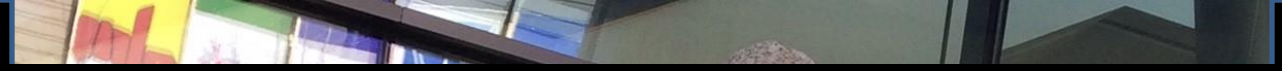


Don't just do something,

stand there

Inukshuk

It stands there and gives good information

George D Carson

MD FRCSC CSPQ FSOGC

Past President,
Society of Obstetricians and Gynecologists of Canada

Maternal Fetal Medicine
Regina Qu'Appelle Health Region

An Inukshuk

I have no conflicts of interest

I will not discuss unapproved uses of drugs

An Inukshuk

I have no conflicts of interest

SADLY
No drug or device company wants to fund doing less.

What we want is

The Elegant Minimum

The Elegant Minimum

Do ONLY
the right thing(s),
the right way,
at the right time,
the first time

What we do does not work 30% of the time

And it may frequently cause harm

OBJECTIVES

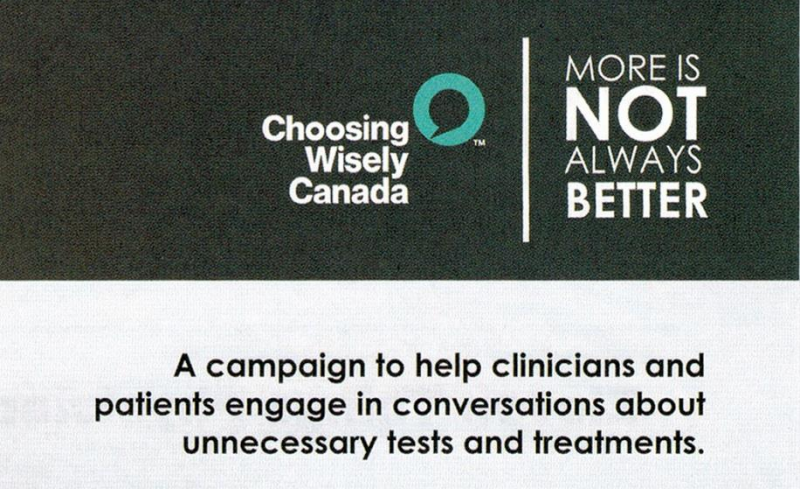
1. **Demonstrate that “More” is not necessarily better, and not necessarily innocuous**

2. **Apply Choosing Wisely methods to obstetrical and gynecological procedures**

3. **Recognize the valid means to identify tests or procedures we do which created the SOGC’s Choosing Wisely/Elegant Minimum list**

4. **Describe the purpose and method of proceeding of Choosing Wisely Canada**

A campaign to help clinicians and patients engage in conversations about unnecessary tests and treatments.



Newfoundland and Labrador

- Appropriate antibiotics
- Peripheral artery disease
- Imaging low back pain
- Pre-op testing before low risk
- Appropriate anti-psychotics

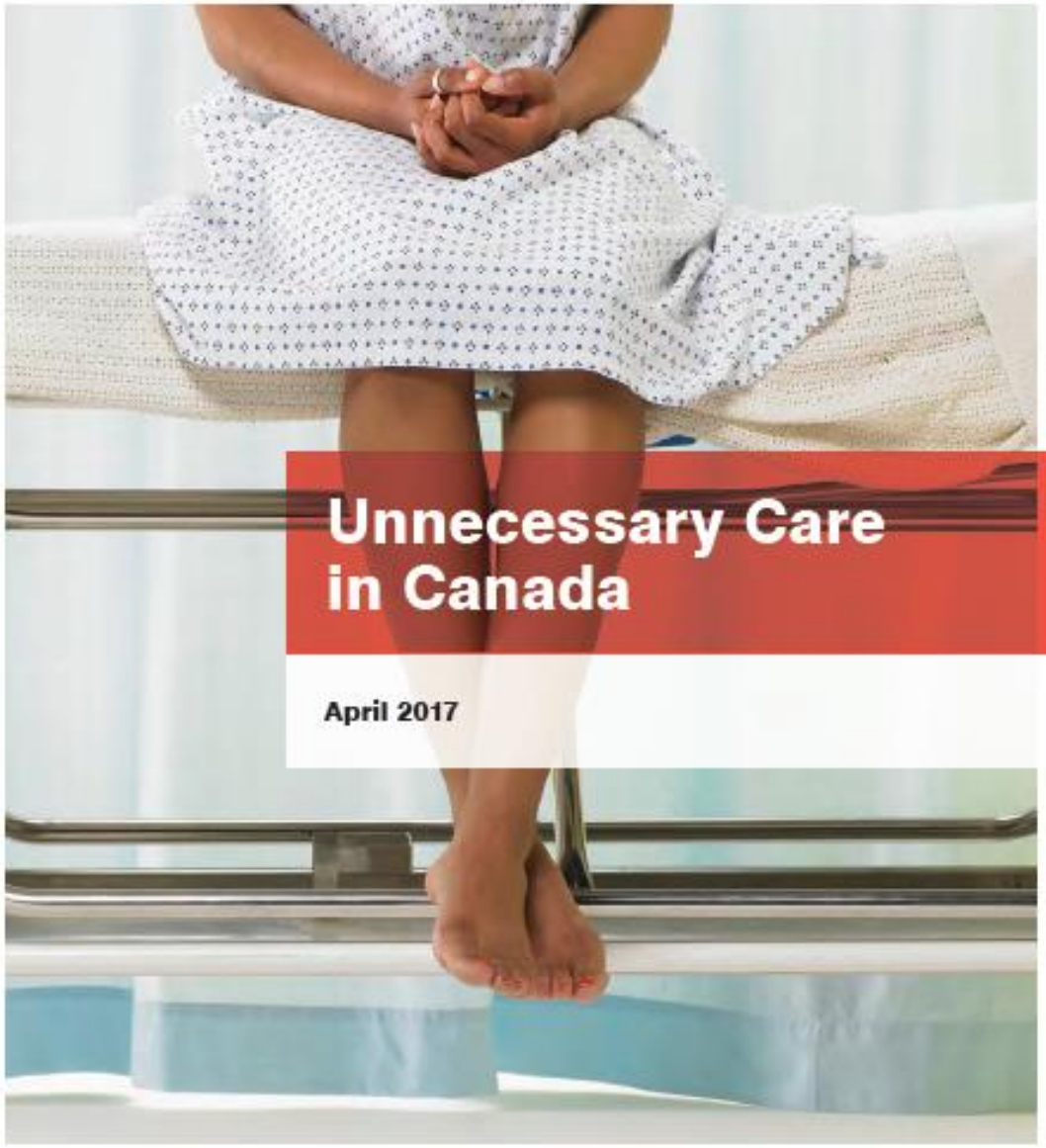
New Brunswick

- Imaging low back
- Pre-op testing before low risk
- Antimicrobial stewardship
- Appropriate anti-psychotics
- Appropriate benzodiazepines

Nova Scotia

- Red cell transfusions
- Appropriate benzodiazepines
- Routine blood work
- Communication skills

How well is it working?
How much is it needed?



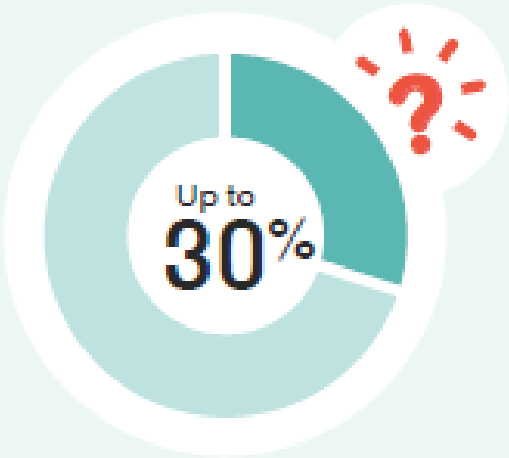
Unnecessary Care in Canada

April 2017

Choosing Wisely Canada

Canadian Institute for Health Information
Institut canadien d'information sur la santé

The report found that up to 30% of the tests, treatments and procedures associated with the 8 selected CWC recommendations are potentially unnecessary.



Key findings

In Alberta,
30%
of patients with lower-back pain without red flags
had at least one unnecessary X-ray, CT or MRI.

In Manitoba, Saskatchewan and B.C.,
rates of low-dose quetiapine
(commonly used to treat insomnia)
increased among children and young adults age 5 to 24,
even though this is not recommended by experts.

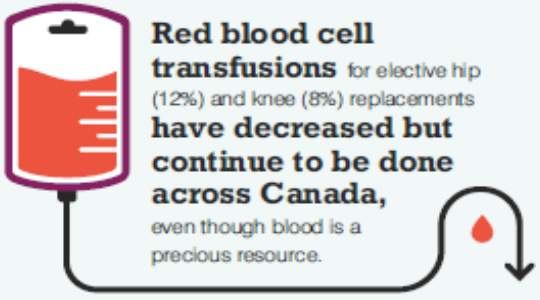
1 in 10 seniors in Canada uses a benzodiazepine (sedative–hypnotic) on a regular basis, even though this is not recommended by experts.

In Ontario, Saskatchewan and Alberta,
18% to 35%
of patients who had a low-risk procedure
had a preoperative test.

30% of emergency department patients in Ontario and Alberta with low-risk minor head trauma
received a CT head scan.

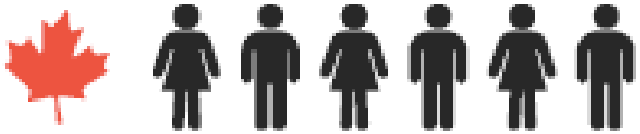
22%
of Canadian women age 40 to 49
received a screening mammogram,
despite being of average risk.

In Ontario,
23% of inpatients with delirium
had a potentially unnecessary head CT scan.



Red blood cell transfusions for elective hip (12%) and knee (8%) replacements
have decreased but continue to be done across Canada,
even though blood is a precious resource.

What's the take-away?



Many Canadians experience care that, according to Choosing Wisely Canada recommendations, has been identified as potentially unnecessary. Unnecessary care does not improve outcomes, may be harmful to patients and creates additional costs for the system.

Clinicians may be influenced by access to resources, their training, peer culture and patient expectations.

Choosing Wisely campaigns have launched in nearly 20 countries to date. All campaigns have committed to following a set of 5 common principles:[1]

Physician-led

The campaign must be physician-led (as opposed to payer-/government-led). This is important to building and sustaining the trust of clinicians and patients. It emphasizes that campaigns are focused on quality of care and harm reduction, rather than cost reduction.

Patient-centred

The campaign must be patient-focused and involve efforts to engage patients in the development and implementation process. Communication between clinicians and patients is central to Choosing Wisely.

Multiprofessional

Where possible, the campaign should include physicians, nurses, pharmacists and other health care professionals.

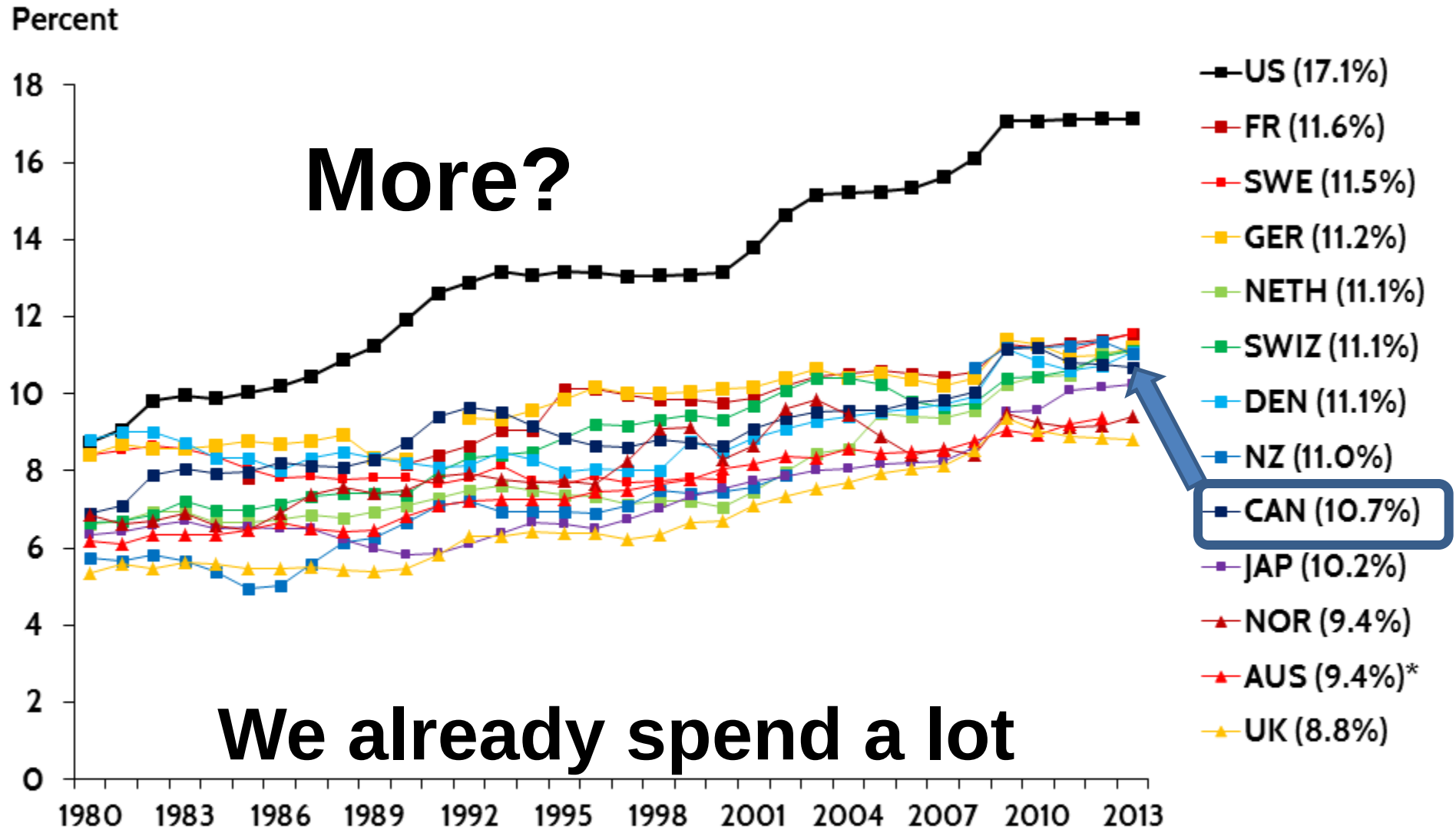
Evidence-based

The recommendations issued by the campaign must be evidence-based and must be reviewed on an ongoing basis to ensure credibility.

Transparent

Processes used to create the recommendations must be public, and any conflicts of interest must be declared.

Exhibit 1. Health Care Spending as a Percentage of GDP, 1980–2013



* 2012.

Notes: GDP refers to gross domestic product. Dutch and Swiss data are for current spending only, and exclude spending on capital formation of health care providers.

Source: OECD Health Data 2015.

