

Interpregnancy interval and pregnancy outcomes after a perinatal loss

Healthy Mothers, Healthy Babies Conference

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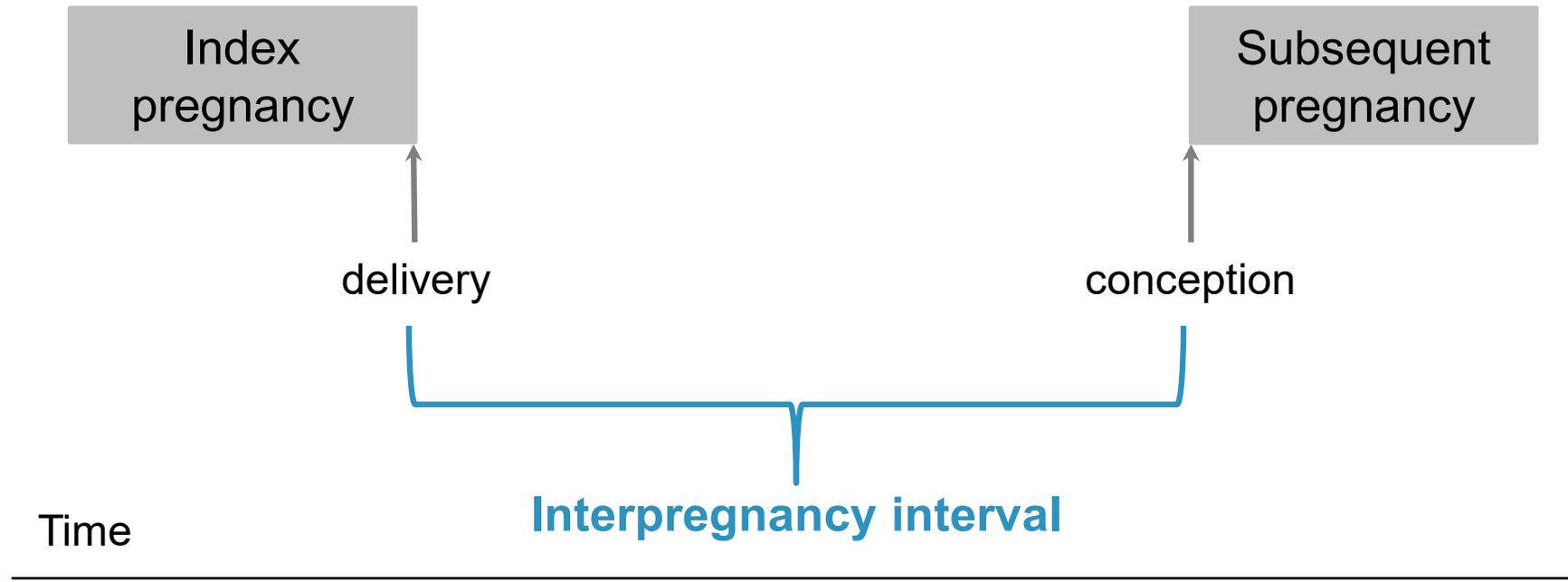


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Interpregnancy interval

Time between delivery of one pregnancy and conception of the next



Interpregnancy interval and outcomes

Birth Spacing and Risk of Adverse Perinatal Outcomes



The Journal of the American Medical Association

A Meta-analysis

Agustin Conde-Agudelo, MD, MPH; Anyeli Rosas-Bermúdez, MPH; Ana Cecilia Kafury-Goeta, MD

JAMA. 2006;295(15):1809-1823. doi:10.1001/jama.295.15.1809

Interpregnancy interval	Preterm birth	Low birth weight	SGA
<6	1.4 (1.2-1.6)	1.6 (1.4-1.9)	1.3 (1.2-1.3)
6-11	1.1 (1.1-1.2)	1.1 (1.1-1.2)	1.1 (1.0-1.2)

Pooled adjusted odds ratios (95% CI)

Modest increased risks with at intervals *<6 and 6-11 months*

Interpregnancy interval recommendations

Report of a WHO Technical Consultation on Birth Spacing

Geneva, Switzerland
13–15 June 2005

Recommendations:

