



**Stadt Zürich**  
Stadtspital Triemli

# Wie gefährlich ist eine Schwangerschaft? Geburtshilfliche Risiken

Zürich, 21. Juni 2018

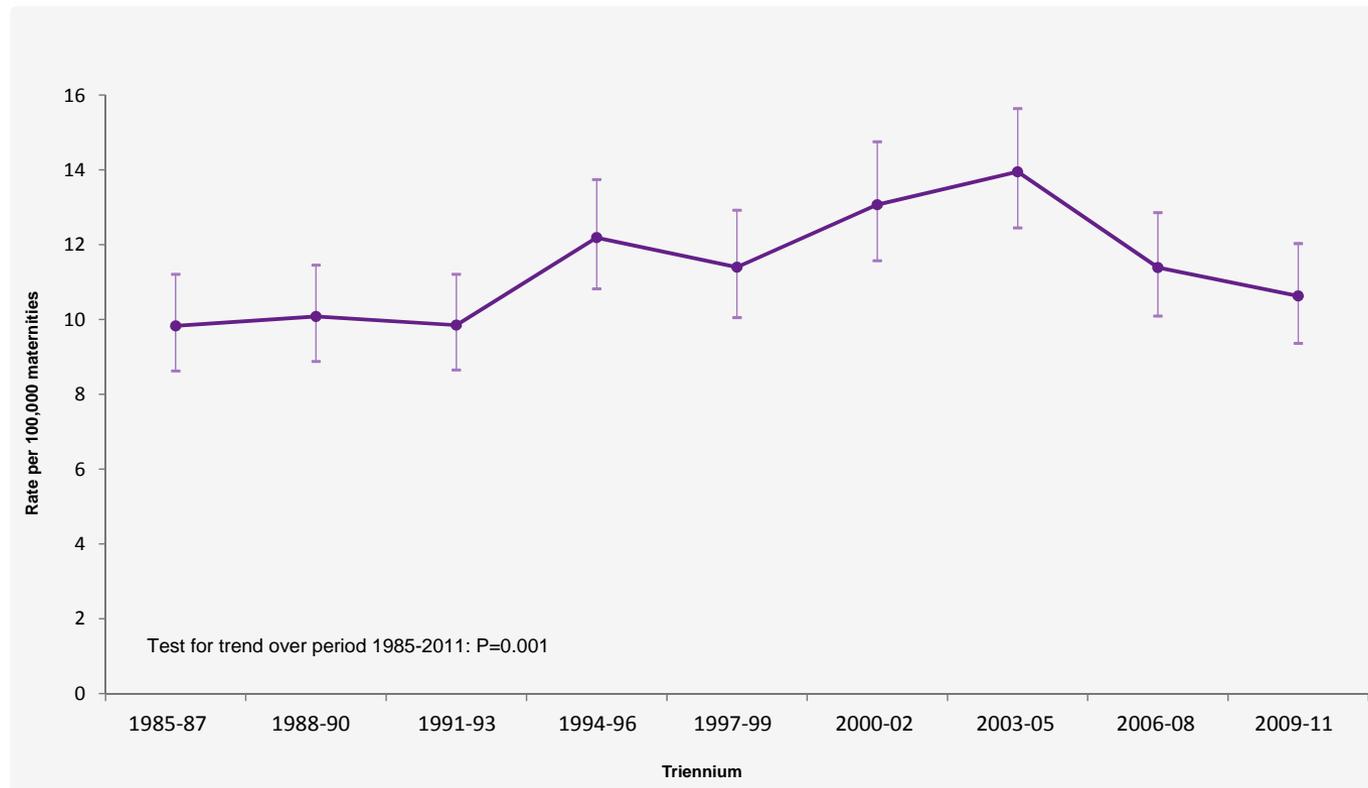


from  11 to  10 per 100,000 women

Dezember 2014  
2009-2012

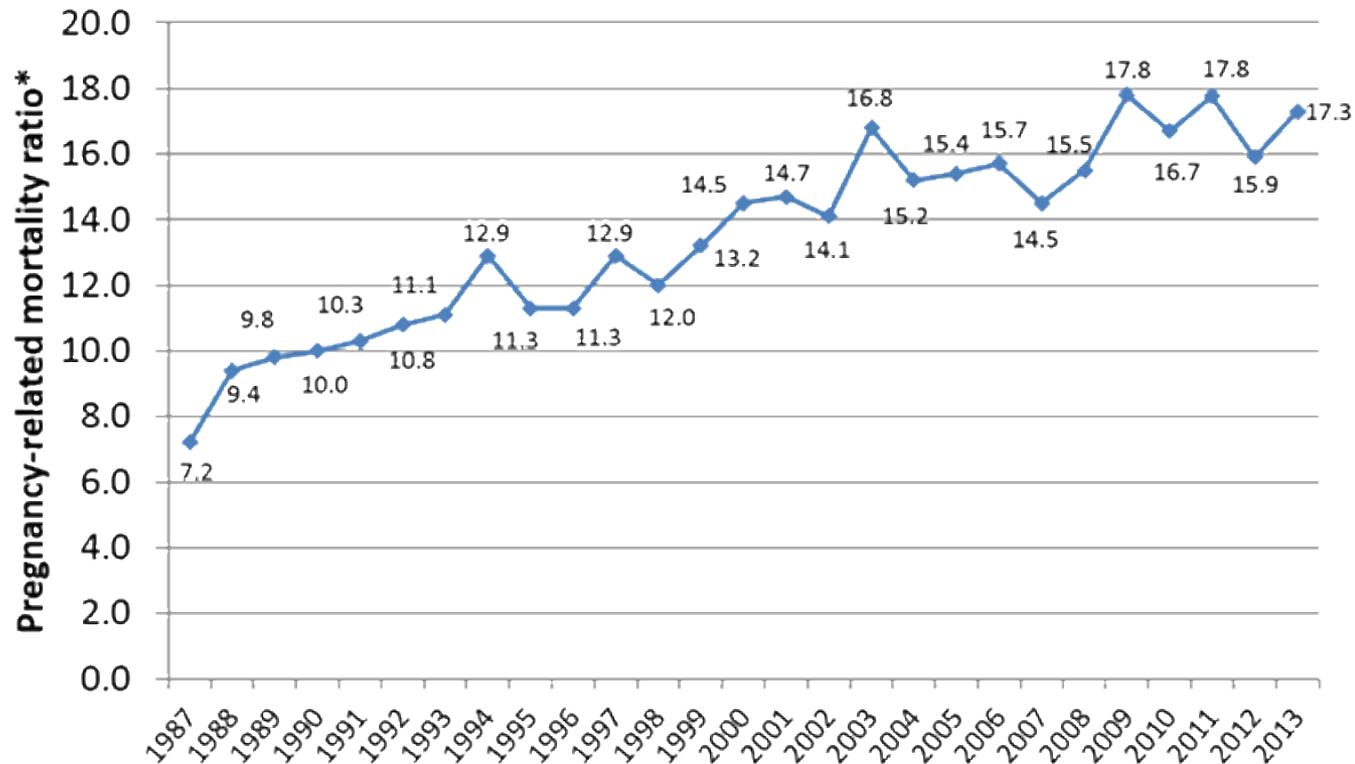
**Saving Lives, Improving Mothers' Care**  
**Lessons learned to inform future maternity care**  
**from the UK and Ireland Confidential Enquiries into**  
**Maternal Deaths and Morbidity 2009-2012**

Figure 2.2: *Direct and Indirect* maternal mortality rates per 100,000 maternities; UK: 1985–2011



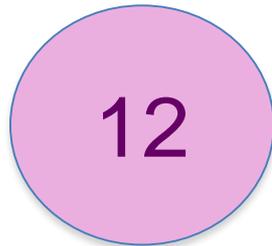
Source: CMACE, MBRRACE-UK

## Trends in pregnancy-related mortality in the United States: 1987–2013



\*Note: Number of pregnancy-related deaths per 100,000 live births per year.