Exhibit 2. Health Care Spending, 2013

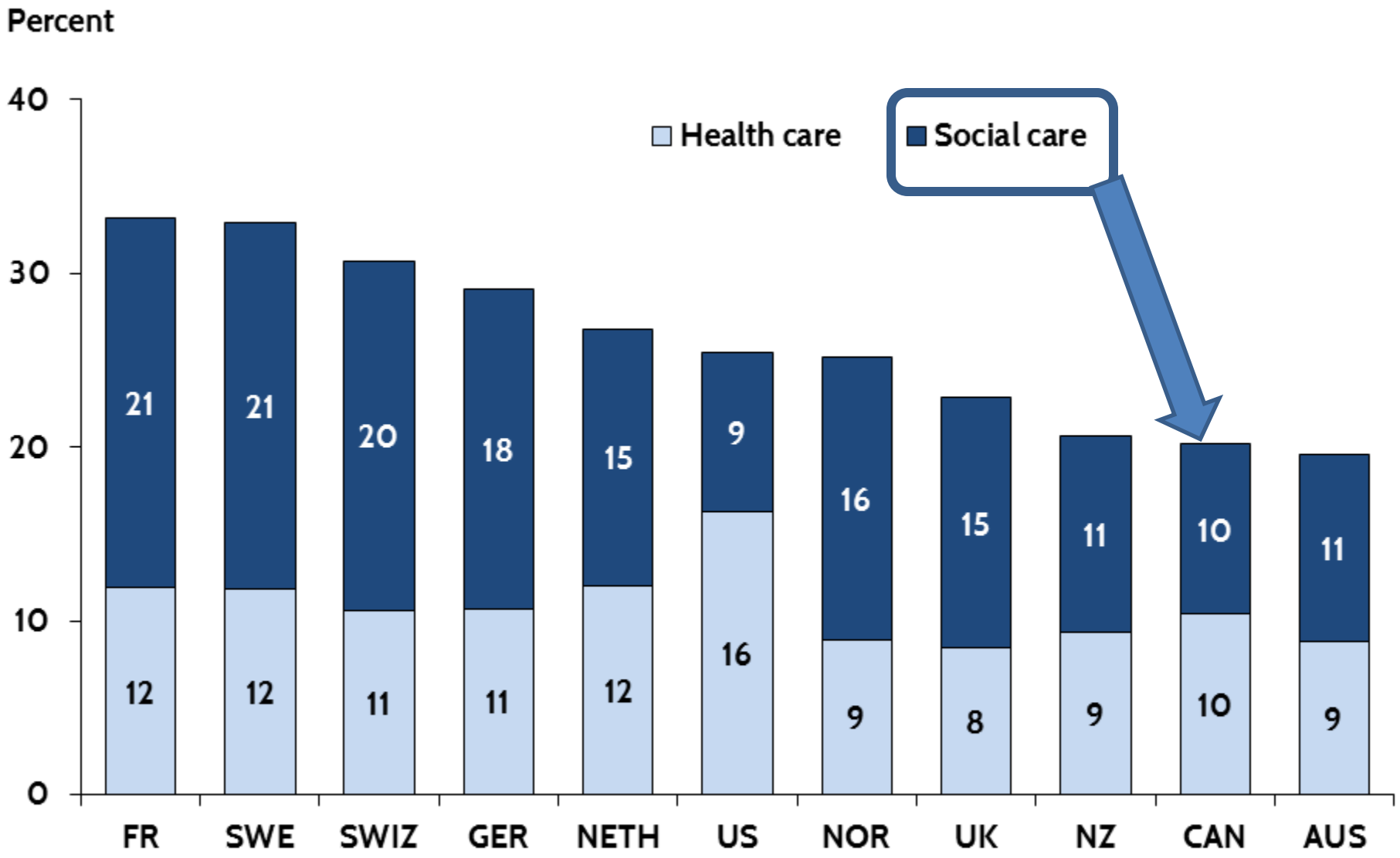
	Total health care spending per capita[e]	Real average annual growth rate per capita		Current health care spending per capita, by source of financing[e,f]		
					Private	
		2003–2009	2009–2013	Public	Out-of-pocket	Other
Australia	$4,115[a]	2.70%			$771[a]	$480[a]
Canada	$4,569	3.15%			$623	$654
Denmark	$4,847	3.32%			625	$88
France	$4,361	1.72			7	$600
Germany	$4,920	2.0			9	$492
Japan	$3,713	3.0			3[a]	$124[a]
Netherlands	$5,131[d]	4.75%			70	$366
New Zealand	$3,855	6.11%[b]			$420	$251
Norway	$6,170	1.59%			$855	$26
Sweden	$5,153	1.82%[d]	6.95%[d]	$4,126	$726	$53
Switzerland	$6,325[d]	1.42%[d]	2.54%[d]	$4,178	$1,630	$454
United Kingdom	$3,364	4.00%	-0.88%	$2,802	$321	$240
United States[e]	$9,086	2.47%	1.50%	$4,197	$1,074	$3,442
OECD median	$3,661	3.10%	1.24%	$2,598	$625	$181

6/13

What do we spend?

[a] 2012. [b] 2002–2009. [c] 2009–2012.
[d] Current spending only; excludes spending on capital formation of health care providers.
[e] Adjusted for differences in the cost of living.
[f] Numbers may not sum to total health care spending per capita due to excluding capital formation of health care providers, and some uncategorized spending.
Source: OECD Health Data 2015.

Exhibit 8. Health and Social Care Spending as a Percentage of GDP



Notes: GDP refers to gross domestic product.
Source: E. H. Bradley and L. A. Taylor, *The American Health Care Paradox: Why Spending More Is Getting Us Less*, Public Affairs, 2013.

Exhibit 9. Select Population Health Outcomes and Risk Factors

	Life exp. at birth, 2013[a]	Infant mortality, per 1,000 live births, 2013[a]	Percent of pop. age 65+ with two or more chronic conditions, 2014[b]	Obesity rate (BMI>30), 2013[a,c]	Percent of pop. (age 15+) who are daily smokers, 2013[a]	Percent of pop. age 65+
Australia	82.2	3.6	54	28.3[e]	12.8	14.4
Canada	81.5[e]	4.8[e]	56		14.9	15.2
Denmark	80.4	3.5	–			17.8
France	82.3	3.6				17.7
Germany	80.9	3.3				21.1
Japan	83.4	2.1				25.1
Netherlands	81.4	3.8				16.8
New Zealand	81.4	5.2[e]				14.2
Norway	81.8	2.4	43			15.6
Sweden	82.0	2.7	42		10.7	19.0
Switzerland	82.9	3.9	44	10.3[d]	20.4[d]	17.3
United Kingdom	81.1	3.8	33	24.9	20.0[d]	17.1
United States	78.8	6.1[e]	68	35.3[d]	13.7	14.1
OECD median	81.2	3.5	–	28.3	18.9	17.0

What do we get for it?

[a] Source: OECD Health Data 2015.
[b] Includes: hypertension or high blood pressure, heart disease, diabetes, lung problems, mental health problems, cancer, and joint pain/arthritis. Source: Commonwealth Fund International Health Policy Survey of Older Adults, 2014.
[c] DEN, FR, NETH, NOR, SWE, and SWIZ based on self-reported data; all other countries based on measured data.
[d] 2012. [e] 2011.

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France	82.3	3.6	43	14.5[d]	24.1[d]	17.7
Germany	80.9	3.3	49	23.6	20.9	21.1
Japan	83.4	2.1	–	3.7	19.3	25.1
Netherlands	81.4	3.8	46	11.8	18.5	16.8
New Zealand	81.4	5.2[e]	37	30.6	15.5	14.2
Norway	81.8	2.4	43	10.0[d]	15.0	15.6
Sweden	82.0	2.7	42	11.7	10.7	19.0
Switzerland	82.9	3.9	44	10.3[d]	20.4[d]	17.3
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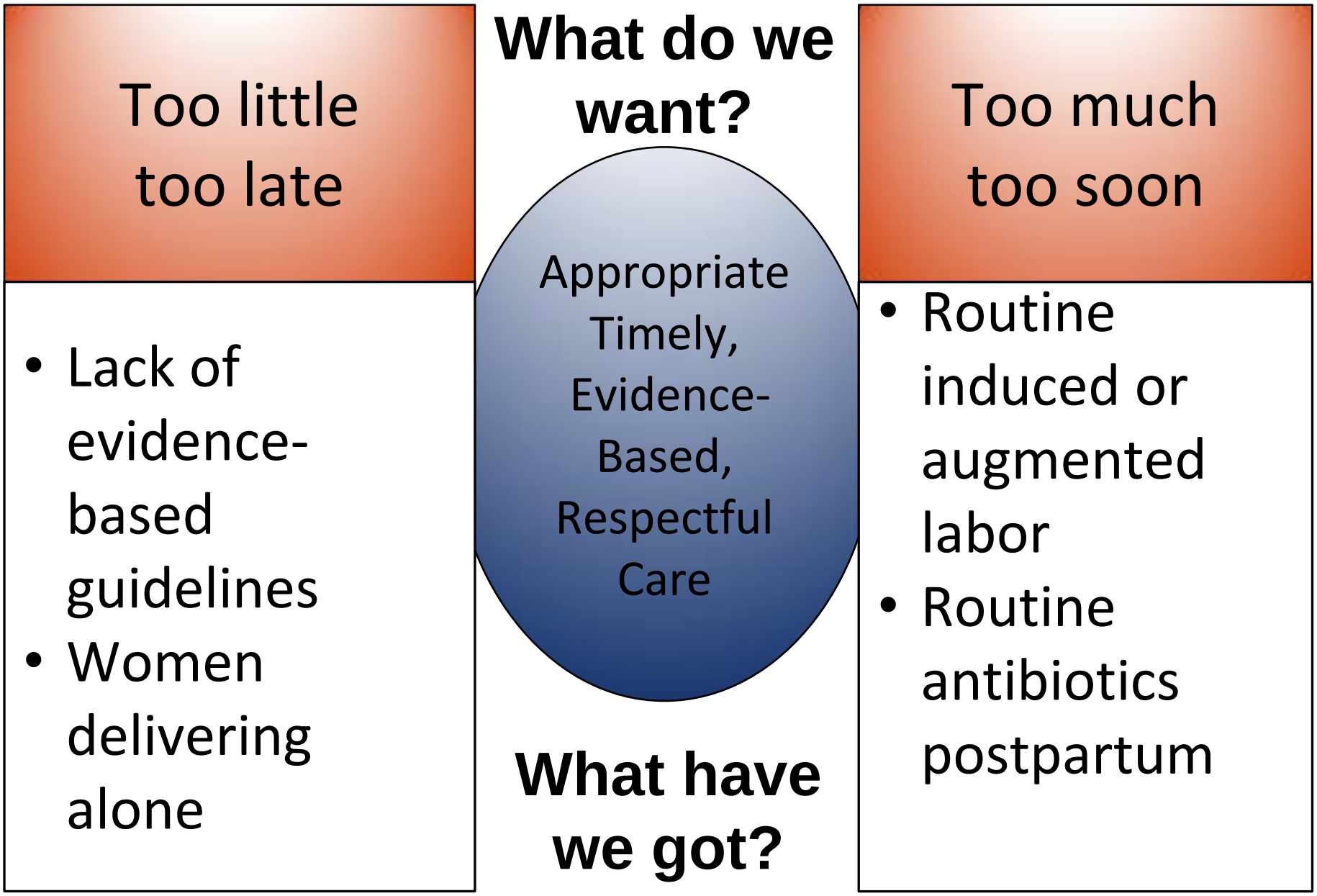
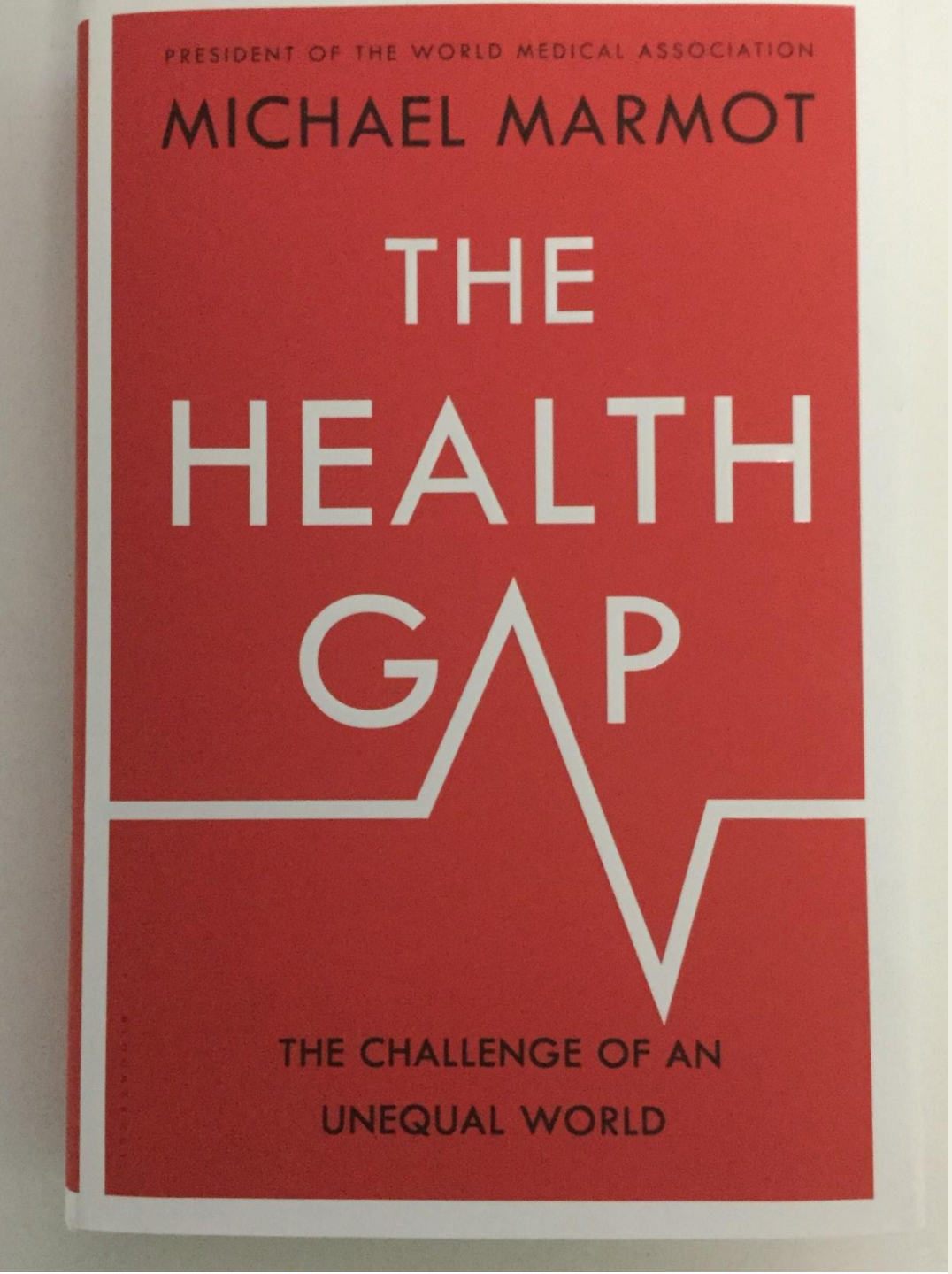


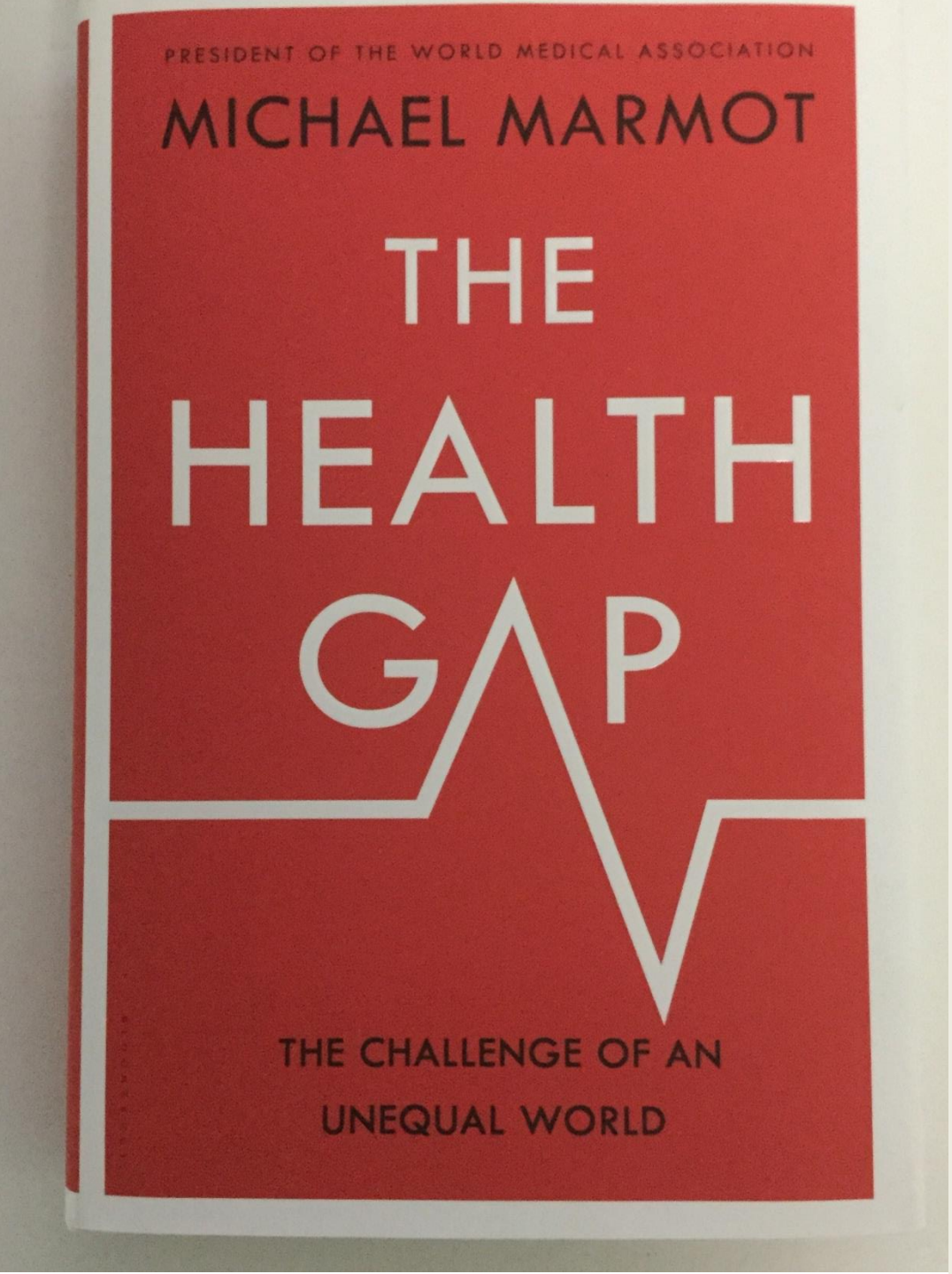
Miller S, Abalos E, Chamillard M, Ciapponi A, Colaci A, Comandé D, Diaz V, Geller S, Hanson C, Langer A, Manuelli V, Millar K, Morhason-Bello I, Castro CP, et al. **Beyond too little, too late and too much, too soon: a pathway towards evidence-based, respectful maternity care worldwide.** Lancet 2016



Do Something

Do More

Do Better



Do Something

Do More

Do Better

MORE

is not necessarily helpful

MORE

is not necessarily innocuous

SOMÆ

is certainly necessary

The New England Journal of Medicine

THE RELATION BETWEEN THE AVAILABILITY OF NEONATAL INTENSIVE CARE AND NEONATAL MORTALITY

DAVID C. GOODMAN, M.D., ELLIOTT S. FISHER, M.D., GEORGE A. LITTLE, M.D., THÉRÈSE A. STUKEL, PH.D., CHIANG-HUA CHANG, M.S., AND KENNETH S. SCHOENDORF, M.D.