After a live birth: *interval ≥ 24 months*

After a miscarriage or induced abortion:
interval ≥ 6 months



The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS



Society for
Maternal • Fetal
Medicine
High-risk pregnancy experts

2019 interpregnancy care consensus:

Recommend *avoiding intervals < 6 months*

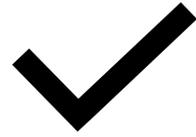
*Counseling about risks/benefits of intervals
 < 18 months*



THE SOCIETY OF
**OBSTETRICIANS AND
GYNAECOLOGISTS**
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Recommendations: none

Interpregnancy interval recommendations



after live birth



after miscarriage



after induced abortion



after stillbirth/fetal demise



after neonatal death



perinatal loss

Why are targeted recommendations needed?

High risk population

Biological mechanisms may differ:

- *Maternal nutritional depletion*
- *Breastfeeding-pregnancy overlap*
- *Cervical insufficiency*

Women with a loss excluded from previous research

Study objective:

Determine whether short interpregnancy intervals after a perinatal loss are associated with increased risks of adverse outcomes.

Study population

Linked population-based cohort: all pregnancies to women with ≥ 2 singleton pregnancies in BC, 2004-2014:

- BC Perinatal Data Registry
- Physician billing records (MSP Payment File)
- Hospital separations files (Discharge Abstract Database)
- Vital Statistics deaths
- Outpatient prescription records (PharmaNet)
- Perinatal Census neighborhood income data

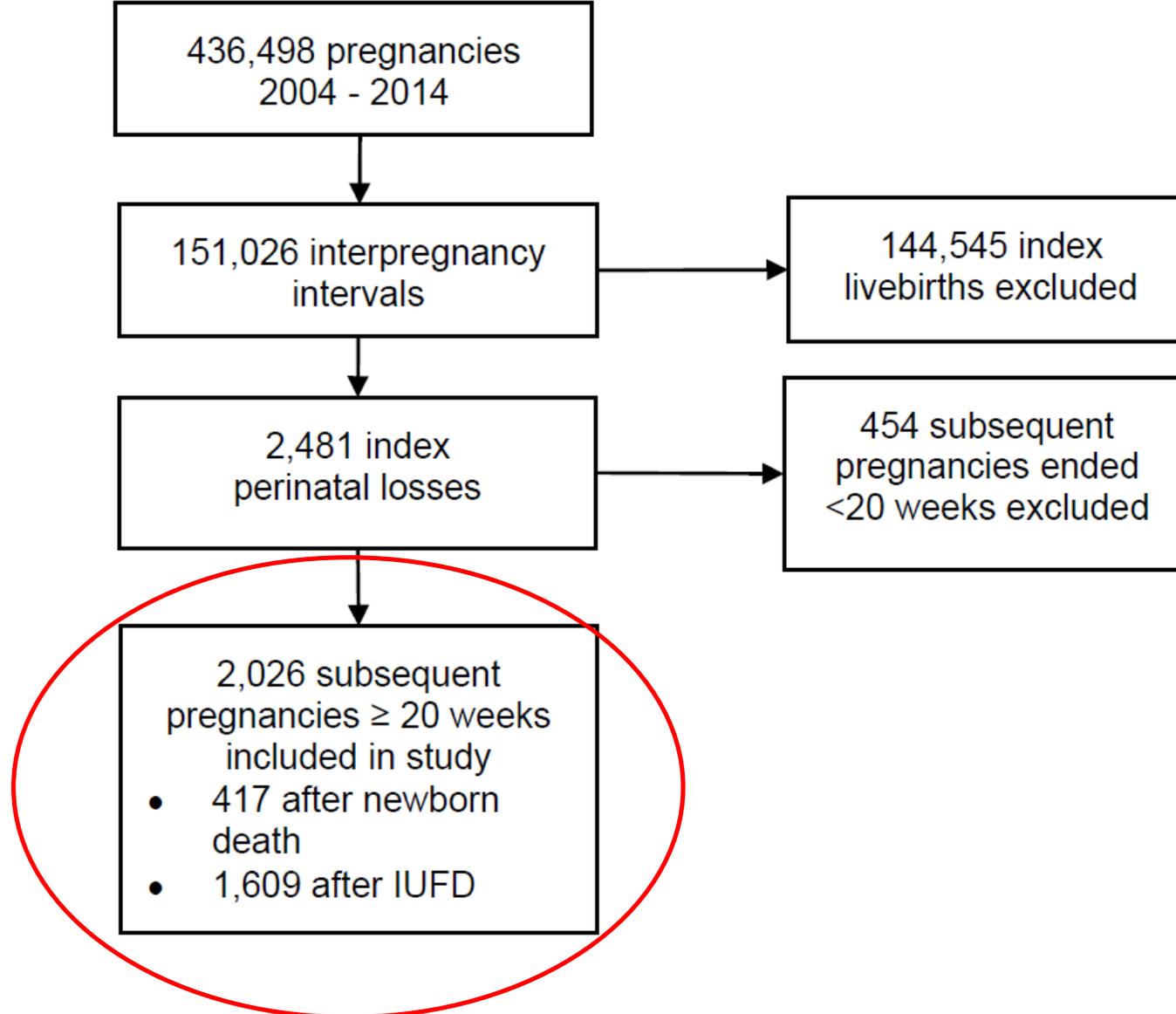
Includes pregnancies ending in spontaneous/induced abortion <20 weeks: billing/diagnostic codes

