term Rate	6.07%	6.03%	5.00%
Stillbirth Rate	0.00%	0.39%	0.16%

	TARGET	This Month	Last Month	Average For Year
Induction of Labour	43.00%	43.90%	41.32%	51.40%
Caesarean Overall Rate	26.00%	24.47%	23.59%	21.61%
Caesarean Elective Rate	12.00%	6.30%	6.49%	6.03%
Caesarean Robson 1, 2 and 5	33.00%	35.33%	29.24%	25.94%
Caesarean Emergency Rate	14.00%	13.81%	12.59%	11.40%
Operative Vaginal Delivery	16.00%	14.63%	12.91%	12.49%
Maternal ITU Admission	0.30%	0.02%	0.00%	0.02%
APGAR < 7 at 5 mins	4.00%	0.93%	1.32%	0.98%
Post-Partum Haemorrhage	15.00%	13.95%	12.50%	10.34%

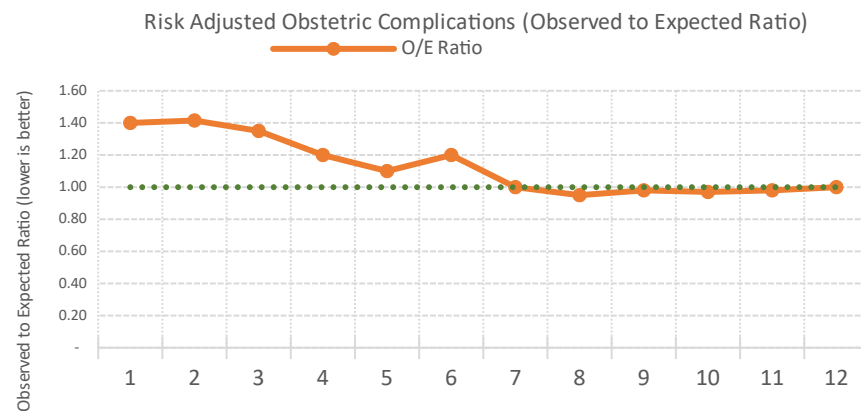
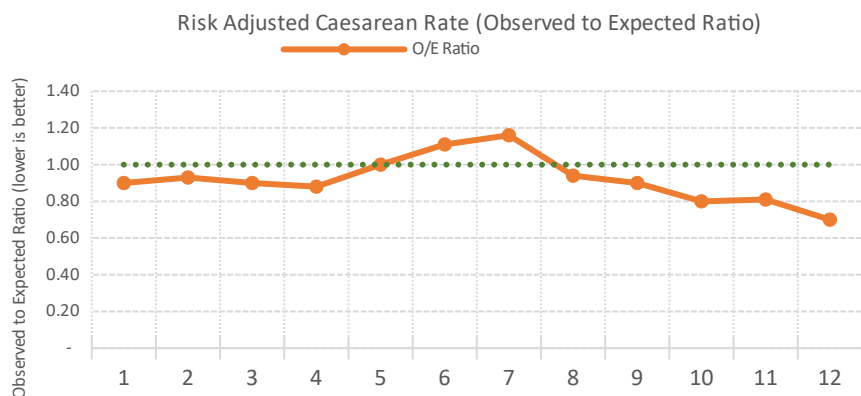


Maternity case study: multiple units, multiple issues

Analysis was undertaken across a series of units which were understood to have a range of challenges. 3 units have been selected for particular scrutiny in this case study.

Whilst some were showing improvements in certain key areas, this belied deteriorations elsewhere that had the potential to be even more damaging.

Unit A was showing some historic issues in relation to risk-adjusted outcomes for C-Section and other surgical obstetrics. However, new clinical leadership had launched a fundamental safety improvement drive across the organisation and this had had an impact on obstetric performance as well more recently.



