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A Retrospective Study of Moderate Risk Pregnancies: Midwifery Group Practice & Standard Hospital Care

Roslyn Donnellan – Fernandez RM, IBCLC, RN, MN, BN, WCH Foundation Midwifery Fellow, (PhD Candidate)
Associate Lecturer in Midwifery, School of Nursing & Midwifery, Flinders University of South Australia, Adelaide



This study shows Midwifery Group Practice (MGP) improves clinical outcomes and resource use in women whose pregnancies are classified as moderate obstetric risk. Further, MGP is cost effective care and MGP can be a safe "all – risk" maternity service model.

Background

Outcomes in moderate risk pregnant women undertaking integrated continuity of midwifery care are of considerable interest given international research evidence demonstrates that effective clinical outcomes and lower rates of medical interventions occur in healthy 'low' risk women receiving care through midwifery continuity of care models.^{1,2,3} This poster provides an overview of a Midwifery Group Practice model providing services for 'all – risk' groups of pregnant women at a major tertiary maternity hospital in South Australia.^{4,5,6} It presents comparative clinical effectiveness and facility use findings between MGP and Standard Hospital Care (SHC) in the moderate risk group. These findings form part of a larger data linkage project analyzing quality, efficiency and equity in public maternity services. The research project examines outcomes between a standard hospital maternity service and an integrated midwifery maternity service over a seven year timeframe, 2004 – 2010, as well as short term postpartum Medicare and Pharmaceutical Benefits use. Further information at www.flinders.edu.au/research/higher-degree-students/roslyn-donnellan-fernandez.edu

Demographic Profile of Population

The Midwifery Group Practice in this study commenced in 2004 as an 'all – risk' model. It is now an established part of SA integrated maternal and child health services and provides care for over 1000 women and babies per year. More than half the women in the service are classified as having a 'moderate' risk profile. When matched against obstetric risk profile with women having SHC, MGP group were older, with nearly double the proportion of women in 'above trade' occupations. This finding reflects some common population features of women who choose midwifery lead care, and their potential confounding effect is acknowledged.⁷ Whilst these demographic variables were not controlled for in the logistic regression analysis in this study, women who received care in the MGP model, despite being older, demonstrated better clinical outcomes than women with the same features in SHC.

Overview: A Retrospective Study of Moderate Risk Pregnancies: A Comparison of Midwifery Group Practice and Standard Hospital Care Study Objectives, Design, Setting, Participants, Methods, Analysis, Findings

Objective: To compare clinical and resource outcomes in a moderate risk obstetric group of women undertaking care in two different service models provided by the same public hospital.

Design: A retrospective comparative study.

Setting: Midwifery Group Practice (MGP) and Standard Hospital Care (SHC) service in a university affiliated metropolitan maternity hospital in South Australia.

Participants: All women classified as 'moderate' obstetric risk receiving care through MGP service, n = 3 385 or SHC service, n = 10 077 as public patients during years 2004 – 2010 for metropolitan postcodes 5000 - 5174.

Methods: This study examined outcomes for 13 462 women classified as having 'moderate obstetric risk' from metropolitan postcodes in South Australia; 5523 nulliparous women and 7939 multiparous women were included. SHC and MGP service groups were compared after proportional matching for parity 74.9% v 24.1% (nulliparous) and 74.8% v 25.2% (multiparous), respectively.

Analysis: Risk matching and data collection performed from hospital obstetric database HRPS by the Public Health Research Unit at a tertiary metropolitan teaching hospital. Statistical analysis used univariable logistic regression to compare groups on a number of selected obstetric and resource outcomes. Clinical outcome data included: induction of labour, use of epidural anaesthesia, mode of birth (vaginal, instrumental, elective or emergency caesarean section), perineal status (intact, episiotomy, first, second, third or fourth degree tear), postpartum haemorrhage (> 500 mls and > 1500 mls), postnatal infection rates, and numbers of babies either rooming in with their mothers or admitted to a Special Care Baby Nursery (SCBN). These measures constitute important comparative indices from which to benchmark clinically effective service delivery.^{8,9,10,11,12,13,14,15,16} Resource outcome data that was measured included the number of visits and hospital emergency presentations and admissions, as well as length of postnatal maternal bed stay. These factors are nationally and internationally acknowledged as important indices of resource use and cost.^{17,18,19,20,21,22,23,24,25}

Findings: A significant difference in age and occupational status was noted between the two groups. Women and babies in the Midwifery Group Practice (MGP) group experienced lower rates of medical intervention and serious morbidity than women and babies in the Standard Hospital Care (SHC) group.