Methods

We calculated the supply of neonatologists and neonatal intensive care beds in 246 neonatal intensive care regions. We assessed associations between the supply of both neonatologists and neonatal intensive care beds per capita (in quintiles) and risk of death within the first 27 days of life.

Results

Among 3,892,208 newborns with weight of 500 g or greater, the mortality rate was 3.4 per 1000 births. … the rate was lower in the regions with 4.3 neonatologists per 10,000 births than in those with 2.7 neonatologists per 10,000 births Further increases in the number of neonatologists were not associated with greater reductions in the risk of death.

(N Engl J Med 2002;346:1538-44.)

TABLE 3. ASSOCIATIONS BETWEEN THE REGIONAL SUPPLY OF NEONATAL INTENSIVE CARE AND NEONATAL MORTALITY.

SUPPLY		REGIONAL SUPPLY OF NEONATOLOGISTS	
		NO. OF DEATHS/ 1000 BIRTHS	ADJUSTED ODDS RATIO (95% CI)*
Neonatologists			
Very low	(2.7/10,000 births)	3.5	1.00†
Low	(4.3/10,000 births)		0.93 (0.88–0.99)
Medium	(5.9/10,000 births)		0.93 (0.88–0.99)
High	(7.5/10,000 births)		0.91 (0.86–0.97)
Very high	(11.6/10,000 births)		0.89 (0.83–0.95)
Intensive care beds			
Very low	(14.0/10,000 births)	3.4	1.00†
Low	(23.5/10,000 births)	3.2	0.92 (0.86–0.98)
Medium	(32.4/10,000 births)	3.7	1.02 (0.96–1.08)
High	(40.7/10,000 births)	3.2	0.93 (0.88–0.99)
Very high	(59.3/10,000 births)	3.7	0.95 (0.89–1.02)

Gets better

No better

Consider
Ovarian Cancer

It is a horrible disease and too often not found until advanced

So of course we look for a screening test

Effect of Screening on Ovarian Cancer Mortality

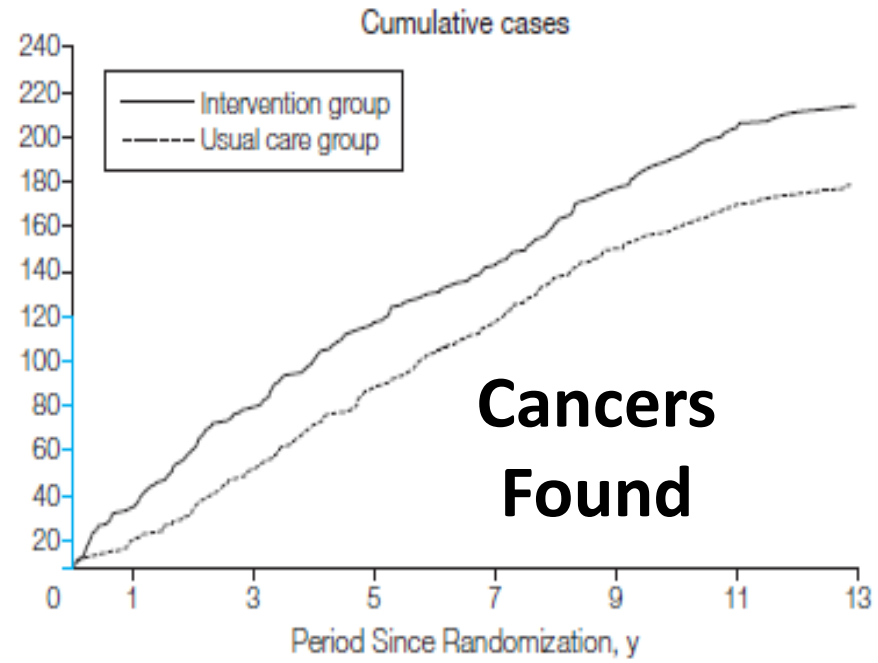
The Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Randomized Controlled Trial

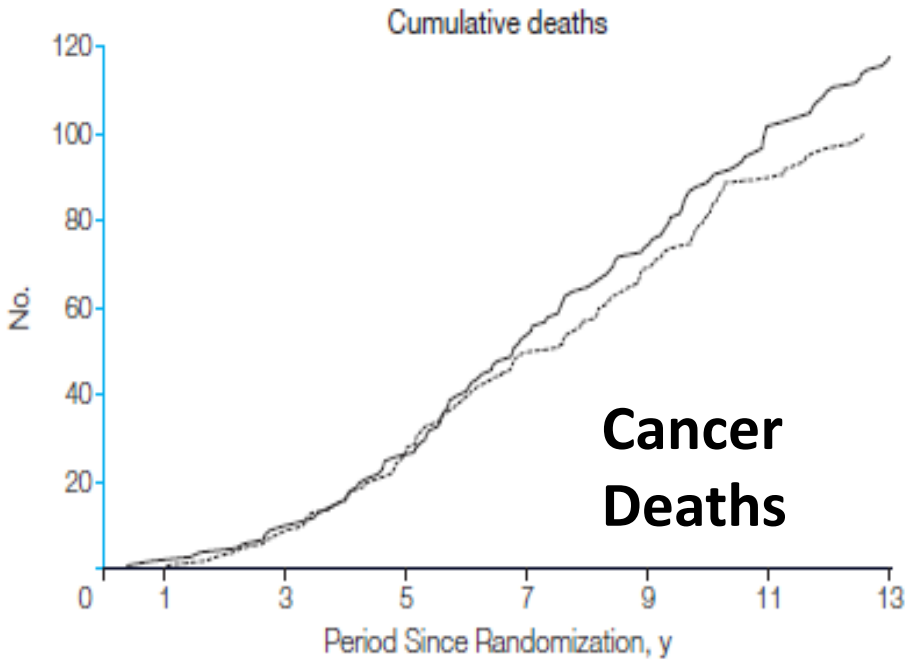
Intervention

The intervention group was offered annual screening with CA-125 for 6 years and transvaginal ultrasound for 4 years. Participants and their health care practitioners received the screening test results and managed evaluation of abnormal results.
The usual care group was not offered annual screening with CA-125 for 6 years or transvaginal ultrasound but received their usual medical care.

Buys SS, Partridge E et al JAMA. 2011;305(22):2295-2303

Ovarian Cancer Cumulative Cases and Deaths





A few more cancer cases were found
There was no change in cancer deaths

Table 6. Cause of Death Through Year 13[a]

Cause of Death	No. of Women	
	Intervention Group (n = 34 253)	Usual Care Group (n = 34 304)
Other cancer[b]	814	808
Ischemic heart disease	367	386
Cerebrovascular accident	221	205
Other circulatory disease	395	438
Respiratory disease	315	313
Digestive disease	109	101
Infectious disease	87	60
Endocrine and metabolic diseases or immune disorders	122	92
Nervous system diseases	125	130
Accidental	130	121
Other	239	260
Total	**2924**	**2914**

[a] Cause listed on death certificate.
[b] Unrelated to lung, colorectal, or ovarian cancer.

All Cause Mortality
This was not different

Table 5. Major Complications Associated With Diagnostic Evaluation for Ovarian Cancer

	No. (%)		
	Intervention Group		Cancer Cases in Usual Care Group (n = 176)[b]
	No Cancer, Surgical Follow-up (n = 1080)[a]	Cancer (n = 212)[b]	
Women with complications	163 (15)	95 (45)	91 (52)
Total complications[c]	**222** (100)	**140** (100)	**143** (100)
Infection	89 (40)	32 (23)	37 (26)
Direct surgical	63 (28)	69 (49)	61 (43)
Cardiovascular or pulmonary	31 (14)	26 (19)	27 (19)
Other	39 (18)	13 (9)	18 (12)

[a] Includes only women who had a false-positive screening result for ovarian cancer during the screening phase of the trial.
[b] Includes women diagnosed with cancer during the screening phase or follow-up.
[c] Some women had more than 1 complication.

Conclusions

Among women in the general US population, simultaneous screening with CA-125 and transvaginal ultrasound compared with usual care did not reduce ovarian cancer mortality. Diagnostic evaluation following a false-positive screening test result was associated with complications.

MORE

is not necessarily helpful

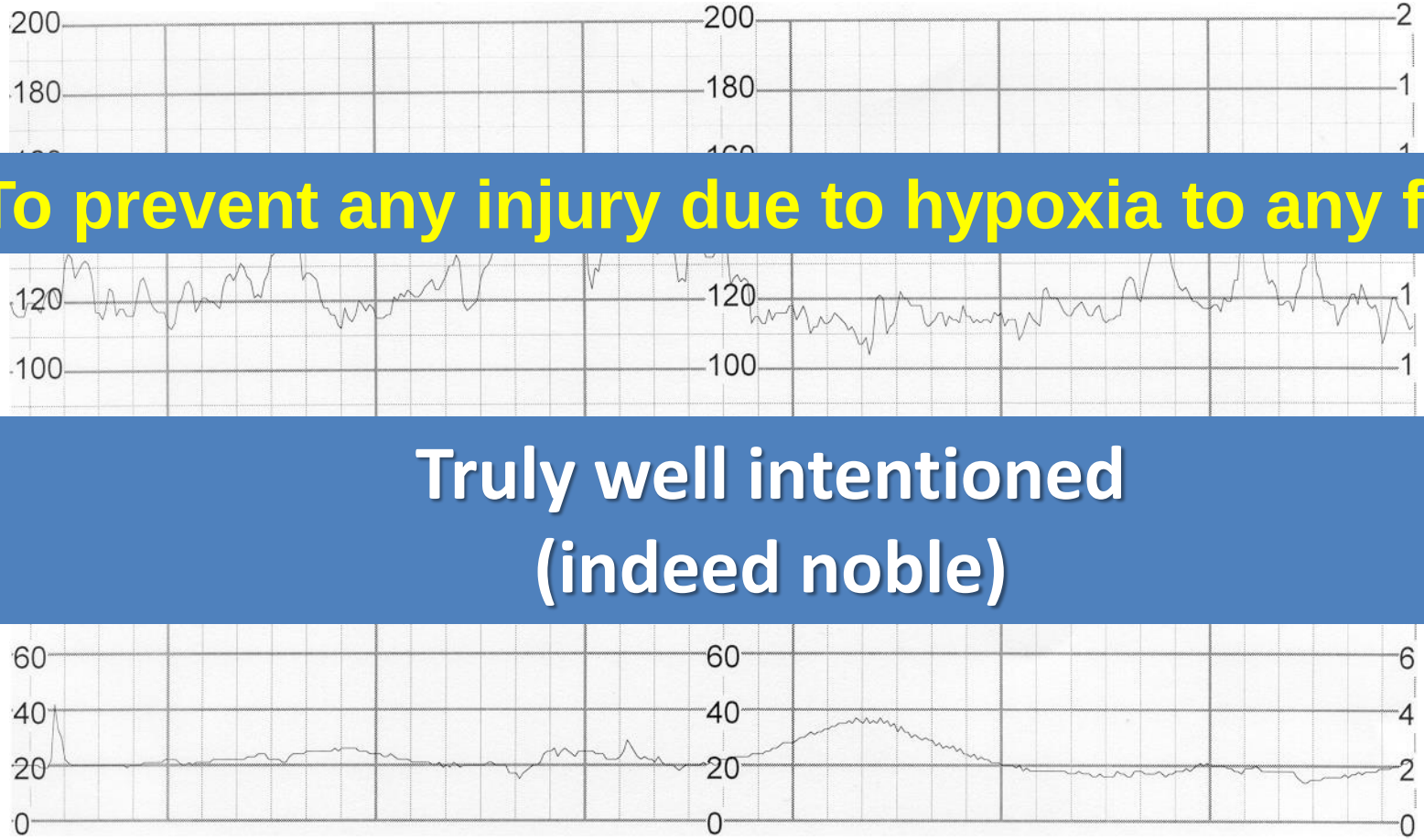
MORE

is not necessarily innocuous

Regina Qu'Appelle HEALTH REGION

MORE^{OB} Program

THE INTENT:

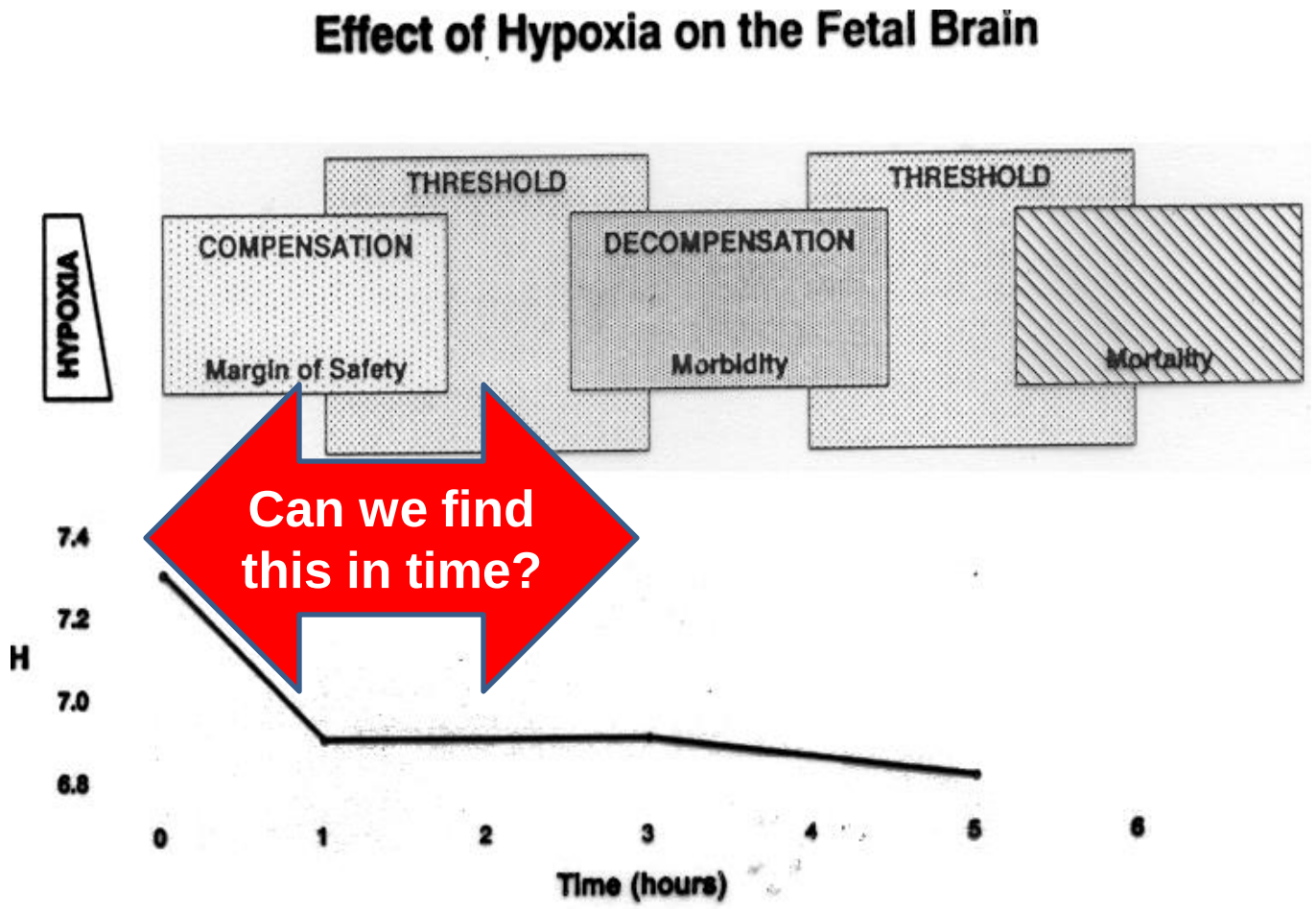


To prevent any injury due to hypoxia to any fetus

Truly well intentioned (indeed noble)

Baseline rate - normal - brn01.fhm

Fetal Well being in Labour



And that led us to EFM

Eventually
EFM was compared
with IA

Assume 140 bpm and IA for 1 minute in every 15

If EFM there are 2100 data points
If IA there are 140 data points

More should be better. Right??