from **11** (2006-08) to **10** (2010-12) per 100,000 women



USA 2013



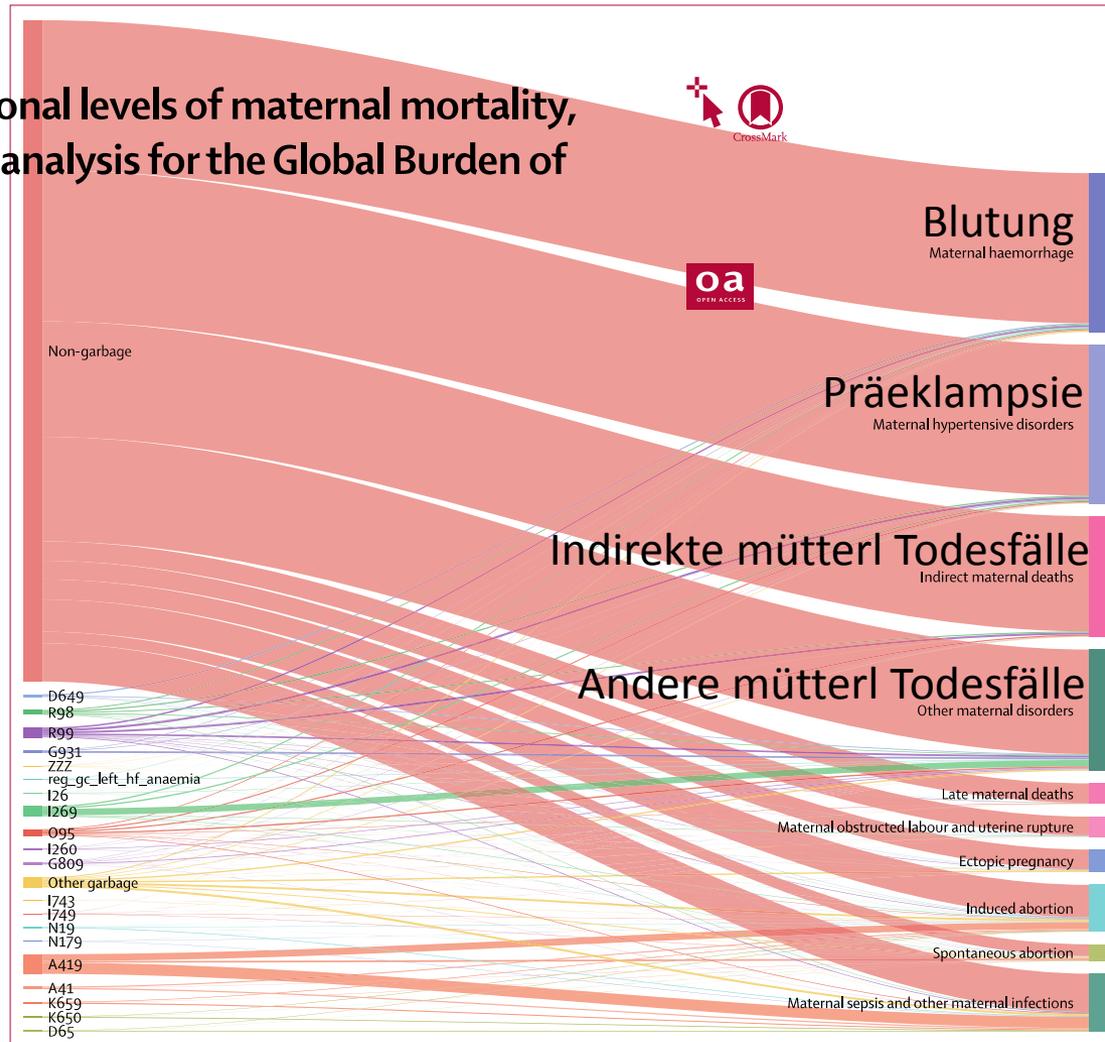
Frankreich



Schweiz

# Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015

GBD 2015 Maternal Mortality Collaborators\*



**Figure 2: ICD-10 vital registration redistribution pattern from cause-specific and garbage codes to maternal-mortality specific GBD causes, global, all years combined**  
 The list of causes on the left are raw ICD-10 cause codes according to death certification data sources and those on the right are the final target aetiologies for maternal mortality. The height of each bar is proportional to the number of deaths in each category. The colours are for ease of visualisation. Redistribution categories: A41=other sepsis; A419=sepsis, unspecified organism; D649=anaemia, unspecified; D65=disseminated intravascular coagulation; G809=cerebral palsy, unspecified; G931=anoxic brain damage, not elsewhere classified; I26=pulmonary embolism; I269=pulmonary embolism without acute cor pulmonale; I743=embolism and thrombosis of arteries of the lower extremities; I749=embolism and thrombosis of unspecified artery; K650=generalised (acute) peritonitis; K659=peritonitis, unspecified; N179=acute kidney failure, unspecified; N19=unspecified kidney failure; O95=obstetric death of unspecified cause; R98=unattended death; R99=ill-defined and unknown cause of mortality; ZZZ=causes violating age/sex limitations); reg\_gc\_left\_hf\_anaemia=anaemia due to left heart failure; other garbage=all other garbage codes. ICD-10=International Classification of Diseases 10. GBD=Global Burden of Disease.

EUG  
 Interruptio  
 Abort  
 Sepsis

	Number of maternal deaths			Maternal mortality ratio (per 100 000 livebirths)			Annualised rate of change in maternal mortality ratio (%)		
	1990	2000	2015	1990	2000	2015	1990–2000	2000–15	1990–2015
<i>(Continued from previous page)</i>									
USA	674 (644 to 711)	700 (666 to 735)	1063 (988 to 1145)	16.9 (16.2 to 17.8)	17.5 (16.6 to 18.3)	26.4 (24.6 to 28.4)	0.3 (-0.2 to 0.8)	2.7 (2.2 to 3.4)	1.8 (1.4 to 2.1)
Central African Republic	1083 (813 to 1 450)	1496 (460 to 3 269)	1763 (351 to 4693)	893.5 (671.0 to 1195.7)	1024.2 (314.9 to 2233.9)	1074.3 (214.7 to 2856.6)	0.2 (-9.7 to 9.3)	-0.4 (-8.9 to 8.6)	0.1 (-5.5 to 4.9)
Germany	167 (151 to 187)	85 (76 to 94)	62 (54 to 70)	20.2 (18.2 to 22.6)	11.3 (10.2 to 12.6)	9.0 (7.9 to 10.3)	-5.8* (-7.1 to -4.5)	-1.5 (-2.6 to -0.4)	-3.2 (-3.9 to -2.6)
Afghanistan	4590 (2825 to 7111)	7328 (4529 to 11 007)	8525 (5010 to 13 221)	732.3 (451.0 to 1130.9)	753.3 (466.5 to 1130.7)	788.9 (464.1 to 1219.2)	0.4 (-4.8 to 5.0)	0.3 (-3.6 to 3.8)	0.3 (-2.1 to 2.7)

Organisation  
Save the Children

"State of the World's Mothers  
Report"