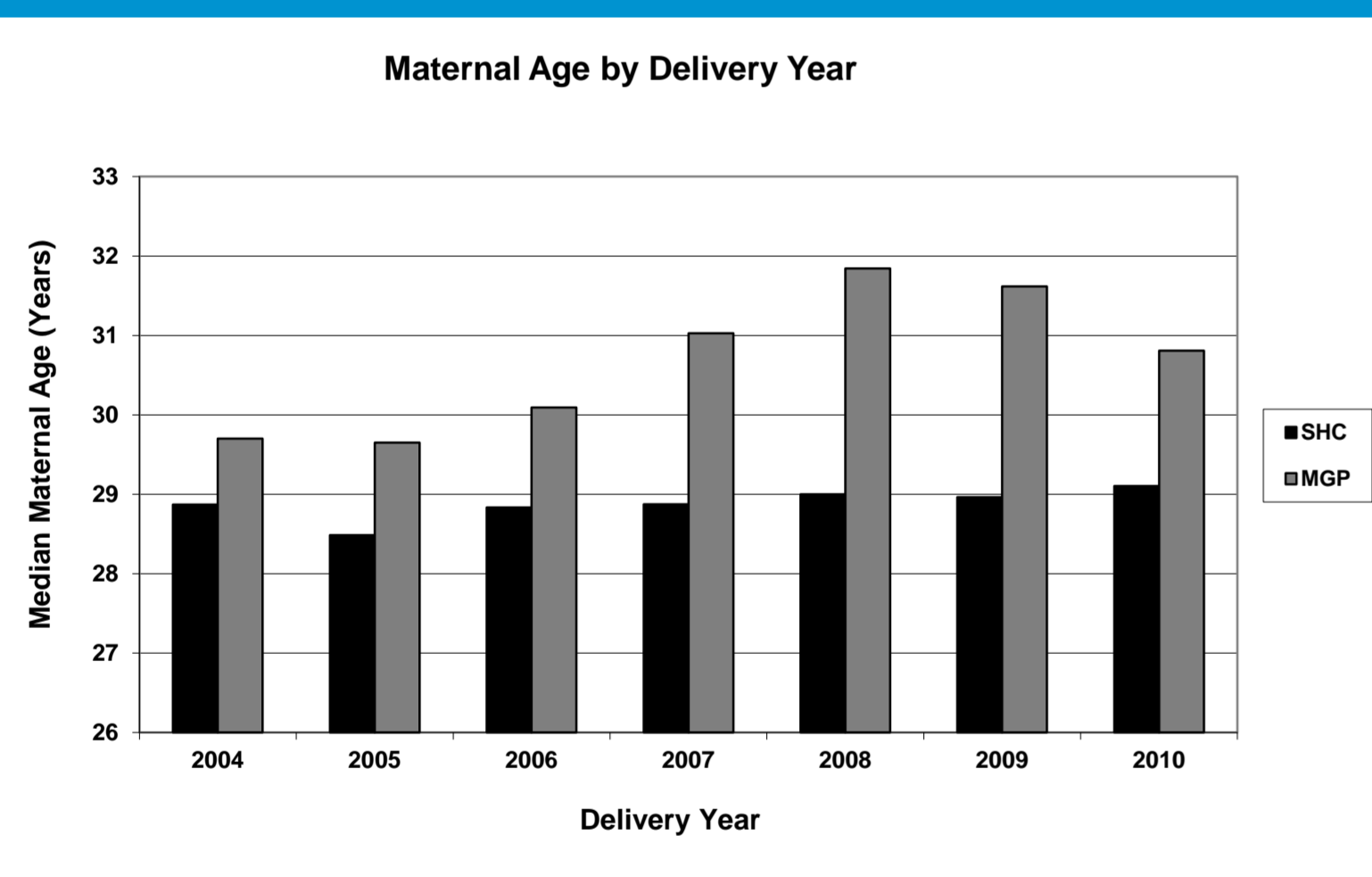
Findings: Medical Intervention and Morbidity