Fetal Well being in Labour

What matters is
fetal heart rate decelerations
And a delay in return to baseline

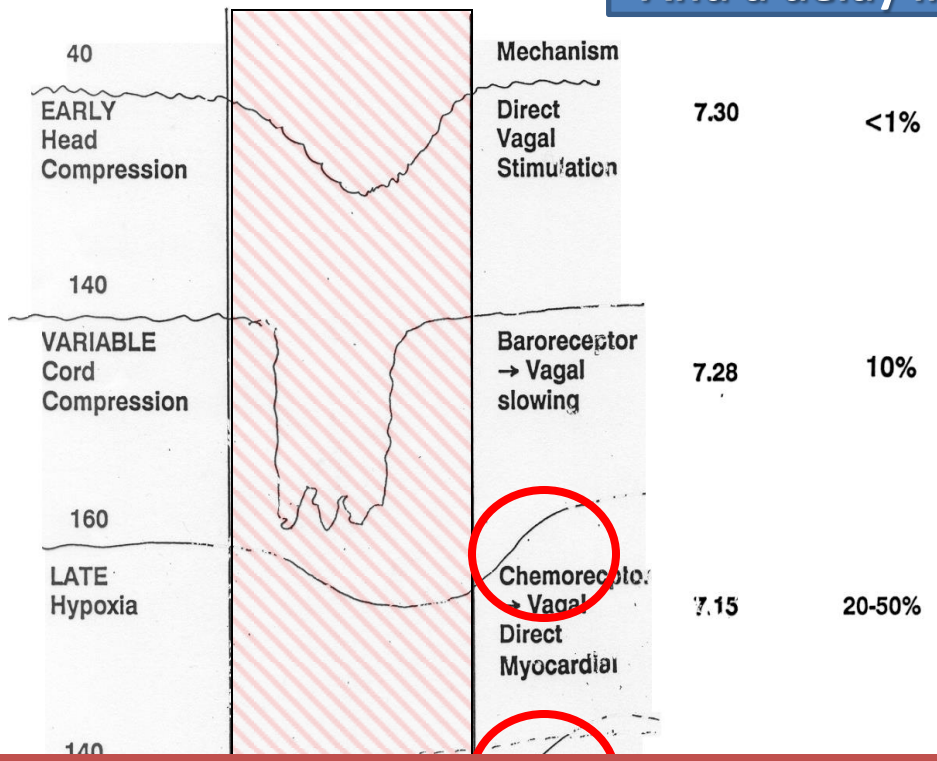
This is FHR patterns from EFM

What would happen if we did IA

What would we miss?

Does it matter?

The ignorance is blissful



What would we NOT miss?

NOTHING THAT MATTERS!

And the fact that fetuses/newborns with surveillance by IA do as well as EFM must mean there is nothing in the extra information with EFM that is helpful.
By the way, variability is unknowable with IA
Not knowing variability was not a disadvantage

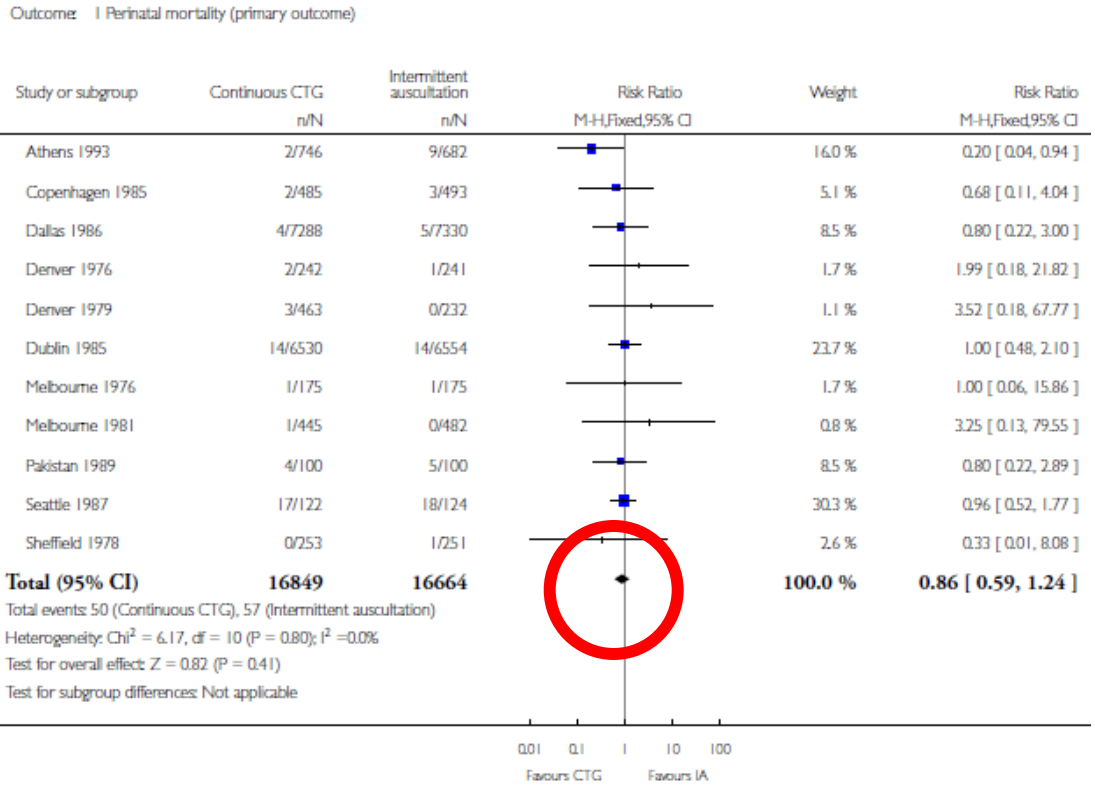
Cochrane Library

Cochrane Database of Systematic Reviews

Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour (Review)

Alfirevic Z, Devane D, Gyte GML.

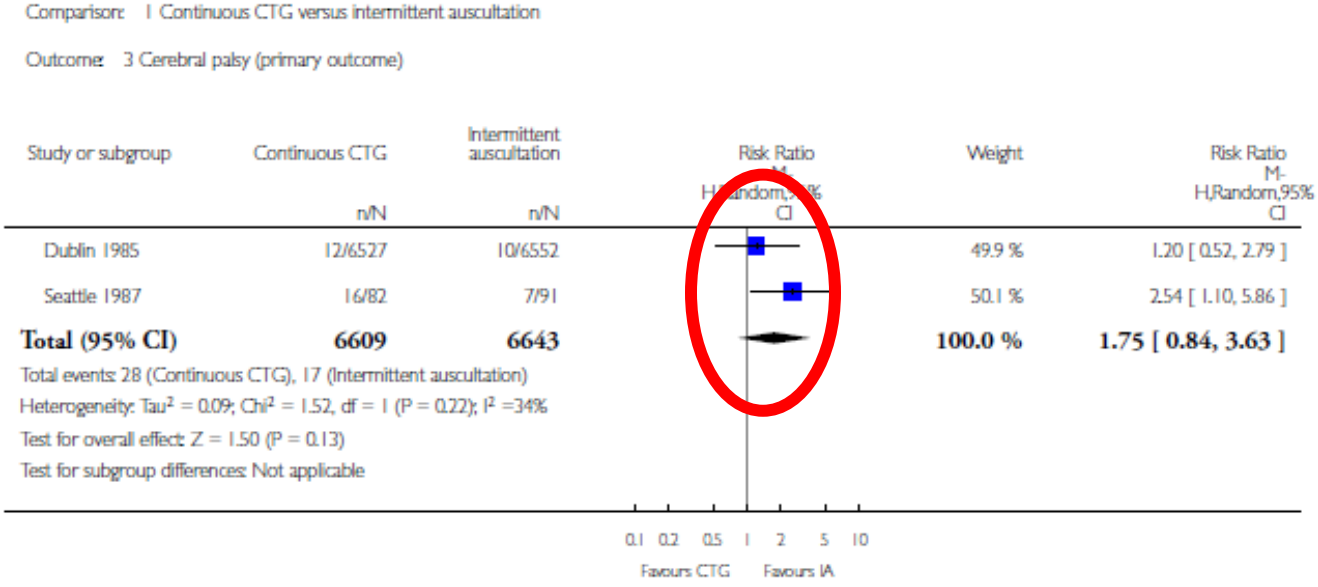
Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour.
Cochrane Database of Systematic Reviews 2013, Issue 5.



Perinatal Mortality

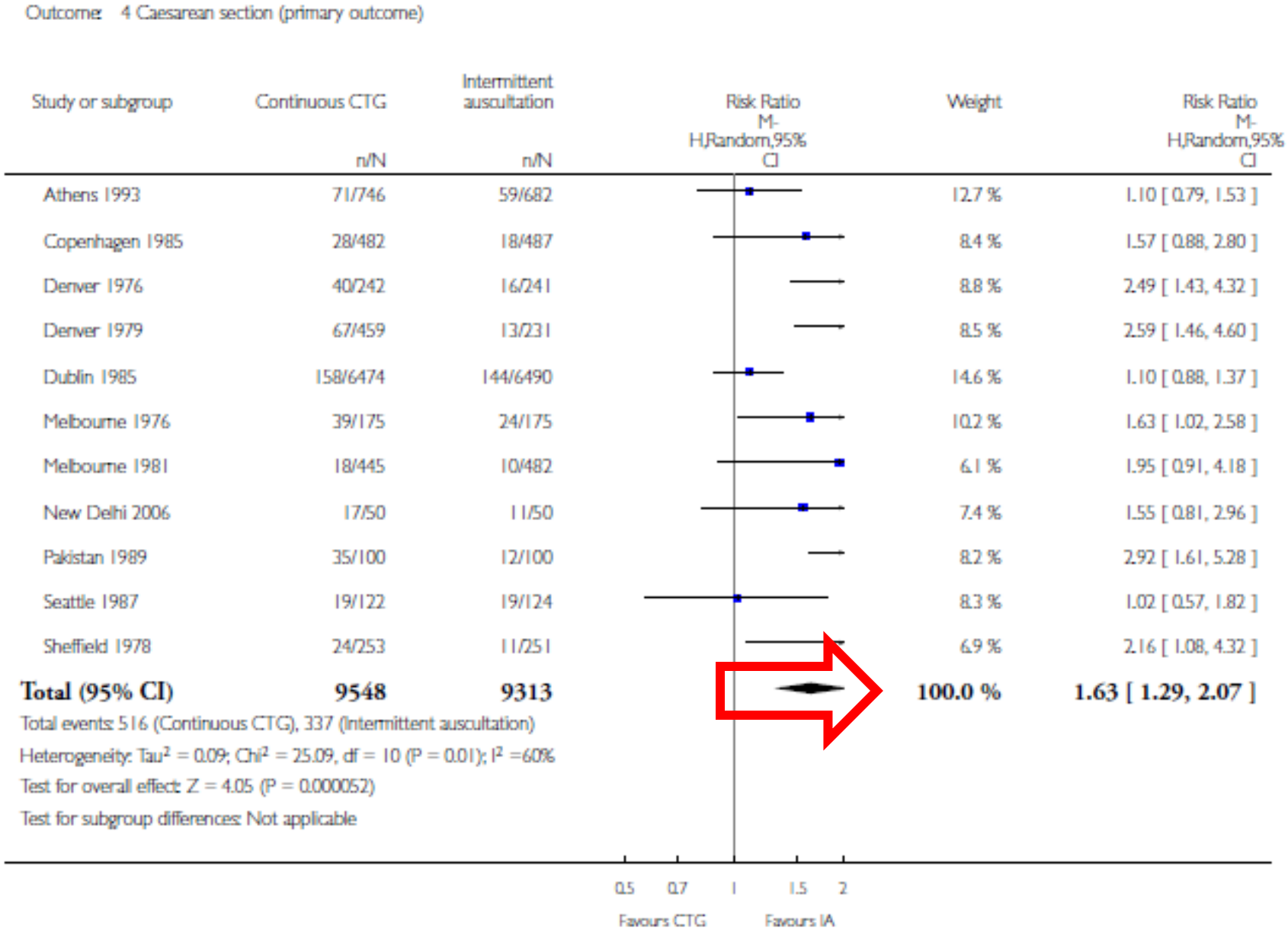
Cerebral Palsy

Preventing CP (the "continuum of reproductive casualty") is why we got in to this



MORE

is not necessarily helpful



Cesarean Sections

MORE

is not necessarily innocuous

MORE
can be
Very Tempting

A test or treatment was developed in and used for high risk conditions

Shouldn't everybody have that "advantage?"

The Statistics of our Testing and Treating

POSITIVE PREDICTIVE VALUE

SENSITIVITY

	Has the Condition POSITIVE	Does not have the Condition NEGATIVE
Test is POSITIVE	True Positive TP	False Positive FP
Test is NEGATIVE	False Negative FN	True Negative TN

Sensitivity TP/TP + FN

Will you find it if the condition is really there?

PPV TP/ TP + FP

Is the condition really there when the test is positive?

PPV depends on prevalence

Aneuploidy Screening

Aneuploidy – ACOG 640

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

Society for Maternal-Fetal Medicine

COMMITTEE OPINION

Number 640 • September 2015 *(This Committee Opinion Replaces Committee Opinion Number 545)*

Committee on Genetics
Society for Maternal–Fetal Medicine

This document reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Cell-free DNA Screening for Fetal Aneuploidy

Obstetrics & Gynecology:
September 2015 - Volume 126 - Issue 3 - p e31–e37

Population Prevalence on Predictive Value

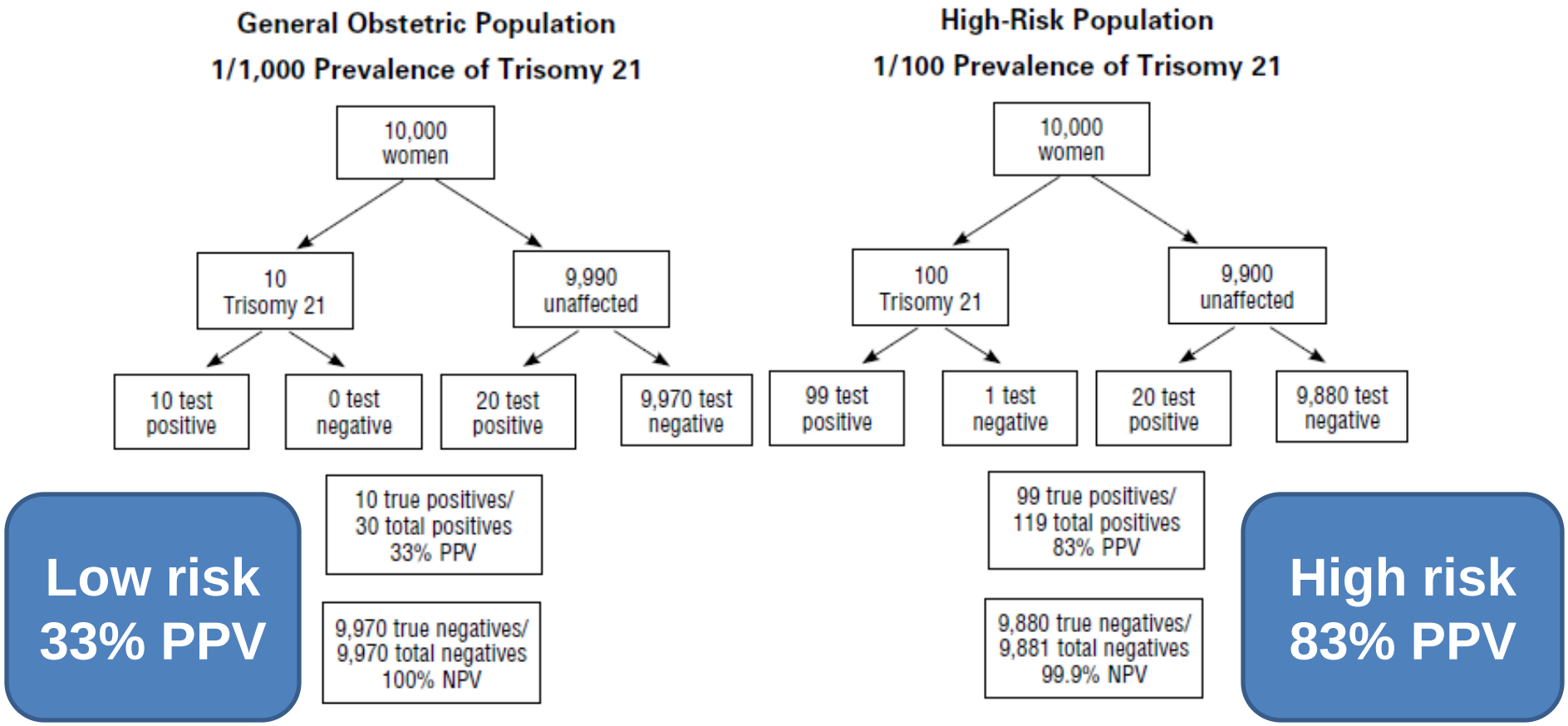


Fig.1. The importance of population prevalence on the predictive value for a screening test: an illustration with cell-free DNA. ⇦

Abbreviations: NPV, negative predictive value; PPV, positive predictive value

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Cell-free DNA Test Performance

Table 1. Cell-free DNA Test Performance Characteristics in Patients Who Receive an Interpretable Result*

			Age 25 years	Age 40 years
	Sensitivity (%)	Specificity (%)	PPV (%)	PPV (%)
Trisomy 21	99.3	99.8	33	87
Trisomy 18	97.4	99.8	13	68
Trisomy 13	91.6	99.9	9	57
Sex chromosome aneuploidy	91.0	99.6	--†	--

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Doppler Ultrasound

This is one of the very few things we do to assess a fetus that has actually been properly evaluated and proven beneficial
- sometimes-
in randomized trials.

Cochrane Library

Cochrane Database of Systematic Reviews

Fetal and umbilical Doppler ultrasound in high-risk pregnancies (Review)

Alfirevic Z, Stampalija T, Gyte GML

Alfirevic Z, Stampalija T, Gyte GML.
Fetal and umbilical Doppler ultrasound in high-risk pregnancies.
Cochrane Database of Systematic Reviews 2013, Issue 11. Art.
www.cochranelibrary.com

Main results

Eighteen completed studies involving just over 10,000 women were included. The trials were generally of unclear quality with some evidence of possible publication bias.

The use of Doppler ultrasound in high-risk pregnancy was associated with a reduction in perinatal deaths (risk ratio (RR) 0.71, 95% confidence interval (CI) 0.52 to 0.98, 16 studies, 10,225 babies, 1.2% versus 1.7 %, number needed to treat (NNT) = 203; 95% CI 103 to 4352).