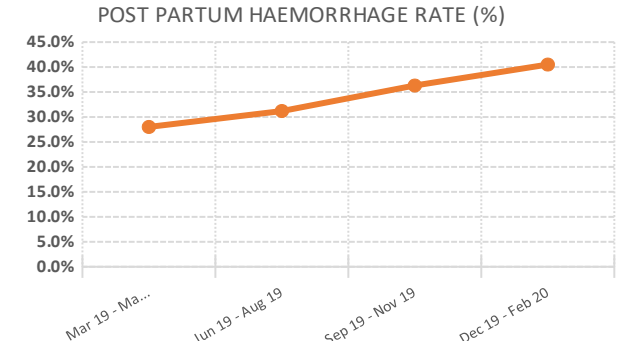
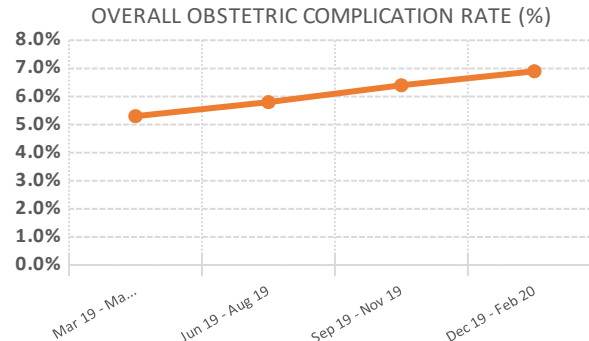
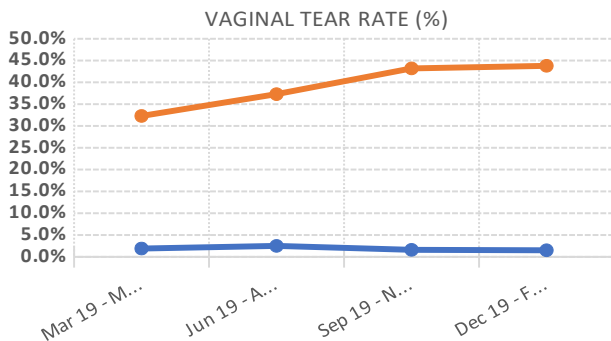
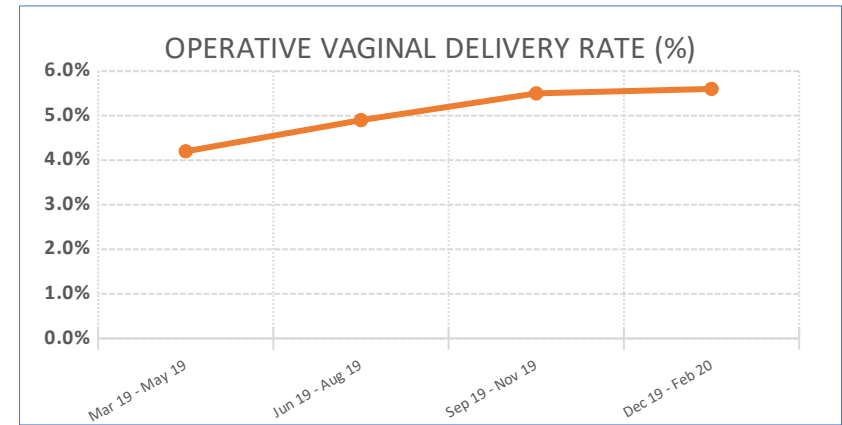
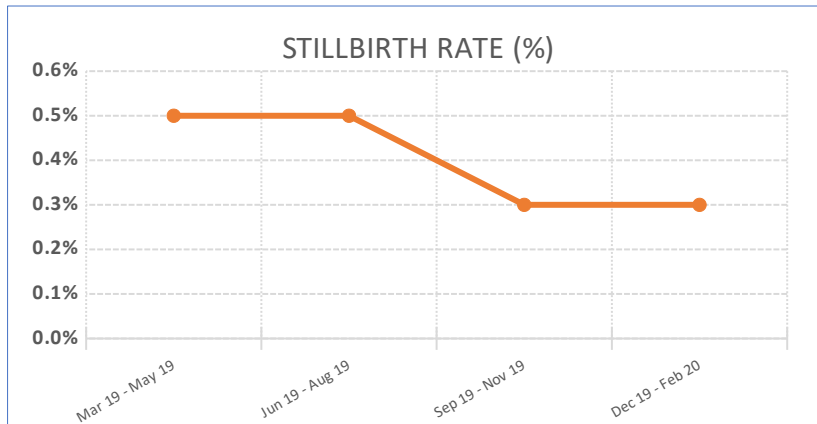
Nonetheless, further analysis showed some outstanding issues to address, principally in relation to tear rates (which then began to improve), and volumes of potentially unnecessary elective C-Sections.

	Upper 95% confidence	2016	2018
Women delivered: Average per month		213	214
Babies born: Average per month		212	212
Pre-term <37 weeks Average per month	11.5	10.7	11.2
Pre-term <34 weeks Average per month	2.5	2.5	2.2
Stillbirth rate Average per month	0.6	0.53	0.89

Maternity case study: multiple units, multiple issues

Unit B had made demonstrable improvements in reducing the stillbirth rate, correlating with an increase in operative vaginal and deliveries. However this unit was experiencing problems in relation to the intra-partum and post-partum care of the mothers, with increases in obstetric complications and post-partum haemorrhage rates.

This was a common factor for many units: historic low rates for Caesarean and operative vaginal delivery had increased stillbirth rates, but in re-introducing these measures, a level of de-skilling had occurred. Therefore, that whilst stillbirth rates were brought back to normal levels, time is required before the surgical complication rates are brought back under control. Increased post-partum haemorrhage rates also appear to be a function of a higher number of older mothers presenting, and prolonged labour before a surgical intervention is proposed.



— Grade 1 & 2
— Grade 3 & 4

Maternity case study: multiple units, multiple issues

Unit C, had similar but more marked challenges historically, but had shown improvement once re-skilling had taken place. In zealously embracing a policy of actively promoting natural childbirth, stillbirth rates had increased to significant levels. The re-introduction of caesarean more pro-actively brought this under control, but it took some time before caesareans were being performed as competently as they had been previously (note in particular risk-adjusted O/E ratios for C-section)