Women undertaking care in MGP service experienced a lower rate of induced birth compared to women in SHC (24.9% v. 31.2%; p<0.001). Odds of epidural in labour were 0.70 times lower in MGP [95% CI 0.64 - 0.76] compared to SHC. More women in MGP had spontaneous vaginal birth (67.1% v 57.4%). They were also less likely to experience instrumental birth [95% CI 0.71 – 0.91] (11.2% v. 13.6%). A significant association for women having elective caesarean section and SHC group was demonstrated (p <0.001), with odds of having an elective caesarean 0.45 times lower in MGP [95% CI 0.39 - 0.52]. However, there was no significant association between group and women having an emergency caesarean. Odds of an intact perineum were 1.13 times > in the MGP [95% CI 1.03 – 1.24]. Fewer MGP women had an episiotomy (9.5% v 12.2%), although odds of having a first degree perineal tear were 1.5 times > for MGP women [95% CI 1.36 - 1.72]. Women in MGP were 0.83 times less likely to have a PPH ≥ 500ml than women in SHC [95% CI 0.75-0.92], and 0.64 times less likely to experience infections prior to discharge from hospital [95% CI 0.40 - 1.02]. A greater number of MGP babies direct roomed in with mother as compared with SHC (75.2% v 64.7%).

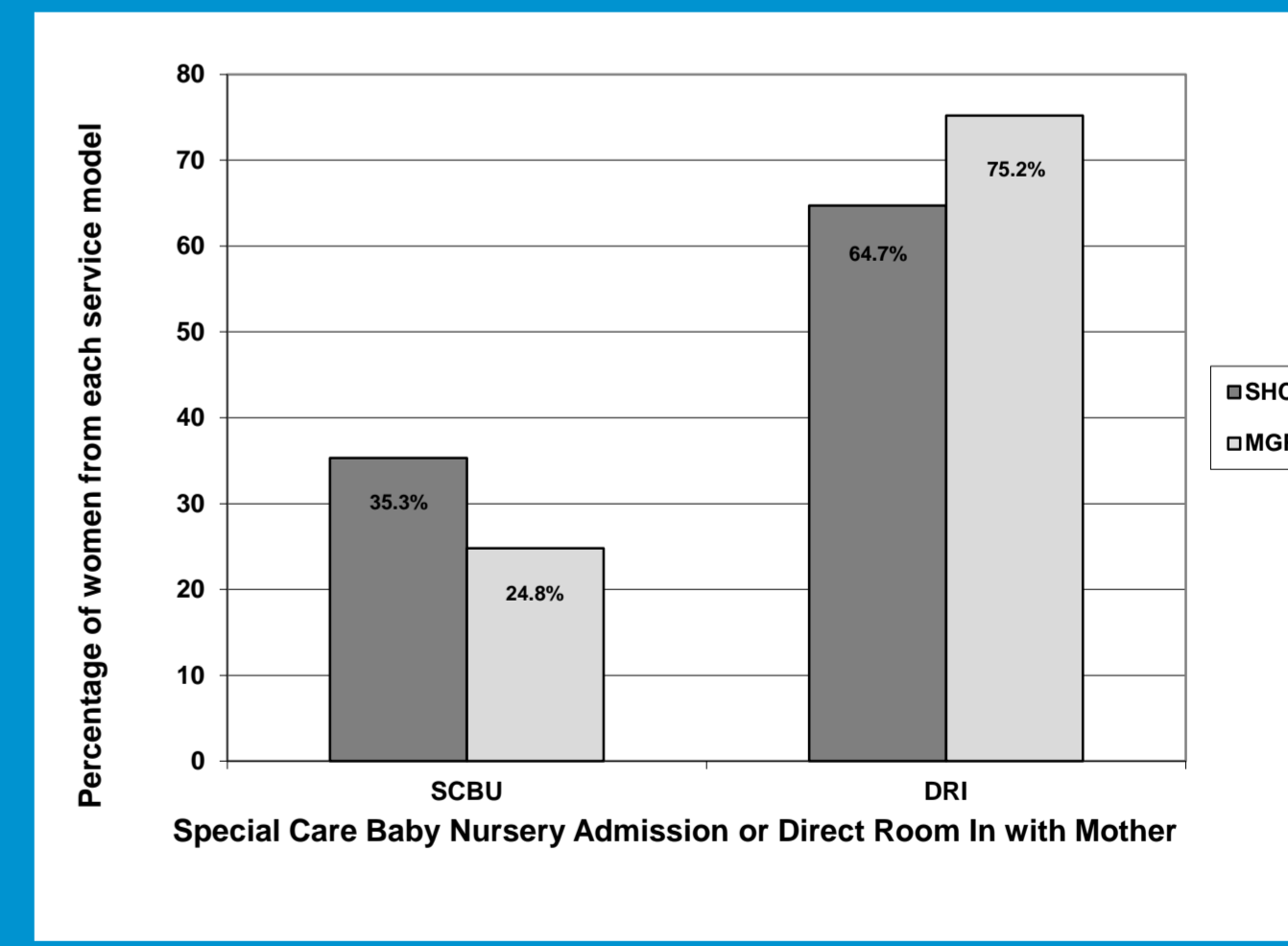
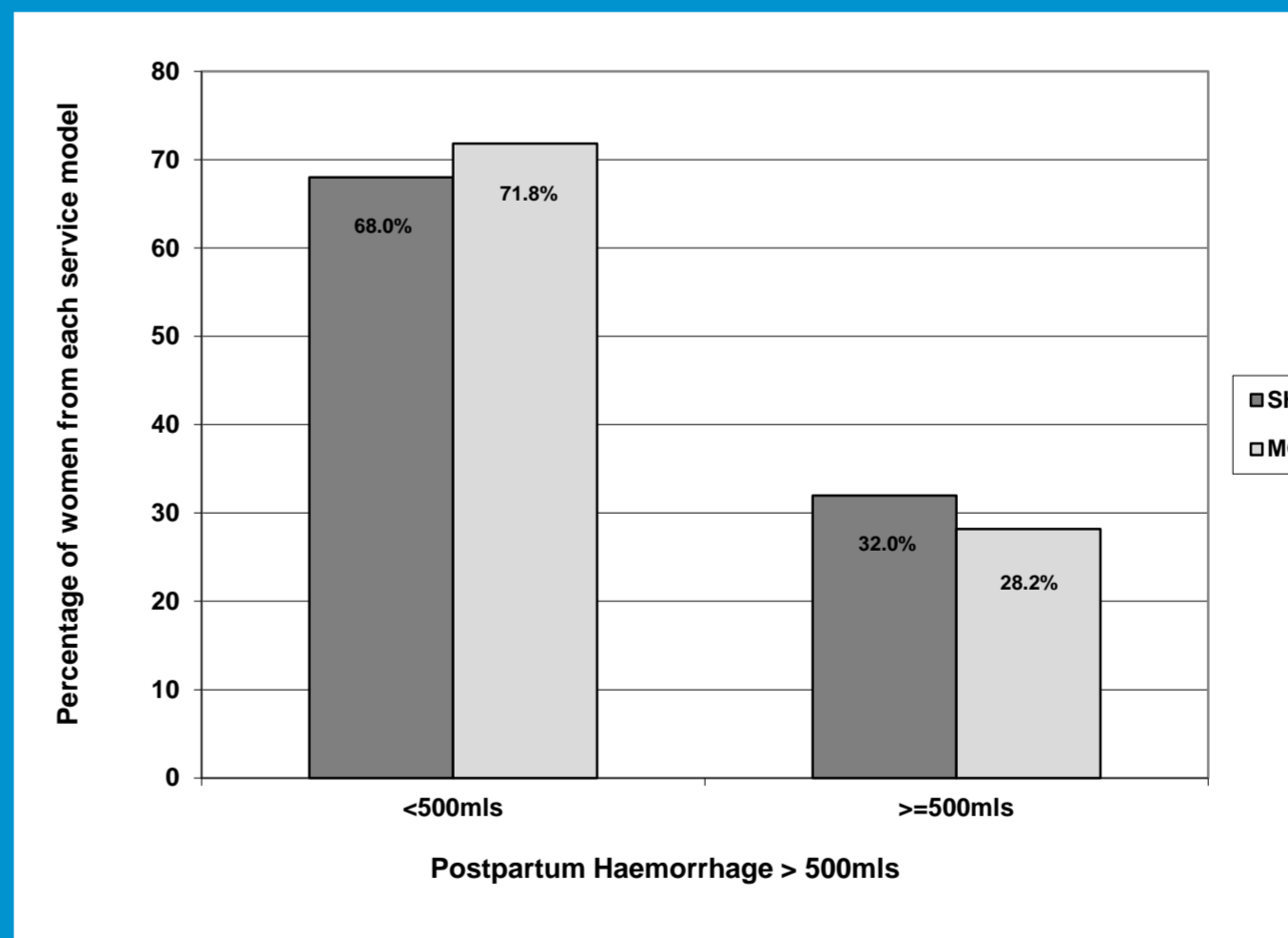
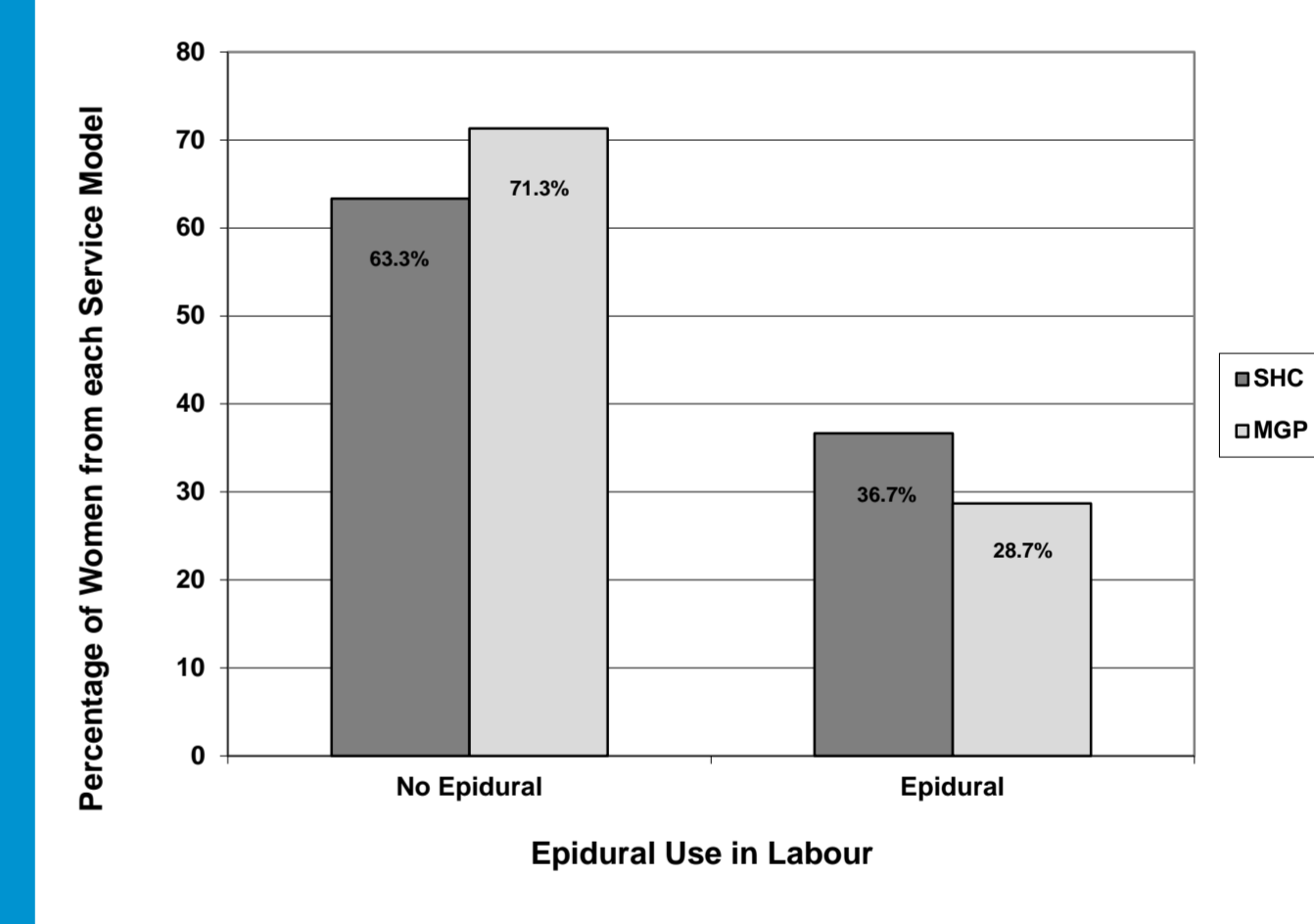
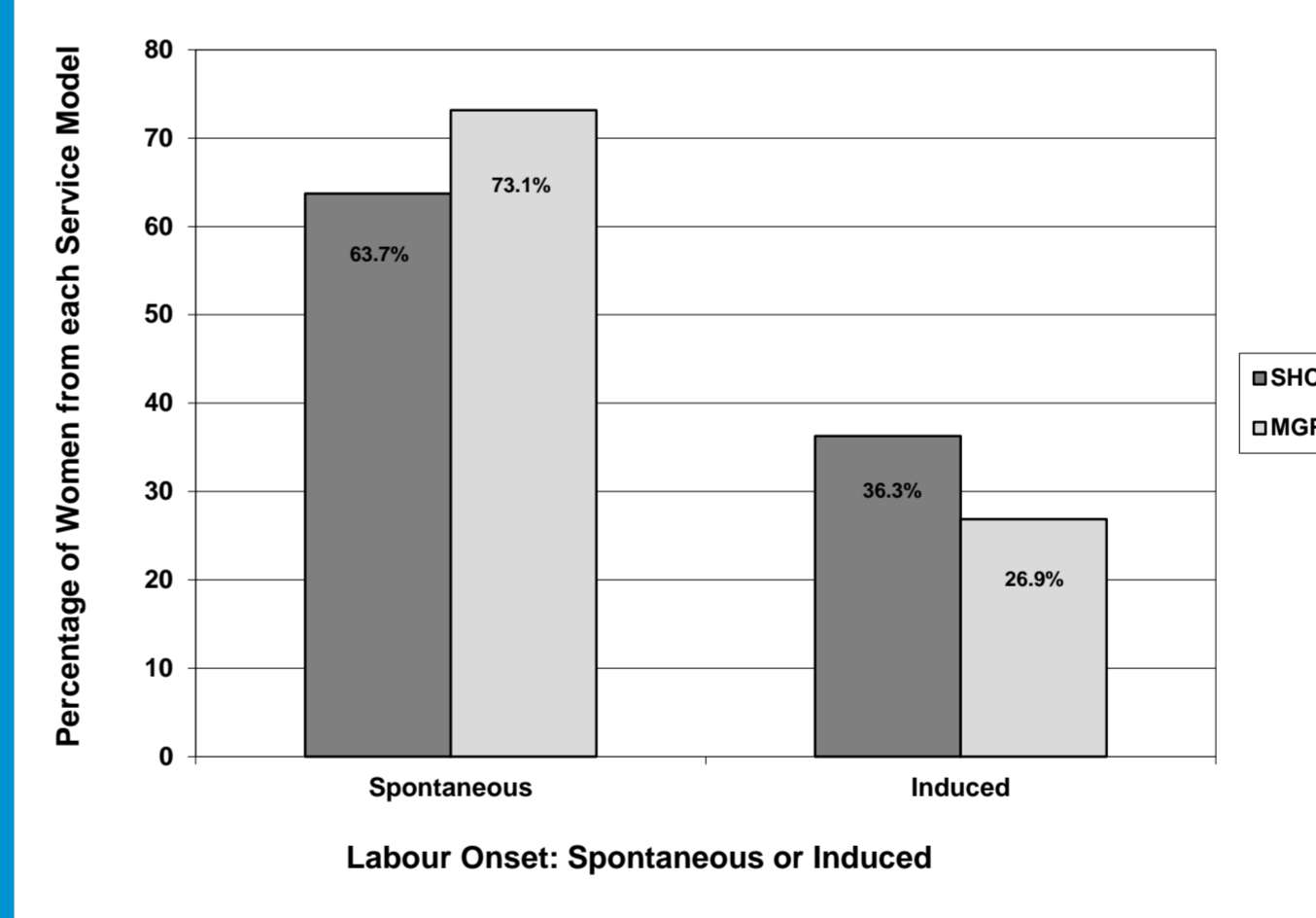
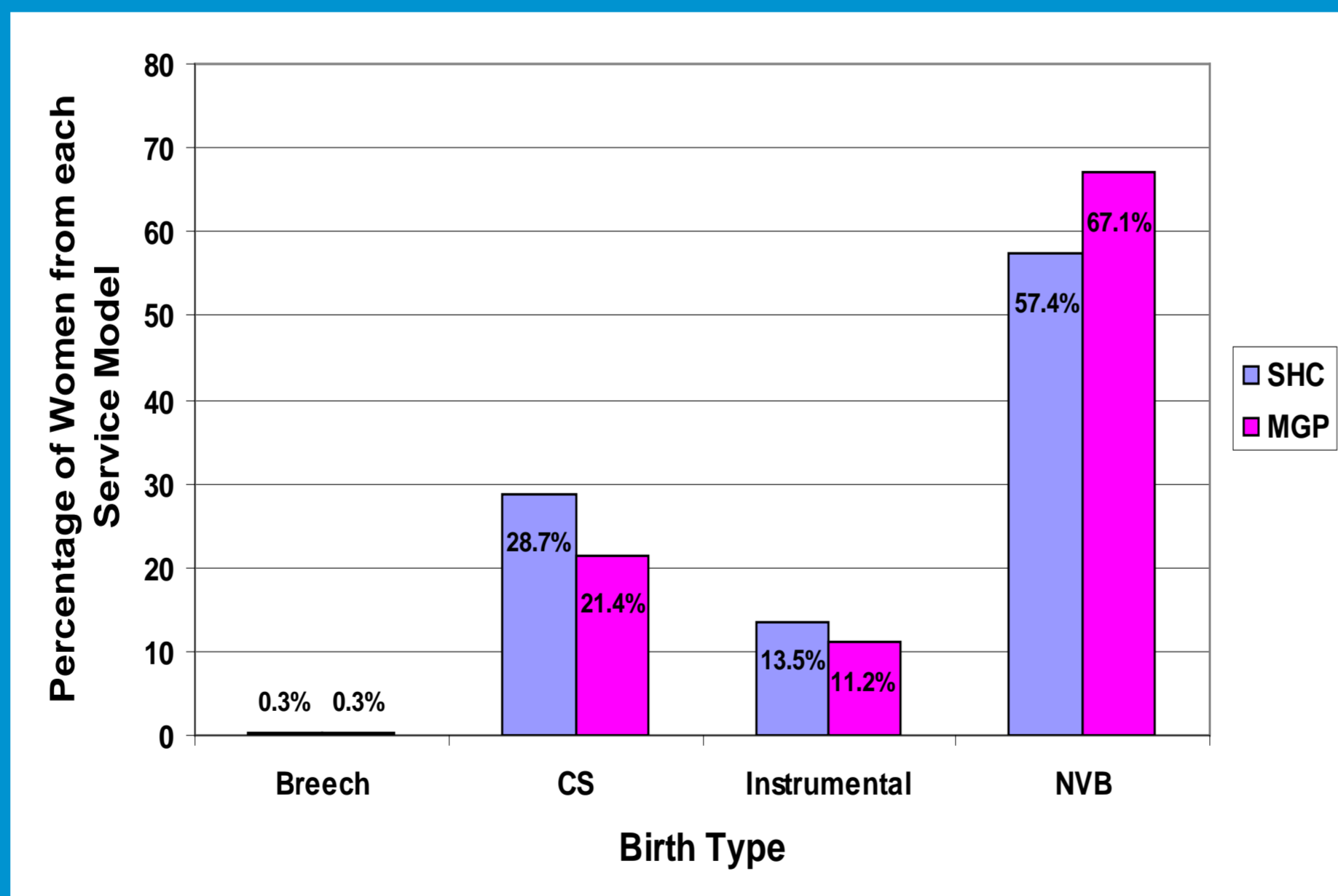
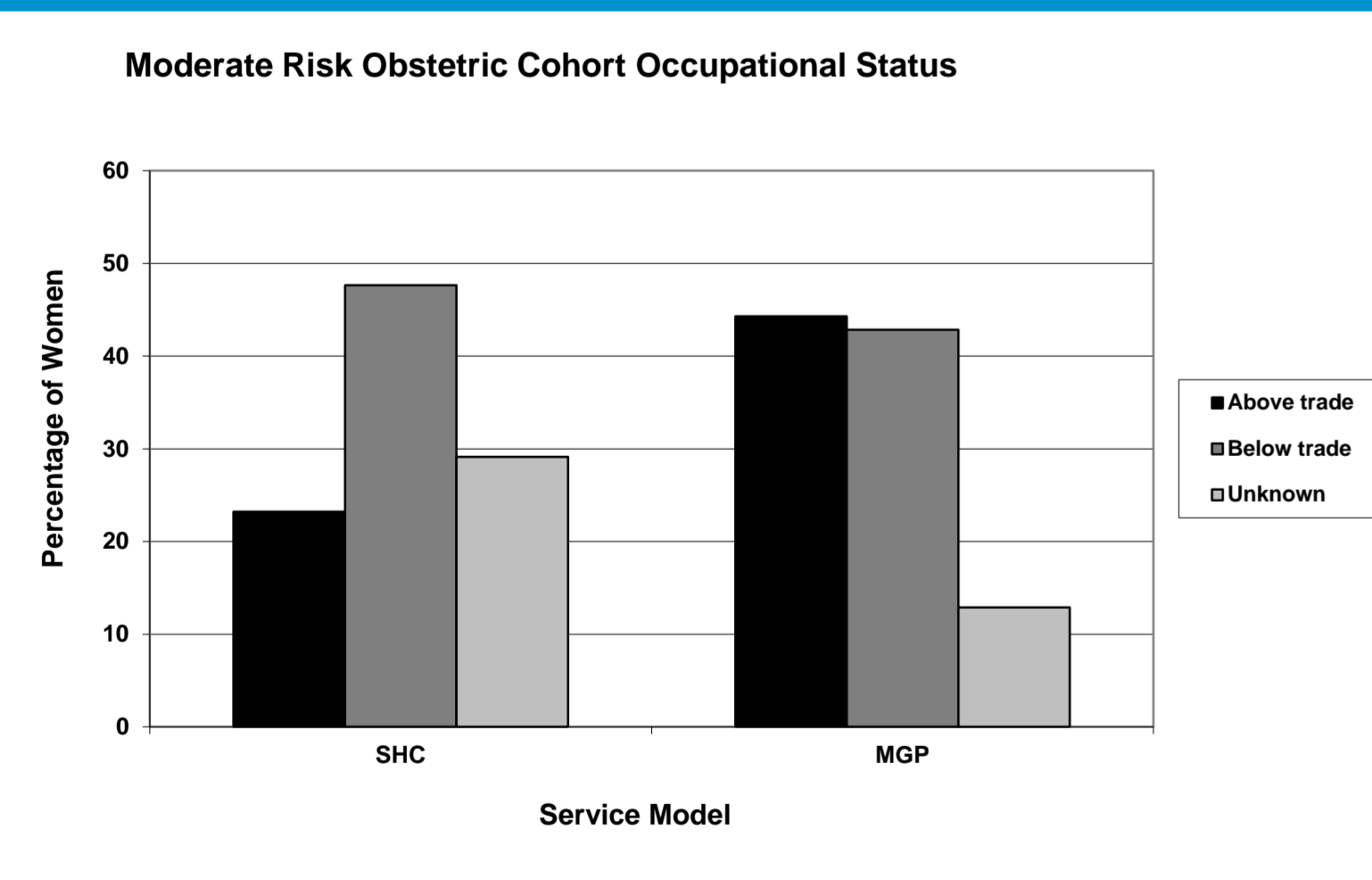
Findings: Hospitalization and Resource Consumption