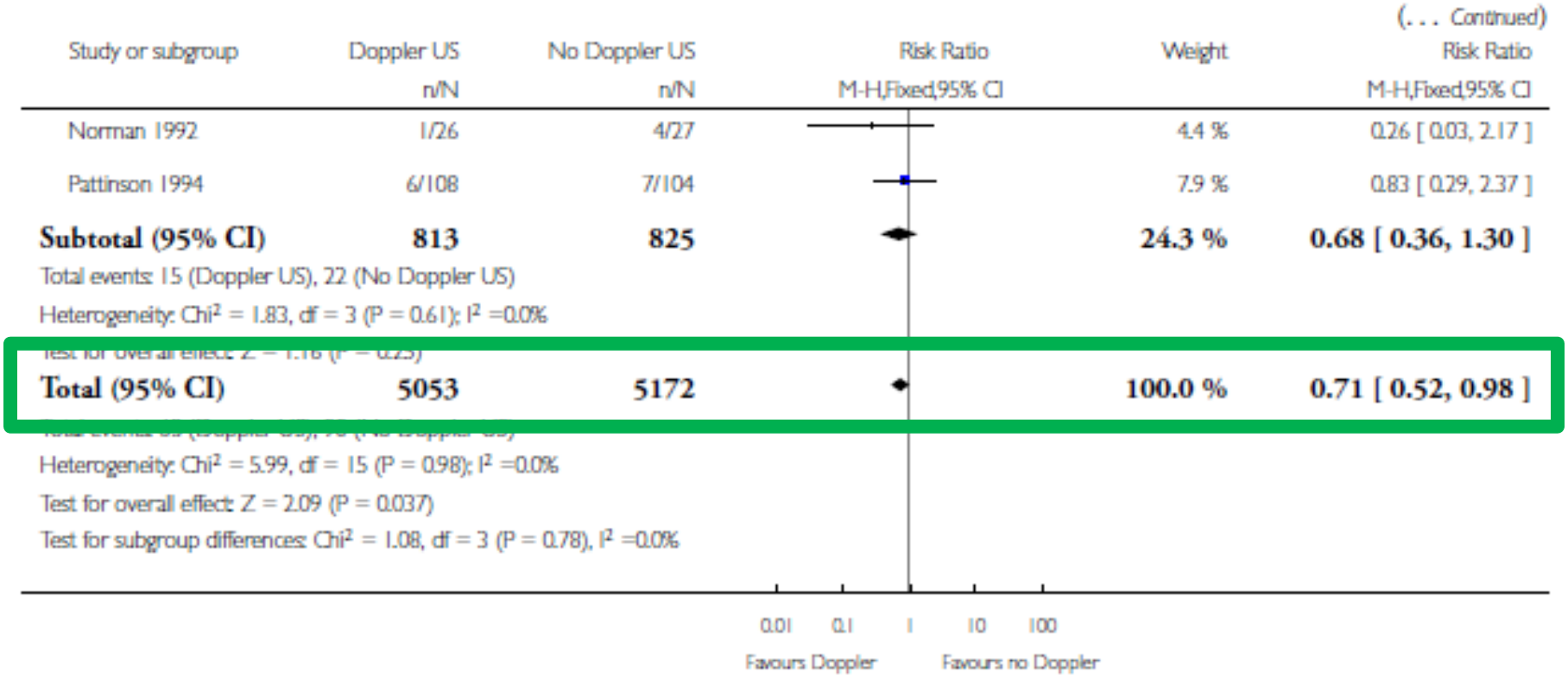
Alfirevic Z, Stampalija T, Gyte GML.
Fetal and umbilical Doppler ultrasound in high-risk pregnancies.
Cochrane Database of Systematic Reviews 2013

Analysis 1.1. Comparison 1 Doppler ultrasound versus no Doppler ultrasound, Outcome 1 Any perinatal death after randomisation.

Review: Fetal and umbilical Doppler ultrasound in high-risk pregnancies

Comparison: 1 Doppler ultrasound versus no Doppler ultrasound

Outcome: 1 Any perinatal death after randomisation



Alfirevic Z, Stampalija T, Gyte GML.
Fetal and umbilical Doppler ultrasound in high-risk pregnancies.
Cochrane Database of Systematic Reviews 2013

A U T H O R S ' C O N C L U S I O N S

Implications for practice

Doppler studies of the umbilical artery should be incorporated in the protocols for fetal monitoring in high-risk pregnancies thought to be at risk of placental insufficiency.

The clear definition of suspected placental insufficiency, frequency of Doppler studies and timing of delivery in the presence of abnormal Doppler studies remains elusive. Women with hypertensive disorders and small for-date fetuses are obvious candidates whilst the role of umbilical artery Doppler in other risk groups like post-term, diabetes and uncomplicated dichorionic twin pregnancy is still debatable.

Alfirevic Z, Stampalija T, Gyte GML.
Fetal and umbilical Doppler ultrasound in high-risk pregnancies.
Cochrane Database of Systematic Reviews 2013

Cochrane Library

Cochrane Database of Systematic Reviews

Fetal and umbilical Doppler ultrasound in normal pregnancy (Review)

Alfirevic Z, Stampalija T, Medley N

Alfirevic Z, Stampalija T, Medley N.
Fetal and umbilical Doppler ultrasound in normal pregnancy.
Cochrane Database of Systematic Reviews 2015, Issue 4.
www.cochranelibrary.com

Why it is important to do this review

Any screening test has not only potential for benefit, but also for harm. Subjecting a large group of low-risk patients to a screening test with a relatively high false positive rate is likely to cause anxiety and lead to inappropriate intervention and subsequent risk of iatrogenic morbidity and mortality.

Main results

We included five trials that recruited 14,624 women, with data analysed for 14,185 women. All trials had adequate allocation concealment, but none had adequate blinding of participants, staff or outcome assessors. Overall and apart from lack of blinding, the risk of bias for the included trials was considered to be low.

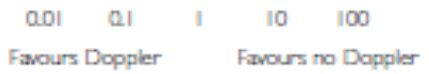
Analysis 1.1. Comparison 1 All routine Doppler ultrasound versus no Doppler ultrasound, Outcome 1 Perinatal death (stillbirth and neonatal death including anomalies).

Review: Fetal and umbilical Doppler ultrasound in normal pregnancy

Comparison: 1 All routine Doppler ultrasound versus no Doppler ultrasound

Outcome: 1 Perinatal death (stillbirth and neonatal death including anomalies)

Study or subgroup	Doppler n/N	No Doppler n/N	Risk Ratio M-H,Random,95% CI	Weight	Risk Ratio M-H,Random,95% CI
1 Fetal/umbilical vessels only					
French Doppler 1997	5/1948	14/1943		24.0 %	0.36 [0.13, 0.99]
Mason 1993	4/1015	5/1001		19.3 %	0.79 [0.21, 2.93]
Subtotal (95% CI)	**2963**	**2944**		**43.3 %**	**0.48 [0.21, 1.07]**
Total events: 9 (Doppler), 19 (No Doppler)					
Heterogeneity: $Tau^2 = 0.0$; $Chi^2 = 0.88$, df = 1 (P = 0.35); $I^2 = 0.0\%$					
Test for overall effect: Z = 1.78 (P = 0.074)					
2 Fetal/umbilical vessels + uterine artery					
Davies 1992	17/1246	7/1229		26.5 %	2.40 [1.00, 5.76]
Newnham 1993	13/1402	22/1399		30.1 %	0.59 [0.30, 1.17]
Subtotal (95% CI)	**2648**	**2628**		**56.7 %**	**1.16 [0.29, 4.56]**
Total events: 30 (Doppler), 29 (No Doppler)					
Heterogeneity: $Tau^2 = 0.82$; $Chi^2 = 6.13$, df = 1 (P = 0.01); $I^2 = 84\%$					
Test for overall effect: Z = 0.21 (P = 0.84)					
Total (95% CI)	**5611**	**5572**		**100.0 %**	**0.80 [0.35, 1.83]**
Total events: 39 (Doppler), 48 (No Doppler)					
Heterogeneity: $Tau^2 = 0.46$; $Chi^2 = 9.21$, df = 3 (P = 0.03); $I^2 = 67\%$					
Test for overall effect: Z = 0.53 (P = 0.60)					
Test for subgroup differences: $Chi^2 = 1.17$, df = 1 (P = 0.28), $I^2 = 14\%$					

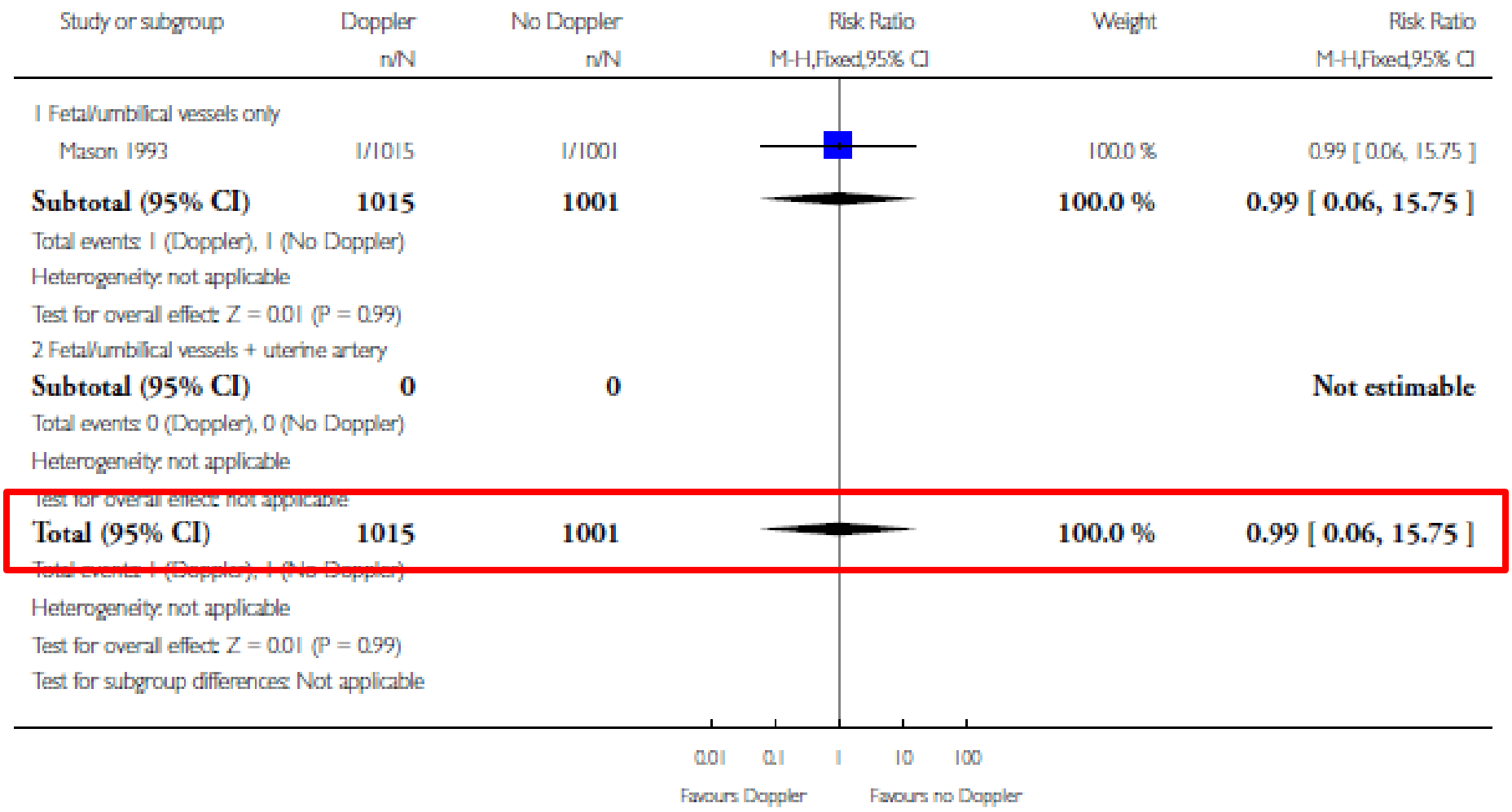


Analysis 1.2. Comparison 1 All routine Doppler ultrasound versus no Doppler ultrasound, Outcome 2 Serious neonatal morbidity.

Review: Fetal and umbilical Doppler ultrasound in normal pregnancy

Comparison: 1 All routine Doppler ultrasound versus no Doppler ultrasound

Outcome: 2 Serious neonatal morbidity



Authors' conclusions

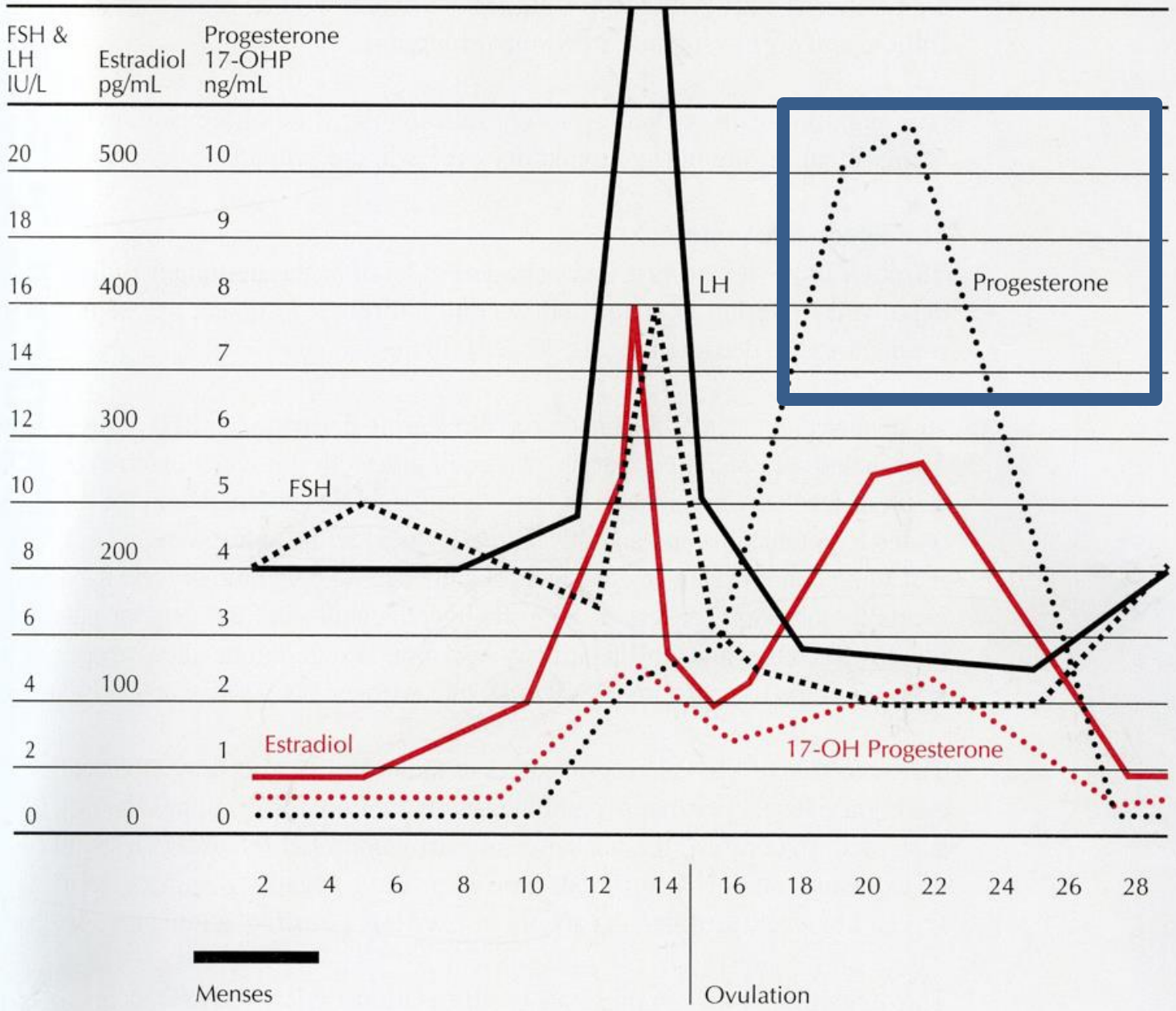
Existing evidence does not provide evidence that the use of routine umbilical artery Doppler ultrasound, or combination of umbilical and uterine artery Doppler ultrasound in low-risk or unselected populations benefits either mother or baby.