JAMA Internal Medicine | [Original Investigation](#)

Association of Short Interpregnancy Interval With Pregnancy Outcomes According to Maternal Age

Laura Schummers, SD; Jennifer A. Hutcheon, PhD; Sonia Hernandez-Diaz, DrPH; Paige L. Williams, PhD; Michele R Hacker, SD; Tyler J. VanderWeele, PhD; Wendy V. Norman, MD

Study population



Statistical analysis

Logistic regression to:

- 1. compare risks of short interval categories (<6, 6-11, 12-17) to 18-23-month reference group:**
 - risk ratios
- 2. estimate absolute risks of each outcome at each interpregnancy interval length: 2 – 23 months, restricted cubic splines**

Adjusted for confounders of short intervals and adverse outcomes, measured at or before the index delivery:

- adolescent or advanced maternal age, smoking, low neighborhood income
- gestational at index delivery; perinatal loss before index pregnancy

Table 1. Population characteristics by interpregnancy interval (n=2,026)					
	All	<6 mo	6-11 mo	12-17 mo	18-23 mo
		n = 754 %	n = 597 %	n = 283 %	n = 150 %
Maternal age					
<20	4.2	3.7	3.2	5.0	7.3
≥35	20.2	18.0	24.3	17.7	17.3
Low income	22.9	20.5	21.9	26.3	27.3
Smoking	9.3	8.4	7.4	8.8	10.0