2014 Schweiz Rang 13

2002 Schweiz Rang 1

von 178

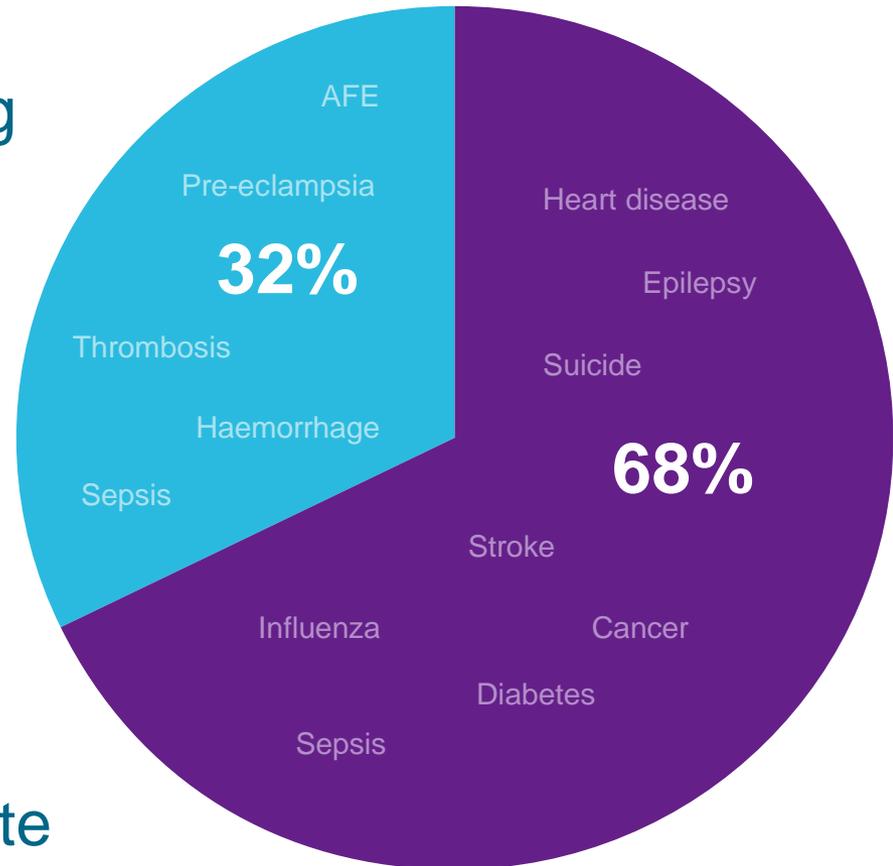
## 2015 Mothers' Index Rankings

RANK	COUNTRY	RANK	COUNTRY	RANK	COUNTRY	RANK	COUNTRY
1	Norway	46	Malta	91	Namibia	136	Tanzania, United Republic of
2	Finland	47	United Arab Emirates	*92	Jamaica	137	Kiribati
3	Iceland	48	Chile	*92	Maldives	138	Kenya
4	Denmark	49	Bahrain	*92	Sri Lanka	139	Zambia
5	Sweden	50	Libya	95	Dominican Republic	140	India
6	Netherlands	51	Hungary	96	Fiji	141	Uganda
7	Spain	52	Barbados	97	Mongolia	142	Swaziland
8	Germany	53	Mexico	98	Vietnam	143	Solomon Islands
9	Australia	54	Bosnia and Herzegovina	99	Turkmenistan	144	Mozambique
10	Belgium	55	Qatar	*100	Iraq	145	Cameroon
11	Austria	*56	Russian Federation	*100	Jordan	146	Sudan
12	Italy	*56	Uruguay	102	Nicaragua	147	Burundi
13	Switzerland	58	Kazakhstan	103	Armenia	148	Congo
14	Singapore	59	Tunisia	104	Tonga	149	Pakistan
15	Slovenia	60	Kuwait	105	Philippines	150	Mauritania
16	Portugal	*61	China	106	Timor-Leste	151	Ethiopia
17	New Zealand	*61	Ecuador	107	Kyrgyzstan	*152	Afghanistan
18	Israel	63	Oman	108	Suriname	*152	Iogo
19	Greece	64	Bahamas	109	Honduras	154	Ghana
20	Canada	65	Turkey	110	Paraguay	155	Madagascar
21	Luxembourg	66	Romania	111	Syrian Arab Republic	156	Eritrea
22	Ireland	67	Trinidad and Tobago	112	Indonesia	157	Papua New Guinea
23	France	68	Saint Lucia	113	Guyana	158	Myanmar
24	United Kingdom	69	Ukraine	114	Nepal	*159	Malawi
*25	Belarus	70	Mauritius	115	Gabon	*159	South Sudan
*25	Czech Republic	71	Malaysia	116	Egypt	161	Djibouti
27	Estonia	72	South Africa	117	Samoa	162	Yemen
*28	Lithuania	73	Lebanon	118	Uzbekistan	163	Benin
*28	Poland	74	Venezuela, Bolivarian Republic of	119	Botswana	164	Guinea
*30	Croatia	75	Colombia	120	Angola	165	Comoros
*30	Korea, Republic of	76	Algeria	121	Rwanda	*166	Burkina Faso
32	Japan	77	Brazil	122	Bhutan	*166	Liberia
33	United States of America	78	Panama	123	Equatorial Guinea	*166	Nigeria
34	Slovakia	79	Peru	124	Senegal	*169	Haiti
35	Serbia	80	El Salvador	*125	Morocco	*169	Sierra Leone
36	Argentina	81	Moldova, Republic of	*125	Vanuatu	171	Guinea-Bissau
37	TiFR Macedonia	82	Albania	127	Tajikistan	172	Chad
38	Saudi Arabia	83	Thailand	128	Lao People's Democratic Republic	173	Côte d'Ivoire
39	Cyprus	84	Iran, Islamic Republic of	129	Guatemala	174	Gambia
*40	Cuba	85	Cape Verde	*130	Bangladesh	175	Niger
*40	Latvia	*86	Georgia	*130	Sao Tome and Principe	176	Mal
42	Montenegro	*86	Saint Vincent and the Grenadines	132	Cambodia	177	Central African Republic
43	Grenada	*88	Belize	*133	Lesotho	178	Congo, Democratic Republic of the
44	Bulgaria	*88	Bolivia, Plurinational State of	*133	Zimbabwe	179	Somalia
45	Costa Rica	90	Azerbaijan	135	Micronesia, Federated States of		