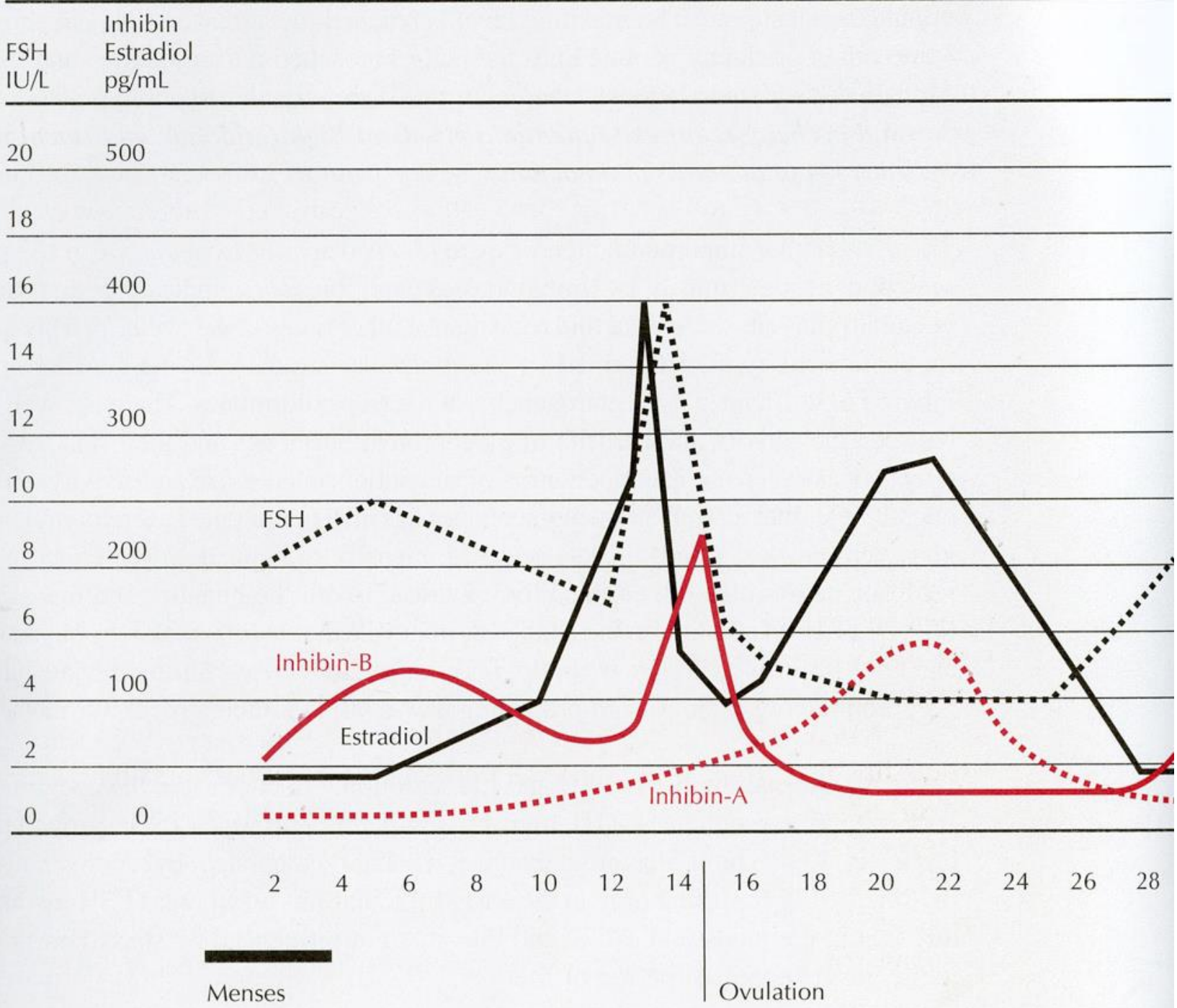
"Positives" are likely to be false positives

MORE ??

Hormones

There are LOTS of hormones. And therefore lots of tests that can be ordered


FSH & LH IU/L
Estradiol pg/mL
Progesterone 17-OHP ng/mL
20 500 10
18 9
16 400 8
14 7
12 300 6
10 5
8 200 4
6 3
4 100 2
2 1
0 0 0
FSH
LH
Progesterone
Estradiol
17-OH Progesterone
2 4 6 8 10 12 14 16 18 20 22 24 26 28
Menses
Ovulation


FSH
IU/L
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Estradiol
pg/mL
20
18
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14
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500
400
300
200
100
0
FSH
Inhibin-B
Estradiol
Inhibin-A
2
4
6
8
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12
14
16
18
20
22
24
26
28
Menses
Ovulation

Magee BA. Int J Womens Health Wellness 2016, 2:022
Volume 2 | Issue 3

International Journal of
Women's Health and Wellness

Review Article: Open Access

A Pragmatic Approach to Hormonal Testing in the Assessment of Disorders of Female Reproduction

*Bryden A Magee and Robert L Reid**

Department of Obstetrics and Gynecology, Queen's University, Kingston, Ontario, Canada

Confirmation of ovulatory function

Ovulatory disorders occur in approximately 21% of infertile couples, so it is important to ensure ovulation in any woman presenting with concerns about fertility . A history of regular menses every 24-35 days, with predictable flow and pre-menstrual molimina predicts ovulation in 97% of cases .

Assessment of ovarian reserve

An overall trend towards delayed childbearing among women increases the risk of infertility due to a reduction in both oocyte quantity and quality often referred to as decreased ovarian reserve

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Table 1: Utility of various hormonal tests for primary infertility in the ovulatory patient.

UTILITY	TEST	INDICATION
HIGH Utility	Patient age	Remains the best predictor of success of pregnancy through natural conception or Assisted Reproductive Technologies
	Anti-Mullerian Hormone	The most reliable screening test for poor ovarian response to ovarian stimulation
LOW Utility	Early follicular FSH with estradiol	A specific but not sensitive test of decreased ovarian reserve
	Urinary LH	Useful if couple has difficulty with timing or frequency of intercourse
	TSH	To rule out subclinical hypothyroidism
	Thyroid antibody testing: If TSH mildly elevated	To help determine whether or not to initiate treatment in patients with subclinical hypothyroidism
	Mid-luteal progesterone	Not necessary to confirm ovulation if the patient reports a history of regular and predictable menses
NO Utility	Prolactin	
	Inhibin B	
	Estradiol alone	

Or
just take a history

Magee BA. Int J Womens Health Wellness 2016, 2:022
Volume 2 | Issue 3

International Journal of
Women's Health and Wellness

Review Article: Open Access

A Pragmatic Approach to Hormonal Testing in the Assessment of Disorders of Female Reproduction

*Bryden A Magee and Robert L Reid**

Conclusion:

Understanding the physiology of each reproductive hormone, their interactions and their impact on the hypothalamic-pituitary-ovarian axis, as well as the limitations of the currently available hormonal assays can help clinicians choose wisely when investigating women with reproductive dysfunction.

Back to Cancer

This time
Prostate Cancer

So of course we look again for a screening test

There are two large studies of screening

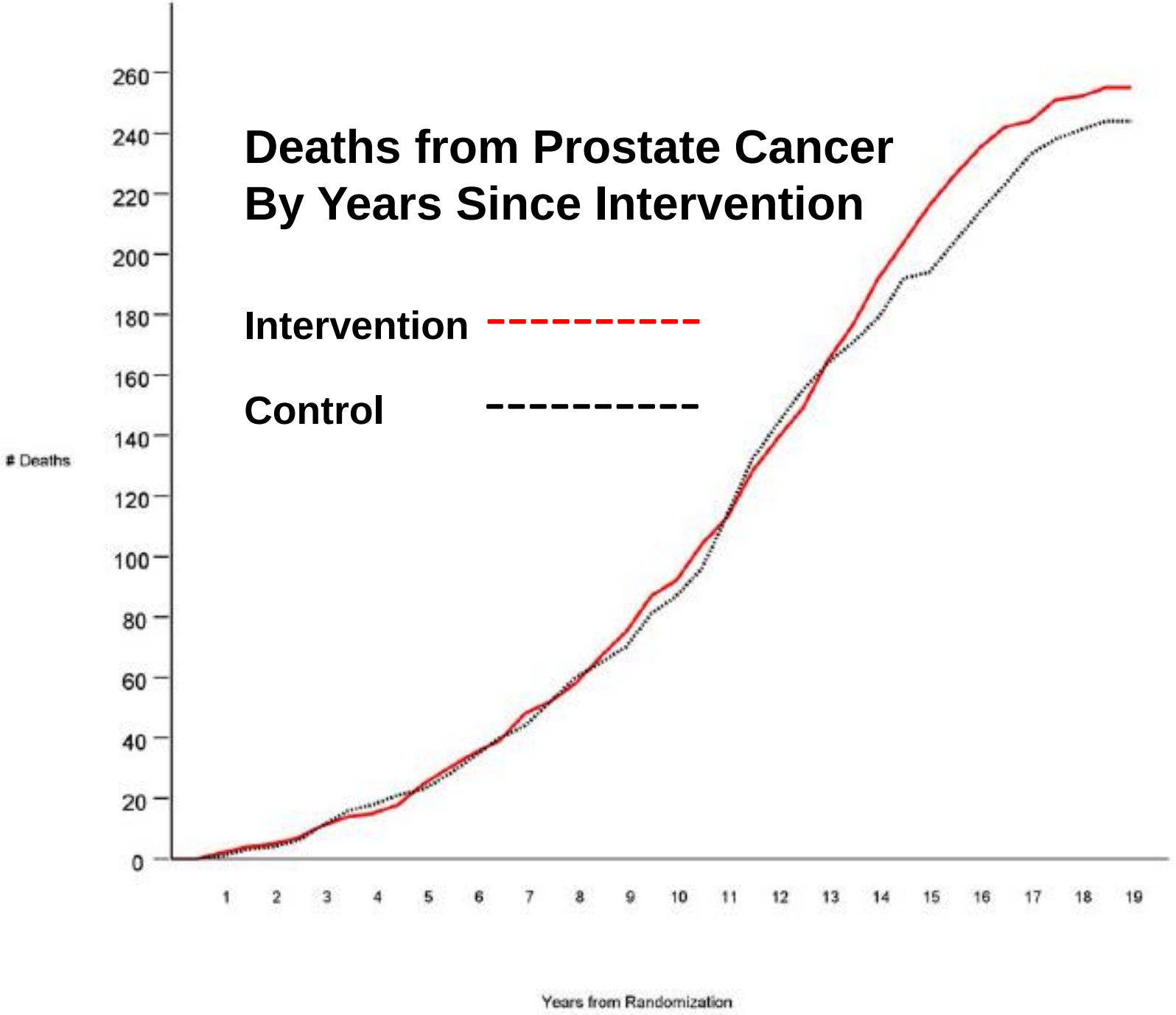
Table 1: Evidence of benefit of screening for prostate cancer with PSA testing

Study (country)	Study characteristics	PSA threshold, ng/mL	Contamination (rate of screening in control group), %	Prostate cancer mortality, RR (95% CI)	All-cause mortality, RR (95% CI)	Absolute effect	GRADE quality of evidence*
PLCO[21] (United States)	RCT; 76 693 men aged 55–74 yr; annual PSA screening for 6 yr and digital rectal examination annually for 4 yr; 14-yr follow-up	4	52	1.09 (0.87–1.36)	0.96 (0.93–1.00)	No effect	Moderate
ERSPC[19] (Finland, Sweden, Italy, the Netherlands, Belgium, Spain and Switzerland)	RCT; 162 243 men aged 50–74 yr (core group 55–69 yr); PSA screening every 4 yr; 13-yr follow-up	3.0 at most sites	20	Core group: 0.79 (0.69–0.91) All ages: 0.83 (0.73–0.94)	Core group: 1.00 (0.98–1.02) All ages: 1.00 (0.98–1.02)	12.8 fewer deaths per 10 000 men screened	Moderate

Note: CI = confidence interval, ERSPC = European Randomized Study of Screening for Prostate Cancer, PLCO = Prostate, Lu
Screening Trial, PSA = prostate-specific antigen, RCT = randomized controlled trial, RR = relative risk.
*GRADE (Grading of Recommendations, Assessment, Development and Evaluation)[15] rates the continuum of quality of evi
low or very low; see evidence review for complete assessment of study quality.[13]

NO EFFECT

12.8 fewer deaths/10,000 men screened


Deaths from Prostate Cancer
By Years Since Intervention
Intervention
Control
Deaths
260
240
220
200
180
160
140
120
100
80
60
40
20
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
Years from Randomization

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Screening for prostate cancer (Review)

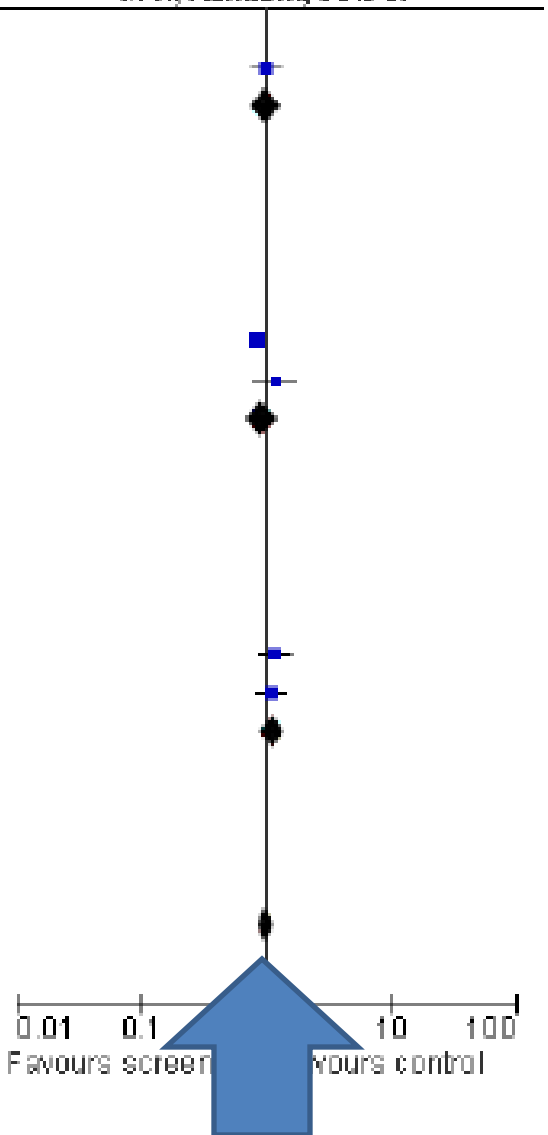
Ilic D, Neuberger MM, Djulbegovic M, Dahm P

Ilic D, Neuberger MM, Djulbegovic M, DahmP.
Screening for prostate cancer.
Cochrane Database of Systematic Reviews 2013, Issue 1. Art.

Prostate Cancer Specific Mortality

Figure 2. Forest plot of comparison: 1 Screening versus control, outcome: 1.3 Prostate cancer-specific mortality (subgroup analysis age)

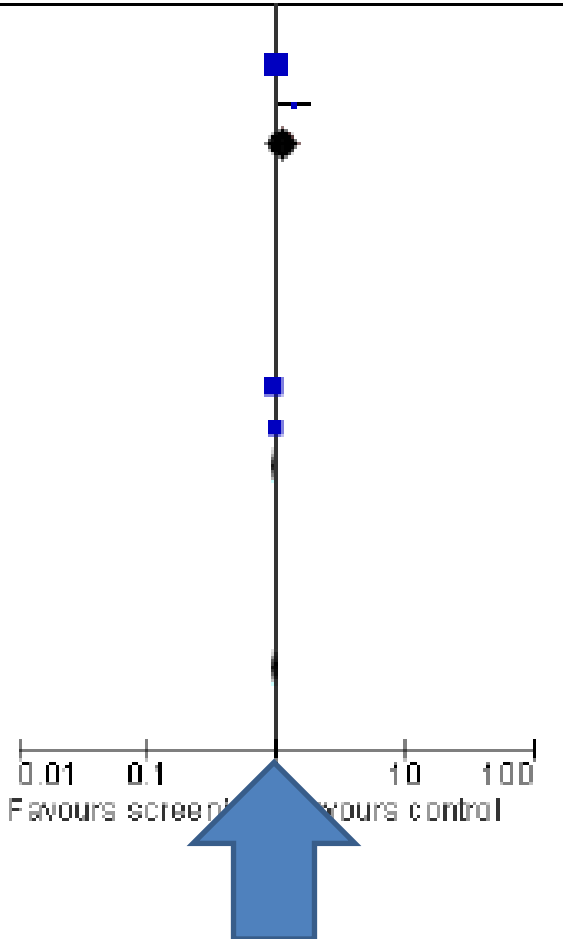
Study or Subgroup	Screening Events	Screening Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
1.1.1 Men aged ≥ 45 years						
Quebec	153	31133	75	15353	18.7%	1.01 [0.76, 1.33]
Subtotal (95% CI)		**31133**		**15353**	**18.7%**	**1.01 [0.76, 1.33]**
Total events	153		75			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.04 (P = 0.97)						
1.1.2 Men aged ≥ 50 years						
ERSPC	364	82816	522	99183	33.9%	0.84 [0.73, 0.95]
Norrkoping	30	1494	130	7532	11.6%	1.16 [0.79, 1.72]
Subtotal (95% CI)		**84310**		**106715**	**45.5%**	**0.93 [0.69, 1.27]**
Total events	394		652			
Heterogeneity: Tau² = 0.03; Chi² = 2.45, df = 1 (P = 0.12); I² = 59%						
Test for overall effect: Z = 0.43 (P = 0.66)						
1.1.3 Men aged ≥ 55 years						
PLCO	98	38340	85	38345	17.5%	1.15 [0.86, 1.54]
Stockholm	53	2374	506	24772	18.3%	1.09 [0.83, 1.45]
Subtotal (95% CI)		**40714**		**63117**	**35.9%**	**1.12 [0.92, 1.37]**
Total events	151		591			
Heterogeneity: Tau² = 0.00; Chi² = 0.07, df = 1 (P = 0.79); I² = 0%						
Test for overall effect: Z = 1.12 (P = 0.26)						
Total (95% CI)		**156157**		**185185**	**100.0%**	**1.00 [0.86, 1.17]**
Total events	698		1318			
Heterogeneity: Tau² = 0.01; Chi² = 7.40, df = 4 (P = 0.12); I² = 46%						
Test for overall effect: Z = 0.01 (P = 0.99)						
Test for subgroup differences: Chi² = 1.06, df = 2 (P = 0.59), I² = 0%						



Prostate Cancer Screening All Cause Mortality

Figure 4. Forest plot of comparison: 1 Screening versus control, outcome: 1.5 All-cause mortality (subgroup analysis age).