Figure 1. Interpregnancy interval after perinatal loss and after livebirth

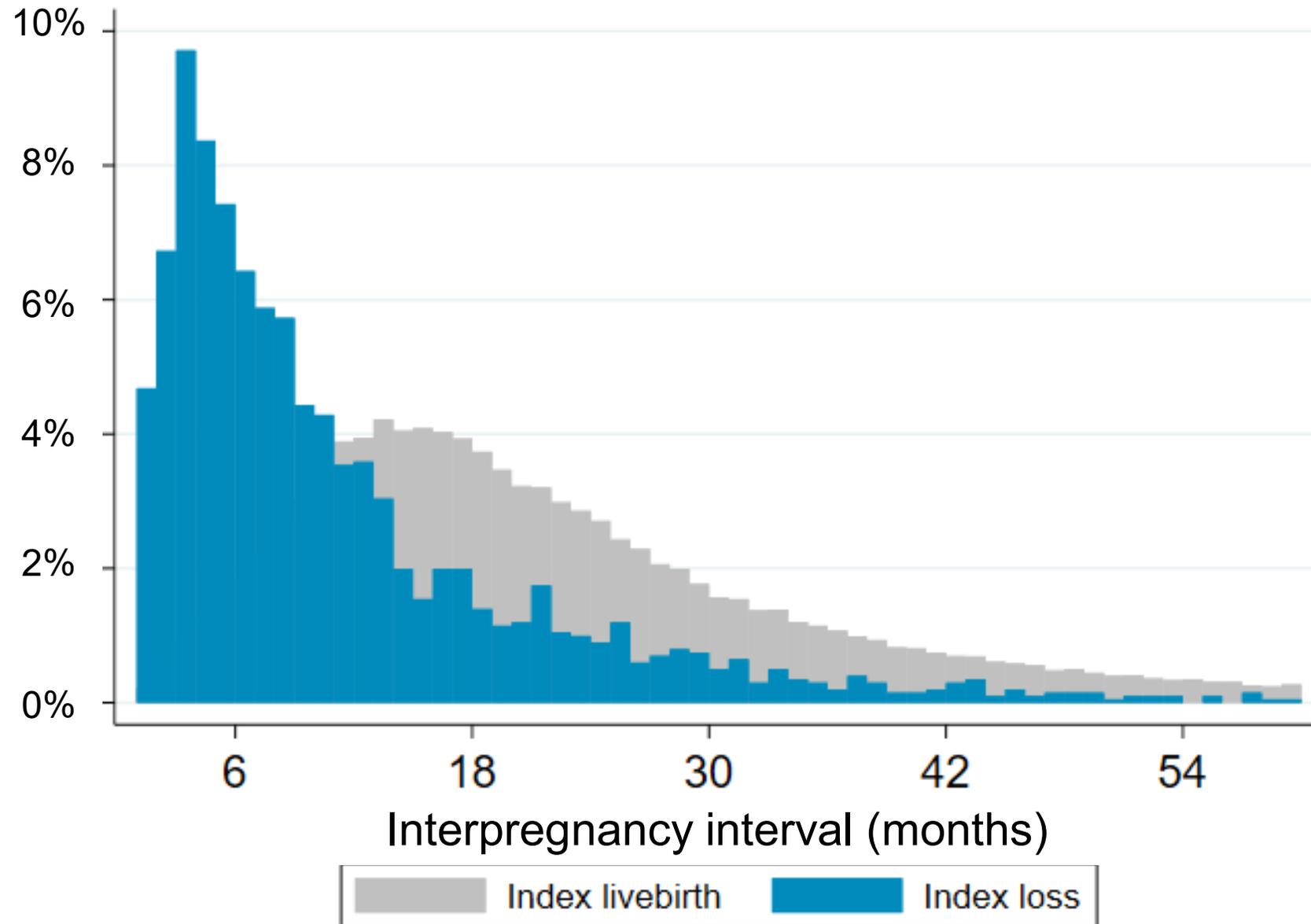


Table 2. Incidence (%) of outcomes by interpregnancy interval (n=2026)					
	All	<6 mo	6-11 mo	12-17 mo	18-23 mo (reference)
Perinatal composite	5.1	4.5	4.4	7.4	5.3
Small-for-gestational age	6.1	4.8	4.7	8.3	11.4
Spontaneous preterm	8.7	9.4	8.0	10.3	4.7
Indicated preterm	10.1	8.8	7.9	11.7	13.3

Figure 2. Risk ratios (95% CIs) of adverse pregnancy outcomes according to interpregnancy interval categories