\* Countries are tied

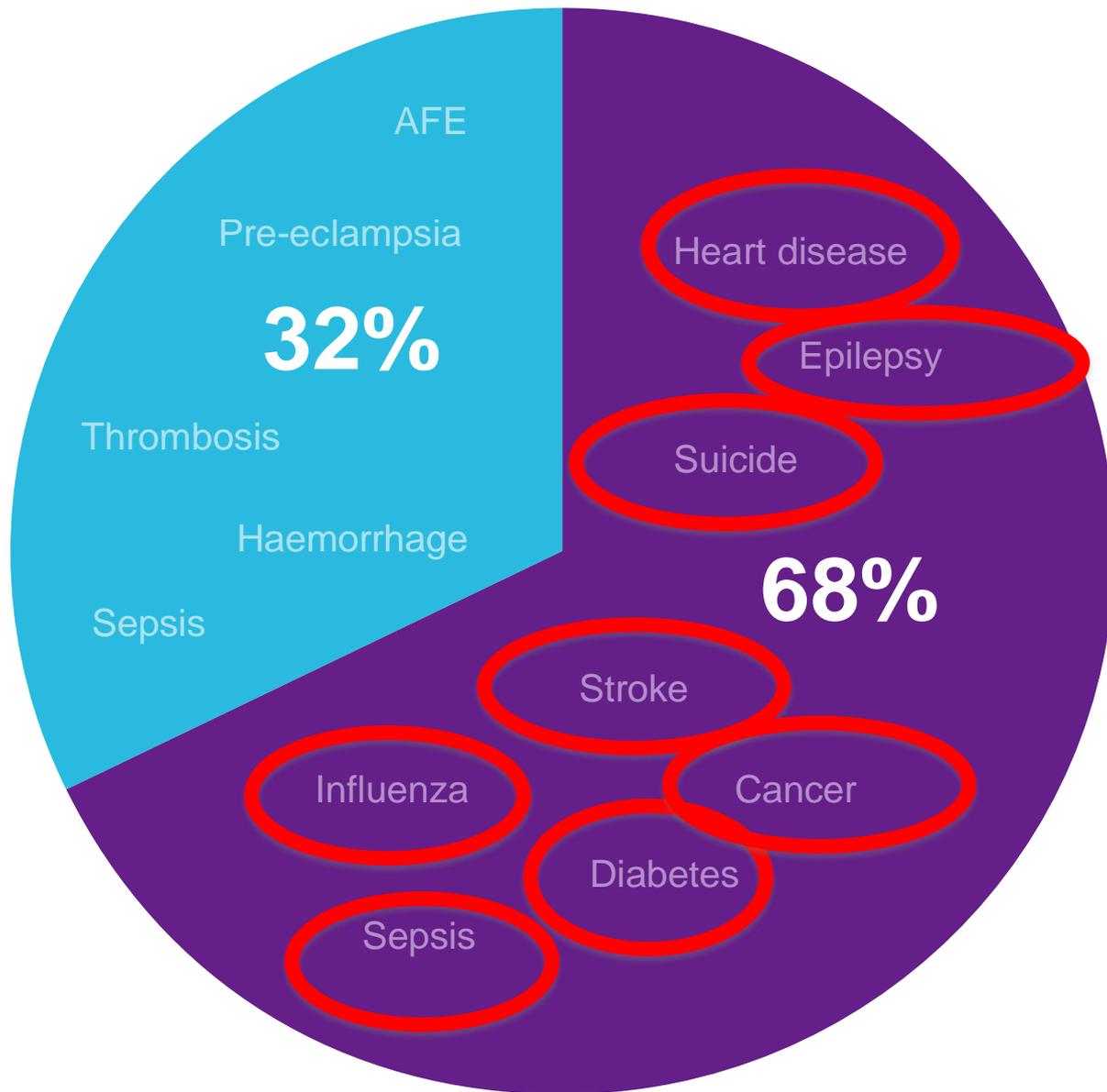
- 2/3

internistische oder  
psychiatrische Erkrankung  
3/4 schon vorher erkrankt



- 1/3

schwangerschaftsassoziierte  
Erkrankung

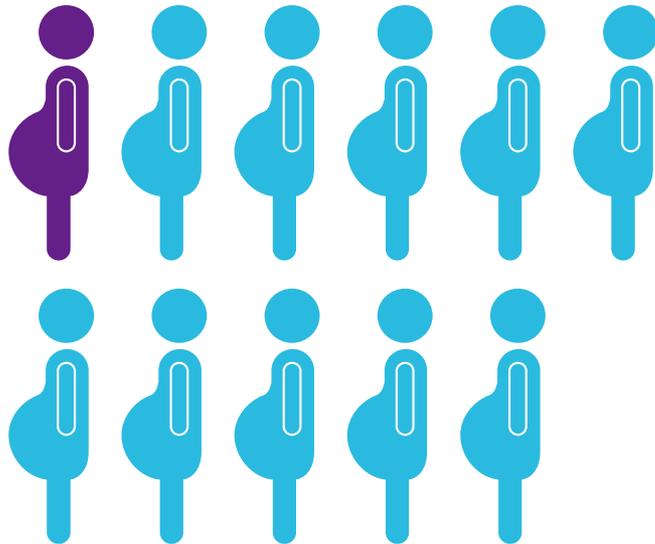


# Unsere Probleme

- Sepsis
- Influenza
- Migrantinnen
- Alter der Mutter
- **BMI >35**
- Kardiovaskuläre Erkrankungen

# Influenza

## Prevent Flu

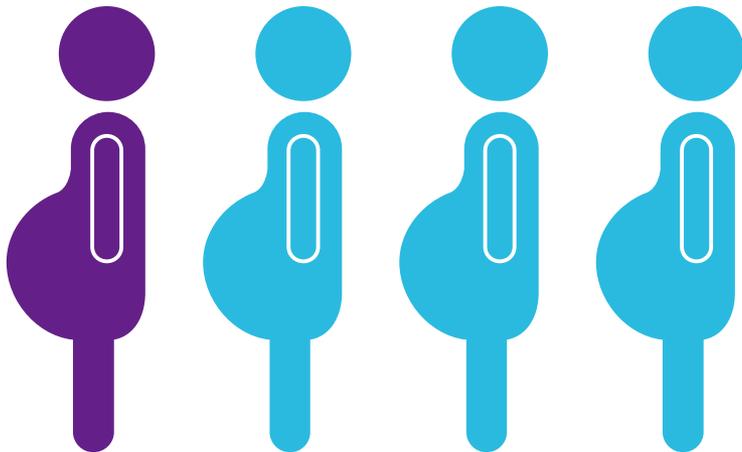


- ✓ 1 von 11 Todesfälle
- ✓ Mit der Impfung kann die Hälfte der Todesfälle verhindert werden
- ✓ BAG Empfehlung Nov bis März Impfung der Schwangeren gegen Grippe