Study or Subgroup	Screening Events	Screening Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
1.5.1 Men aged ≥ 50 years						
ERSPC	16737	82816	20026	99183	41.9%	1.00 [0.98, 1.02]
Norrkoping	69	1494	252	7532	1.8%	1.38 [1.06, 1.79]
Subtotal (95% CI)		**84310**		**106715**	**43.7%**	**1.14 [0.84, 1.56]**
Total events	16806		20278			
Heterogeneity: Tau² = 0.04; Chi² = 5.82, df = 1 (P = 0.02); I² = 83%						
Test for overall effect: Z = 0.85 (P = 0.40)						
1.5.2 Men aged ≥ 55 years						
PLCO	5041	38340	5184	38345	31.8%	0.97 [0.94, 1.01]
Stockholm	986	2374	10328	24772	24.5%	1.00 [0.95, 1.05]
Subtotal (95% CI)		**40714**		**63117**	**56.3%**	**0.98 [0.95, 1.01]**
Total events	6027		15512			
Heterogeneity: Tau² = 0.00; Chi² = 0.60, df = 1 (P = 0.44); I² = 0%						
Test for overall effect: Z = 1.31 (P = 0.19)						
Total (95% CI)		**125024**		**169832**	**100.0%**	**1.00 [0.96, 1.03]**
Total events	22833		35790			
Heterogeneity: Tau² = 0.00; Chi² = 7.99, df = 3 (P = 0.05); I² = 62%						
Test for overall effect: Z = 0.20 (P = 0.84)						
Test for subgroup differences: Chi² = 0.94, df = 1 (P = 0.33), I² = 0%						



1055 men needed to be invited to screening and 37 additional men subsequently diagnosed with prostate cancer needed to receive early intervention to prevent one additional prostate cancer death at a median follow-up duration of 11 years.

The known harms associated with screening (false-positives with PSA testing, complications associated with TRUS-guided biopsies, over diagnosis and treatment-related harms) suggest that any small mortality benefit of screening at 11 years would be challenged by the occurrence of these harms that occur early and may persist.

Men can get more incontinence and impotence from screening

For men who express an interest in prostate cancer testing, including those with risk factors such as family history of prostate cancer and African ethnicity, clinicians should adopt a shared, informed approach to decision-making.

Men should be informed of the lack of benefit to at least 10 years, and demonstrated adverse effects, when deciding whether or not to undertake screening for prostate cancer.

MORE

may sometimes be helpful

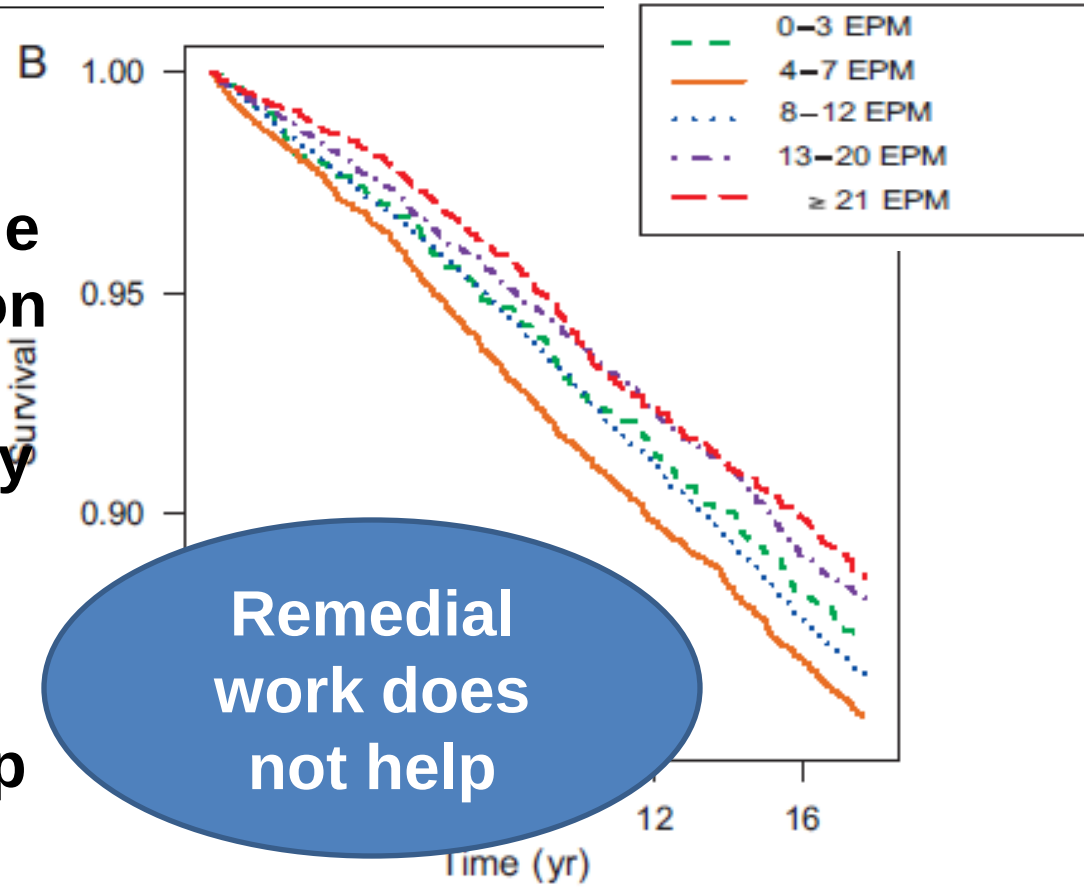
Ejaculation Frequency and Risk of Prostate Cancer: Updated Results with an Additional Decade of Follow-up

Jennifer R. Rider[a,b,1,*], *Kathryn M. Wilson*[a,c,1], *Jennifer A. Sinnott*[a,d], *Rachel S. Kelly*[c], *Lorelei A. Mucci*[a,c], *Edward L. Giovannucci*[a,c,e]

[a] *Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA, USA;* [b] *Department of Epidemiology, Boston University School of Public Health, Boston, MA, USA;* [c] *Channing Division of Network Medicine, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA;* [d] *Department of Biostatistics, Harvard T.H. Chan School of Public Health, Boston, MA, USA;* [e] *Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, MA, USA*

Conclusions: These findings provide additional evidence of a beneficial role of more frequent ejaculation throughout adult life in the etiology of PCa, particularly for low-risk disease.

The greatest sustained benefit was for the group 20-29 years



Remedial work does not help

LET US CONSIDER THE USE OF RESOURCES

Choosing Wisely Canada
presents itself as increased quality
and avoids saying anything about money
(Presumably to not be called rationing)

Saving money
is not
a dirty word

The Triple Aim: Care, Health, And Cost

The remaining barriers to integrated care are not technical; they are political.

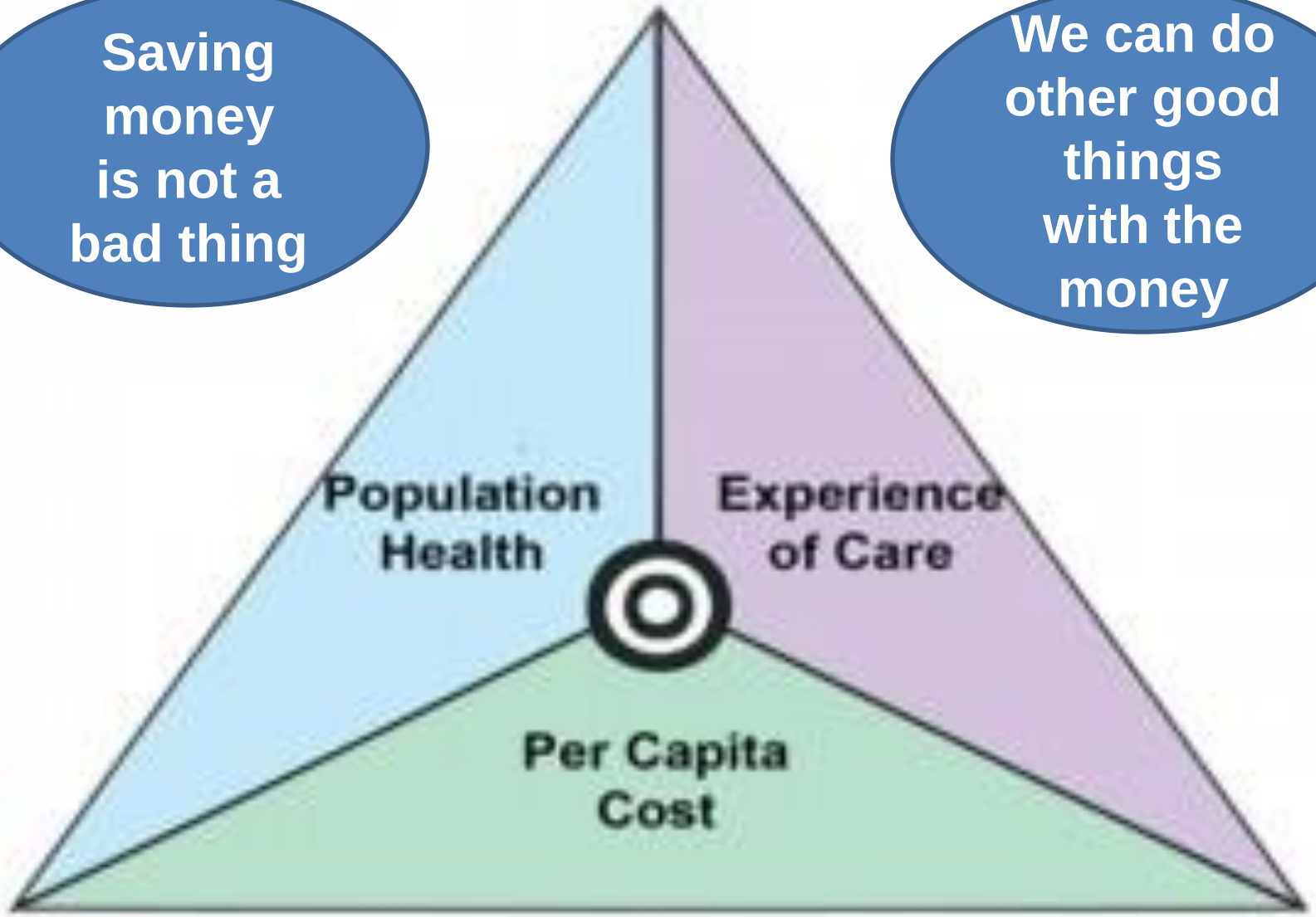
by Donald M. Berwick, Thomas W. Nolan, and John Whittington

ABSTRACT:
Improving the U.S. health care system requires simultaneous pursuit of three aims: improving the experience of care, improving the health of populations, and reducing per capita costs of health care.

Donald M. Berwick, Thomas W. Nolan and John Whittington
***Health Affairs* 27, no.3 (2008):759-769**
The Triple Aim: Care, Health, And Cost

Saving money is not a bad thing

We can do other good things with the money

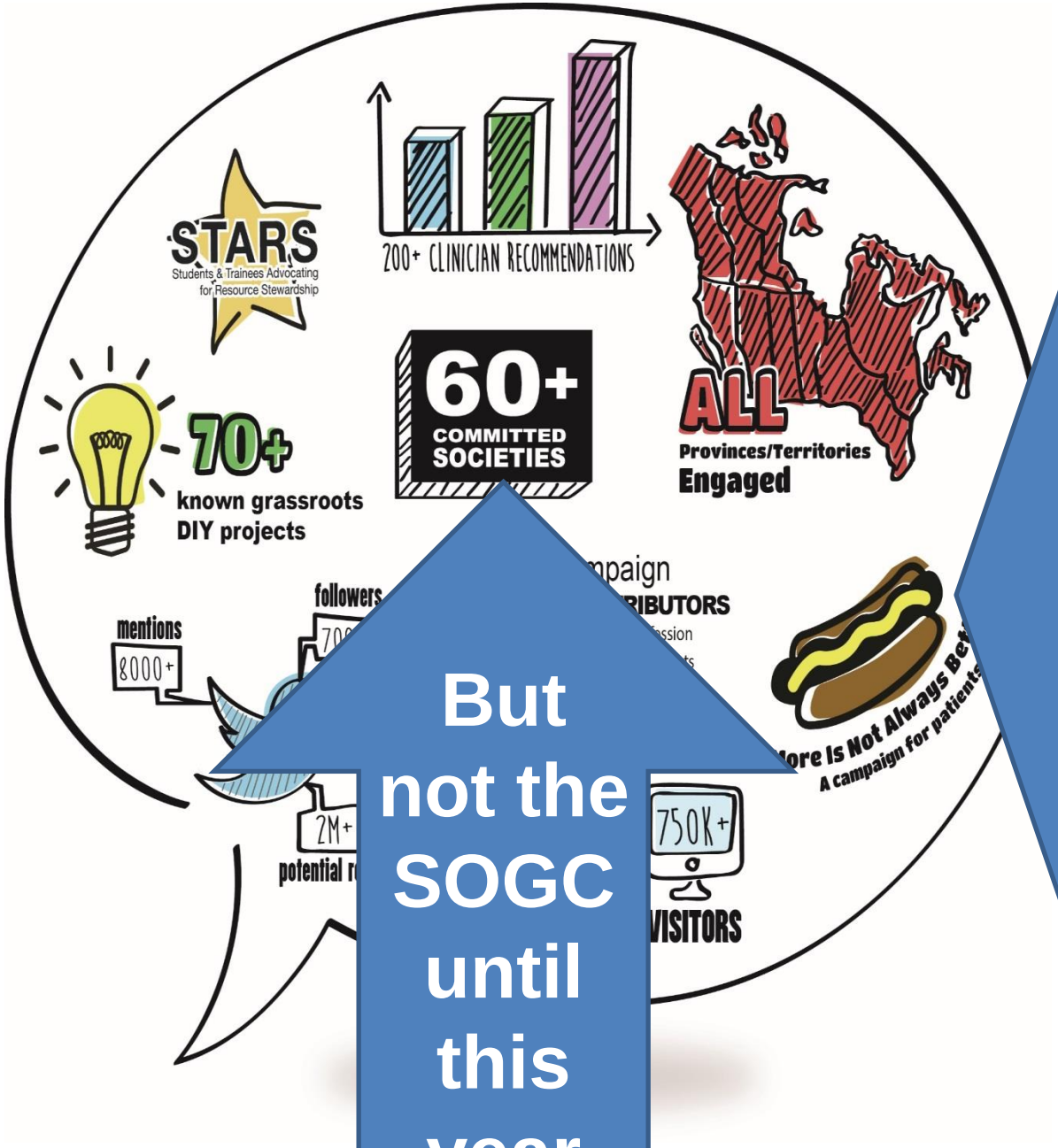


IHI Triple Aim

Choosing Wisely Canada

is a campaign to help clinicians and patients engage in conversations about unnecessary tests and treatments and make smart and effective choices to ensure high-quality care.

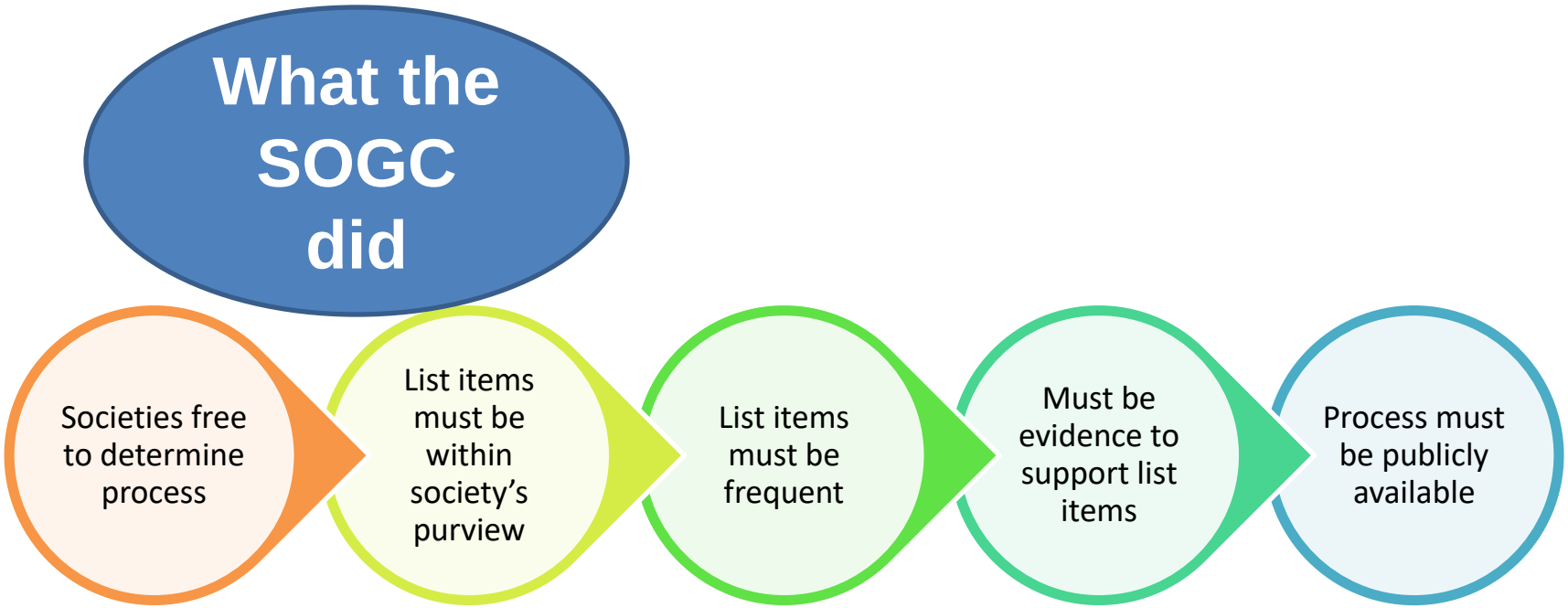
A campaign to help clinicians and patients engage in conversations about unnecessary tests and treatments.