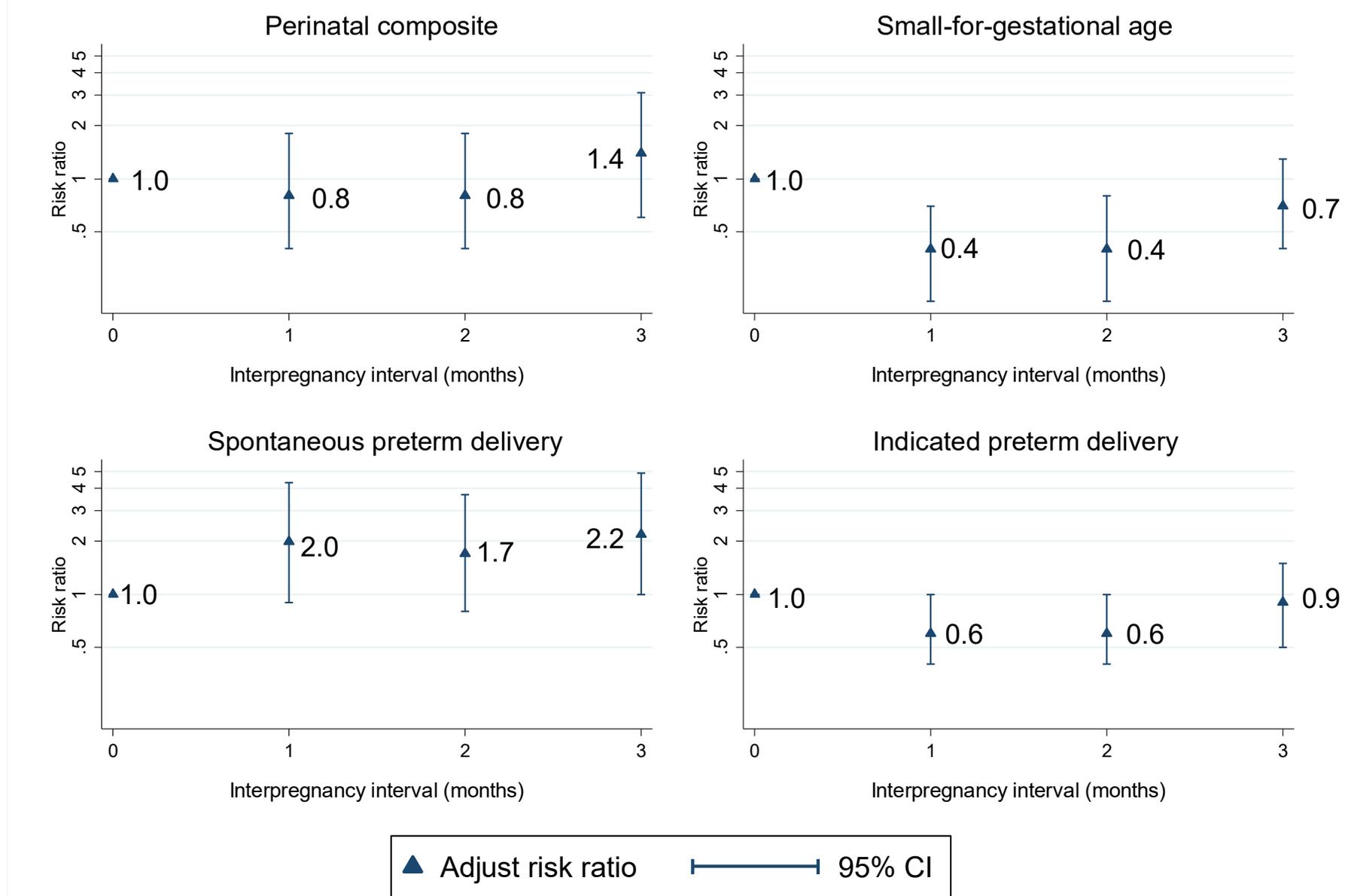
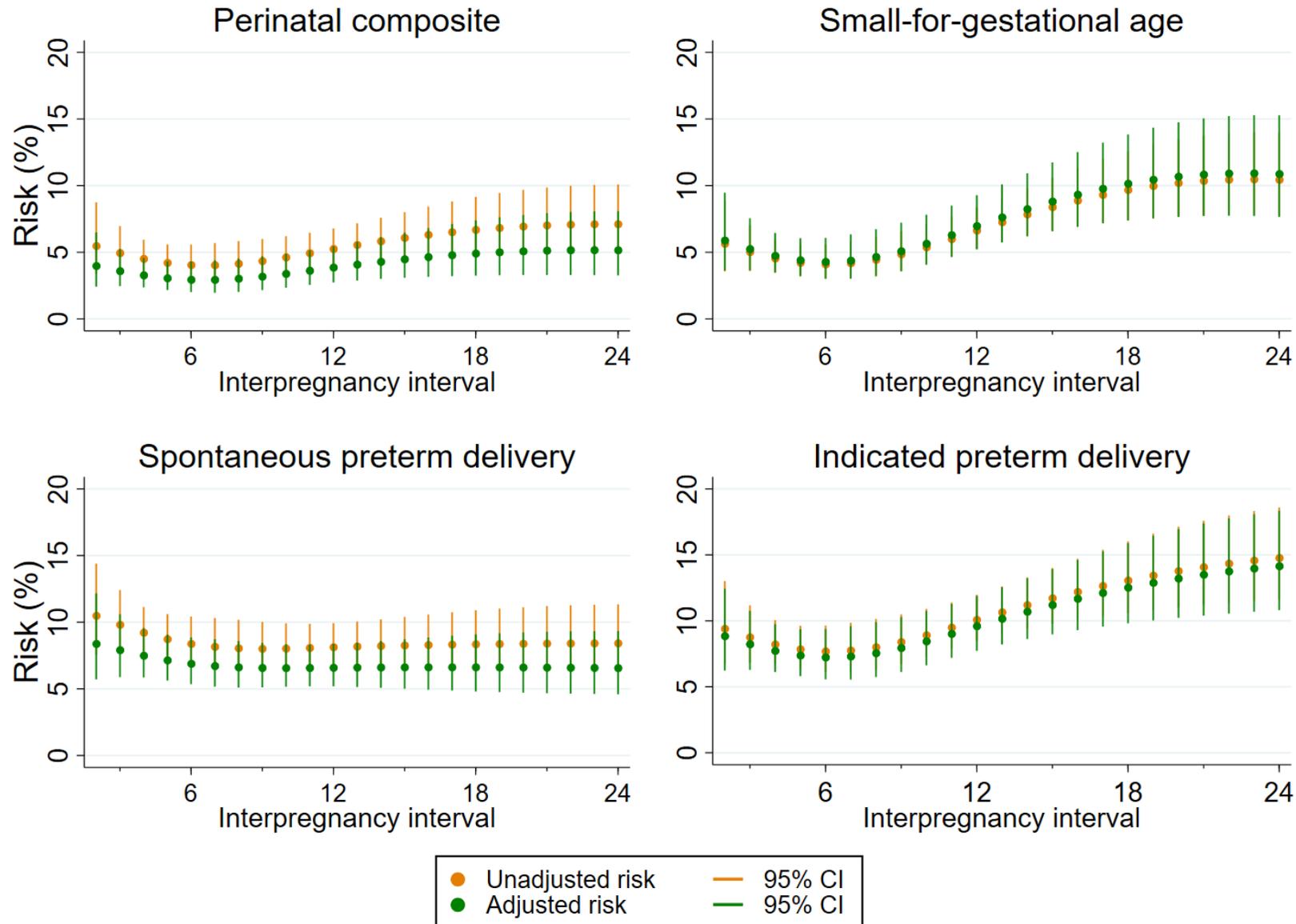


Figure 3. Absolute risks (95% CIs) of adverse pregnancy outcomes according to interpregnancy interval



Conclusions

Following a perinatal loss:

- short interpregnancy interval is associated with increased risk of *spontaneous preterm birth*
- short interpregnancy interval is not associated with risks of *indicated preterm, small-for-gestational age or severe perinatal morbidity composite*

Implications

- Associations between short interpregnancy interval and adverse outcomes differ following livebirth and perinatal loss
- Those with previous perinatal loss have different “risk profiles” at each interpregnancy interval than those after livebirth
- Targeted recommendations?

Next steps

- Spontaneous abortion (<20 weeks)
- Reference group – consider different approach

Thank you!

Study team & co-authors

Jennifer Hutcheon; Jessica Liauw; Katherine Ahrens; Eda Karacabeyli; Tyler VanderWeele; Wendy Norman

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Data Stewards

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