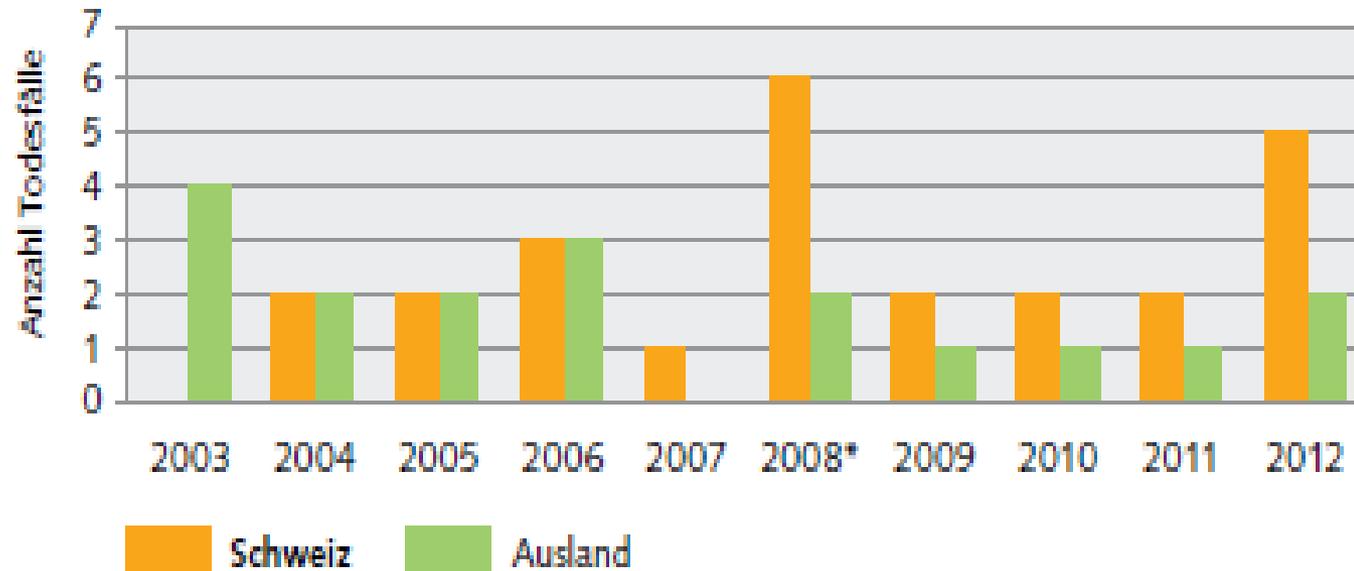
# Sepsis

- 1 von 4 Todesfällen
- Frühe Diagnose
- Frühe i.v. AB-Therapie
- Hinzuziehen von Experten