STARS
Students & Trainees Advocating for Resource Stewardship
200+ CLINICIAN RECOMMENDATIONS
60+
COMMITTED SOCIETIES
ALL
Provinces/Territories
Engaged
70+
known grassroots
DIY projects
mentions
8000+
followers
2M+
potential
750K+
VISITORS
But not the SOGC until this year
This will be essential
"A good doctor would …"

Common process for list development

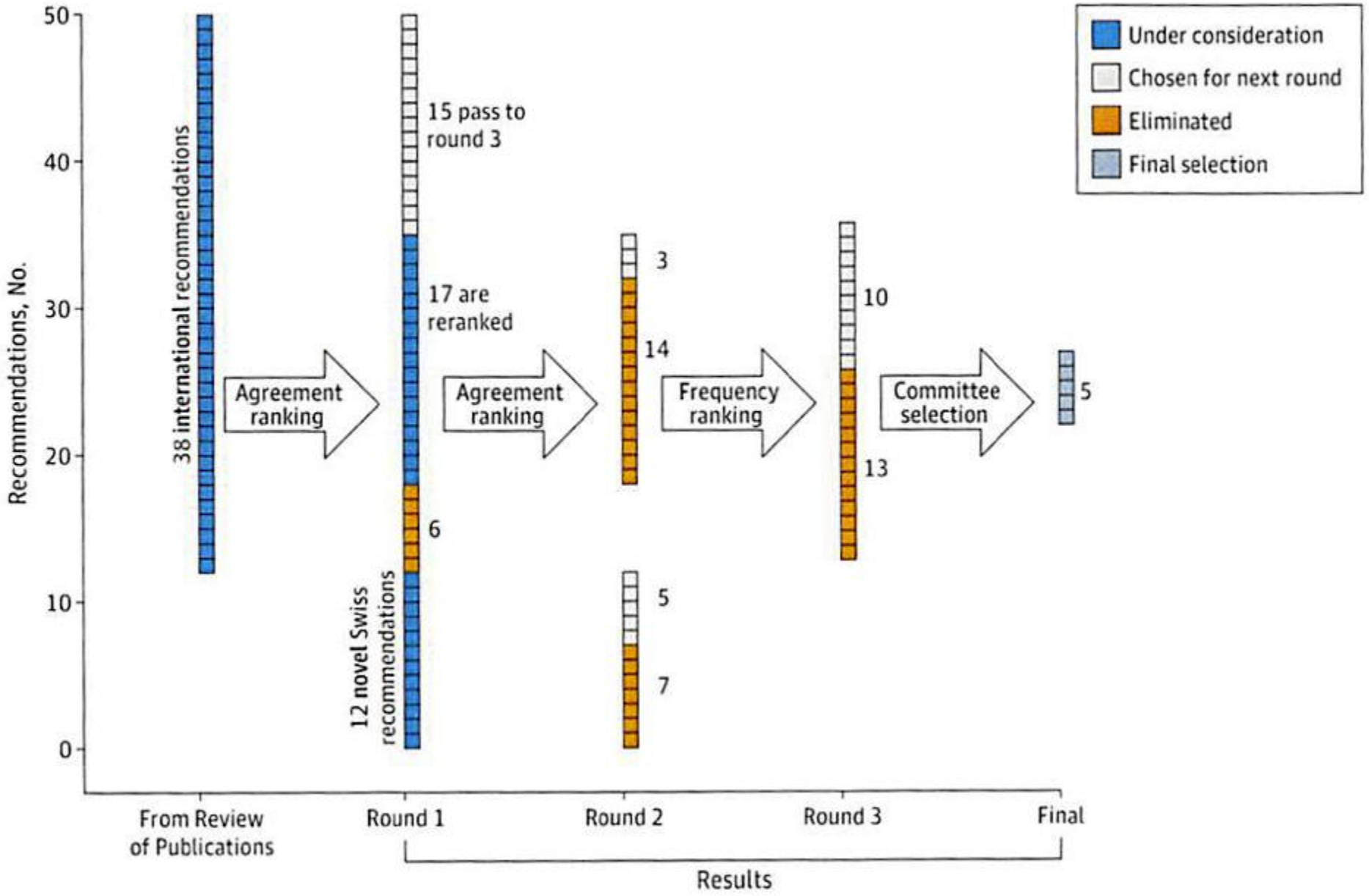
- Form task force
- Review evidence
- Look at US Choosing Wisely list (if available)
- Compile list of recommendations (10 – 15)
- Narrow down to 5 by small group discussion or by sending to members to vote on
- Choosing Wisely Canada central can help with literature review where needed
- Development process usually takes 4 - 6 months

Operating principles for Top 5 lists



We took items, mostly from our Guidelines which we might not do.
We asked our members, both on line and at Regional meetings

Figure. Flowchart of Recommendations Through the Delphi Process



What do we wanted from you?

QUESTIONNAIRE CHOOSING WISELY

FLUID SURVEY OR THIS BALLOT

There is a questionnaire at your place at this lecture.
There is an on-line survey at the SOGC booth at this meeting and the survey has been sent to all members

Indicate your top 5 choices

Please do NOT fill in the survey if you have already completed the survey on line

Please pick things to consider NOT doing that are:

- **Supported by evidence**
- **Meaningful to stop doing**
- **Measurable**

OBSTETRICS 13 Candidates

- **Do not perform umbilical artery Doppler studies as a routine screening test in uncomplicated pregnancies. (I-E)**
- **Do not perform routine comprehensive third trimester ultrasound examination (including biophysical profile, fetal biometry, amniotic fluid volume, and umbilical artery Doppler studies) in women without risk factors for intrauterine growth restriction. (II-2D)**
- **Do not induce labour solely for suspected fetal macrosomia. (III-D)**
- **Do not do an “ Admission strip" for patients presenting at the labour ward**
- **Do not do electronic fetal monitoring for low risk women in labour; use intermittent auscultation**
- **Do not perform routine transvaginal cervical length assessment in women at low risk. (II-2E)**

- **Do not perform routine urinalysis (protein, glucose) at every antenatal visit.**
- **Do not prescribe progesterone (from the time of a positive pregnancy test) for recurrent abortion.**
- **Do not use meperidine for labour analgesia due to its long-acting active metabolites and negative effects on neonatal behaviours. (II-2B)**
- **Do not use routine episiotomy in spontaneous vaginal births. (I-A)**
- **Do not diagnose dystocia prior to the onset of the active phase of the first stage of labour or before the cervix is at least 4 cm dilated. (II-2D)**
- **Do not give an IV bolus of oxytocin as active management of the third stage**
- **Do not diagnose failure to progress at less than 6 cm**

GYNAECOLOGY 9 Candidates

- **Do not give prophylactic antibiotics for laparoscopic procedures that do not create access to the abdominal cavity from the uterine cavity or vagina. (I-E)**
- **Do not offer hysterectomy to women with asymptomatic fibroids on the basis of risk malignancy. (III-D)**
- **Do not give antibiotic prophylaxis for hysteroscopic surgery. (II-2D)**
- **Do not routinely order hormone levels including estradiol, progesterone FSH and LH in postmenopausal women or after a hysterectomy, either to diagnose menopause or to manage hormone therapy (NICE)**

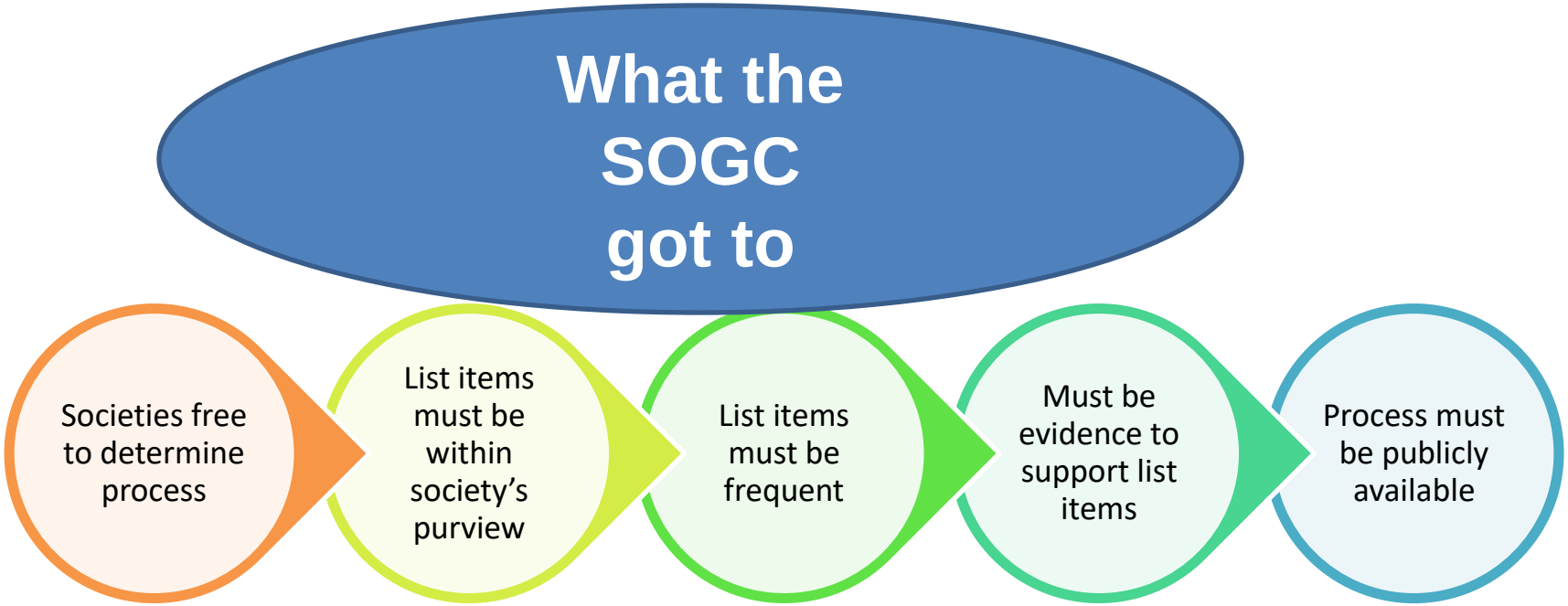
- **Do not do any surgical intervention, including ablation, for abnormal uterine bleeding until medical management (including the progesterone intra-uterine system) has been offered and either declined or found unsuccessful.**
- **Do not give antibiotic prophylaxis for insertion of an intrauterine device. (I-E)**
- **Do not screen for ovarian cancer in asymptomatic women at average risk.**
- **Do not routinely screen women with Pap smears if under 21 years of age or over 69 years of age.**
- **Do not perform thyroid function tests unless there are clinical findings suggestive of thyroid disease, when investigating abnormal uterine bleeding. (II-2D)**

GENERALIST

- **Do not transfuse patients based solely on an arbitrary hemoglobin threshold.**
- **Do not transfuse more than one red cell unit at a time when transfusion is required in stable, non-bleeding patients.**

Thank you!

Operating principles for Top 5 lists



Recommendations
OBSTETRICS
Do not use routine episiotomy in spontaneous vaginal births. (I-A)
Do not do electronic fetal monitoring for low risk women in labour; use intermittent auscultation
Do not perform routine urinalysis (protein, glucose) at every antenatal visit (in low risk normotensive women)
Do not perform umbilical artery Doppler studies as a routine screening test in uncomplicated pregnancies with normal fetal growth. (I-E)
Do not use meperidine for labour analgesia due to its long-acting active metabolites and negative effects on neonatal behaviours. (II-2B)

Do not routinely screen women with Pap smears if under 21 years of age or over 69 years of age.

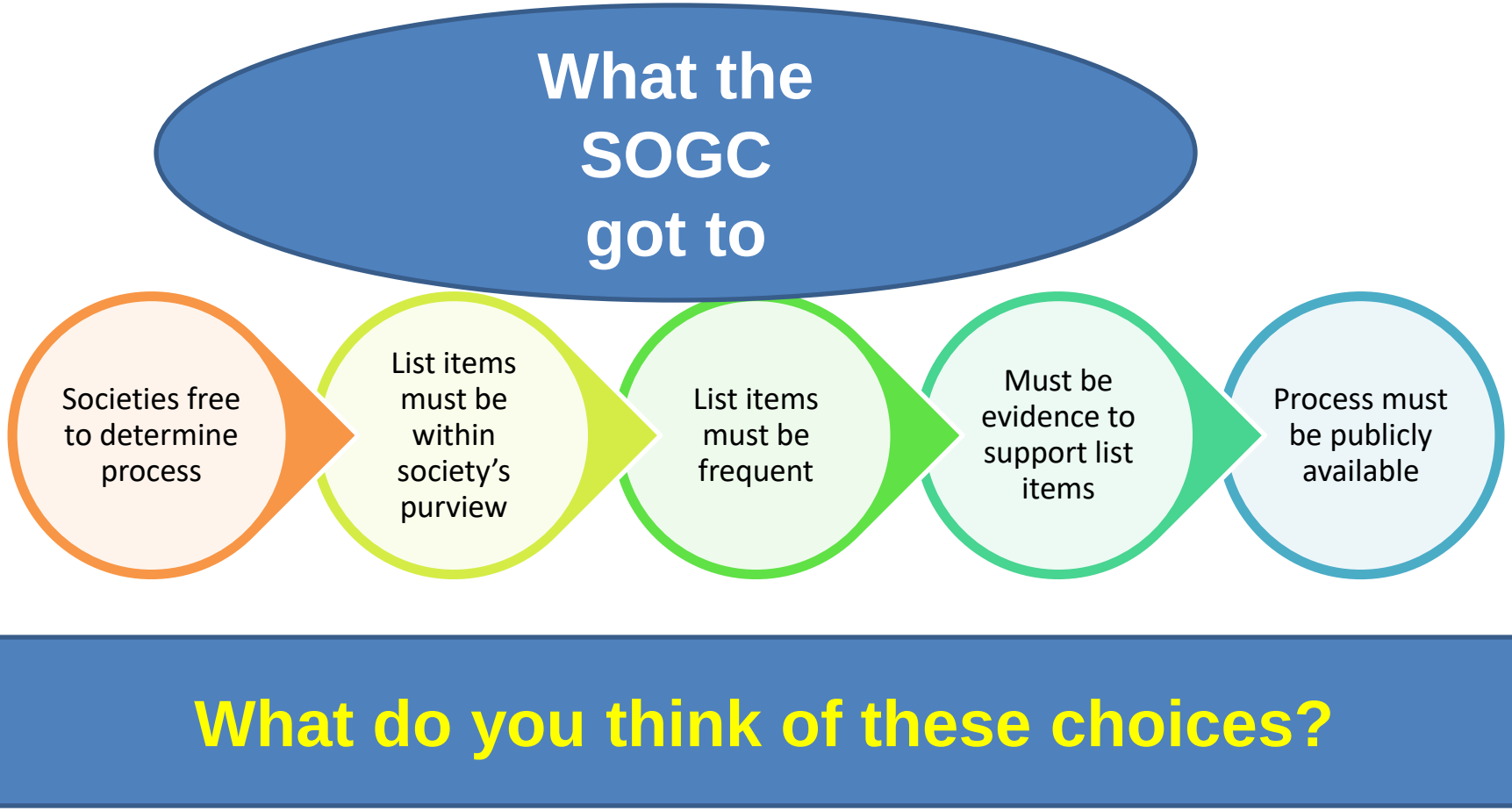
Do not routinely order hormone levels including estradiol, progesterone FSH and LH in postmenopausal women or after a hysterectomy, either to diagnose menopause or to manage hormone therapy (NICE)

Do not screen for ovarian cancer in asymptomatic women at average risk.

Do not offer hysterectomy to women with asymptomatic fibroids on the basis of risk malignancy. (III-D)

Do not do any surgical intervention, including ablation, for abnormal uterine bleeding until medical management (including the progesterone intra-uterine system) has been offered and either declined or found unsuccessful.

Operating principles for Top 5 lists



What do you think of these choices?

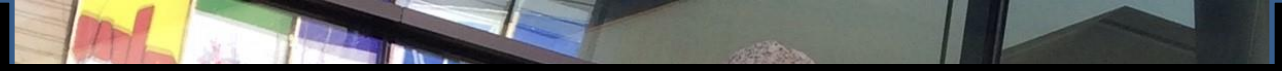
What it lies in our power to do, it lies in our power not to do.

Aristotle
384-322 BC

"Our goal must be to do much for the patient . . . and as little as possible *to* the patient."

-- Bernard Lown, MD
Cardiologist, inventor of the cardiac defibrillator, Nobel laureate

LOWN INSTITUTE



Don't just do something,

stand there

Inukshuk

It stands there and gives good information

The Elegant Minimum