Hospitalisation rates and longer bed stay were significantly lower in the MGP moderate risk group (p<0.001). These trends were evident in both the antenatal and immediate postnatal periods. They include fewer women's assessment and emergency presentations to hospital in the antenatal period and fewer incidences of antenatal admissions > 1% in the Midwifery Group Practice service (1.4% v 3.4%). The range for hospital antenatal admission for MGP women was also lower at 0 – 12 days, as compared to the range in SHC which was 0 – 40 days. There was a significant association between group and number of antenatal visits (p<0.0001) with MGP women having more antenatal visits, (MGP group median =10 antenatal visits compared with Standard Hospital Care = 9). Length of maternal bed stay in the postnatal period was equivalent (MGP median = 3 days v SHC median = 3 days). Fewer MGP babies were admitted to Special Care Baby Nursery across all levels of acuity (24.8% v 35.3%).

Comparative Intervention and Morbidity Outcomes: SHC v MGP



Outcomes with no substantive difference
Variables for which there was no significant difference in association between outcomes in MGP and SHC included: the emergency caesarean section rate (15.1% v 15.8%); catastrophic postpartum haemorrhage rate > 1500 mls (2.4% v 2.6%); and perineal tear rates, including second degree tear [95% CI 0.94 - 1.13], third degree tear [95% CI 0.81 - 1.27], and fourth degree tear [95% CI 0.46 - 2.32].



Conclusions: Implications for Policy and Practice

MGP care integrated with collaborative medical and allied health services can improve health outcomes for parturient women and their babies where moderate obstetric risk status is identified at booking or develops during pregnancy. MGP can reduce routine use of interventions that contribute to maternal and infant morbidity and create a burden to scarce health resources. The demographic of women in MGP suggests that equity of access is an issue that needs to be addressed. Broader consideration needs to be given to the expansion of integrated continuity of midwifery services to childbearing women of all risk status as an important consideration in public health policy and future reform of maternity services in Australia.

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