## Think Sepsis



## Mütterliche Todesfälle nach Nationalität, 2003–2012 G 10

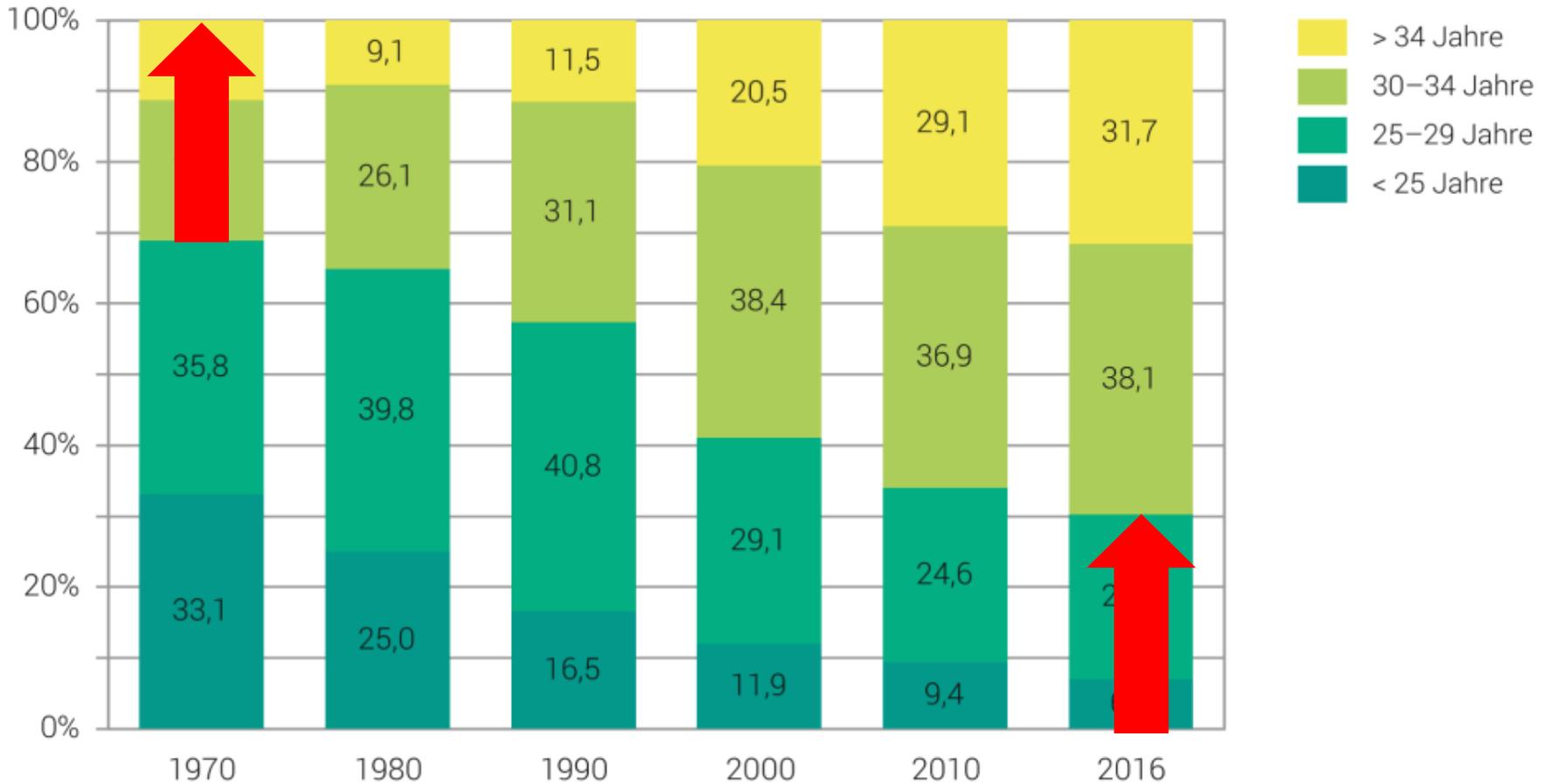


\* 2008: Darunter ein Todesfall einer Ausländerin, der mehr als 42 Tagen nach der Entbindung erfolgte.

Quelle: BFS – Todesursachenstatistik

© BFS, Neuchâtel 2014

# Lebendgeburten nach Alter der Mutter



Quelle: BFS – BEVNAT

© BFS, Neuchâtel 2017

# Risk of Adverse Pregnancy Outcomes at Advanced Maternal Age

Line Elmerdahl Frederiksen, MSc, Andreas Ernst, MD, Nis Brix, MD, Lea Lykke Braskhøj Lauridsen, BSc, Laura Ross, MD, Cæilia Høst Ramlau-Hansen, MSc, PhD, and Charlotte Kvist Ekdund, MD, PhD

Table 4. Risk of Adverse Pregnancy Outcomes, by Maternal Age Group, 2008–2014 (N= 369,516)

Outcome	Crude OR (99.8% CI)			Adjusted OR* (99.8% CI)	
	20–34 (reference)	35–39	40 or older	35–39	40 or older
Maternal age group (y)	20–34 (reference)	35–39	40 or older	35–39	40 or older
Chromosomal abnormalities <sup>†</sup>	1.0	2.40 (2.09–2.74)	7.13 (6.95–8.53)	2.50 (2.10–2.97)	7.44 (5.93–9.34)
Congenital malformations	1.0	1.05 (0.97–1.13)	1.19 (1.01–1.40)	1.02 (0.92–1.12)	1.18 (0.97–1.44)
Miscarriage	1.0	2.30 (1.96–2.70)	4.05 (3.11–5.27)	1.90 (1.54–2.34)	3.10 (2.19–4.38)
Stillbirth	1.0	1.24 (0.97–1.59)	1.59 (1.02–2.56)	1.43 (1.05–1.96)	1.47 (0.76–2.84)
Birth before 34 wk of gestation	1.0	1.12 (0.99–1.27)	1.67 (1.32–2.12)	1.25 (1.06–1.46)	1.66 (1.23–2.24)
Composite outcome	1.0	1.30 (1.23–1.37)	2.10 (1.89–2.33)	1.29 (1.20–1.38)	2.02 (1.78–2.29)

OR, odds ratio.

\* Adjusted for body mass index, ethnicity, parity, smoking, and use of assisted reproductive technology.

<sup>†</sup> Additionally adjusted for previous pregnancies with trisomy 21, trisomy 18, trisomy 13, or Turner syndrome.

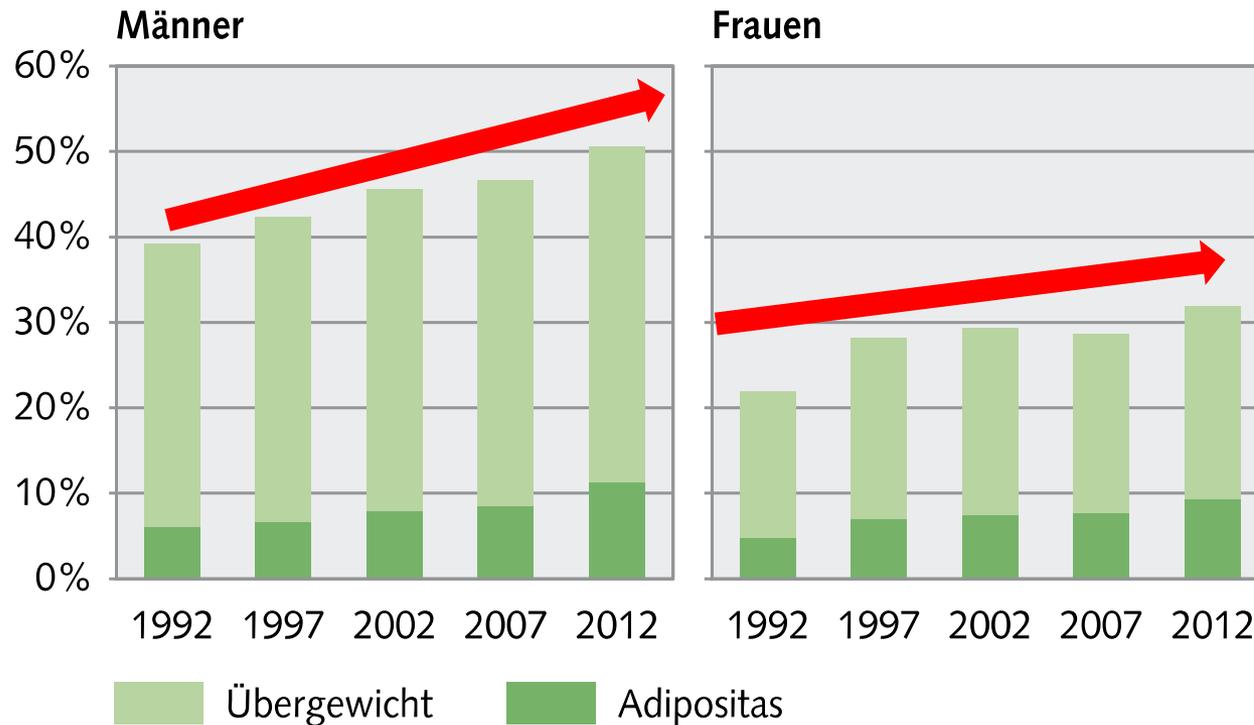
**Aber auch: Zunahme an internistischen Erkrankungen**

# Adipositas und Bariatrie



# Übergewicht und Adipositas, 1992–2012

G 1

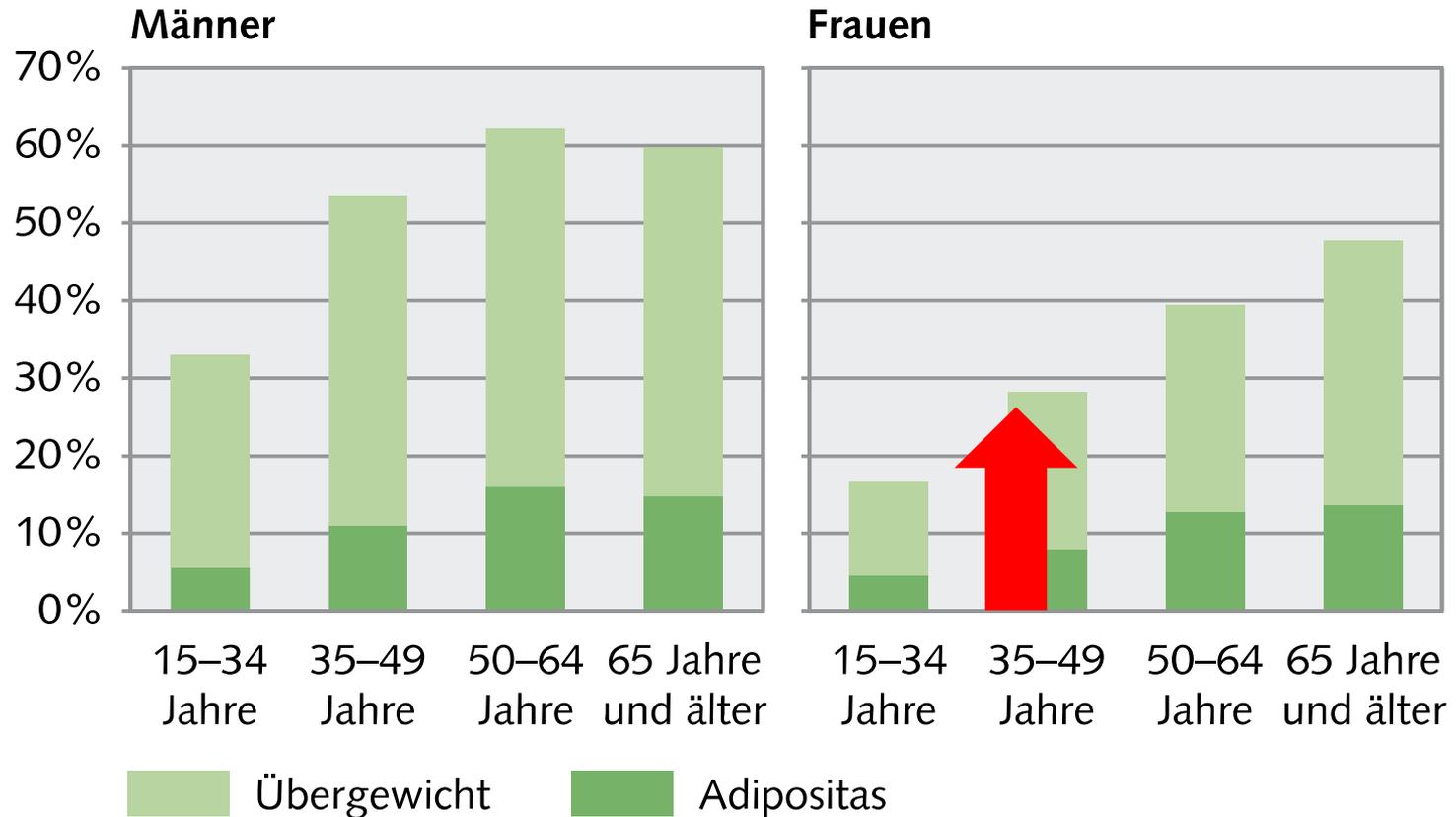


Quelle: BFS – SGB

© BFS, Neuchâtel 2014

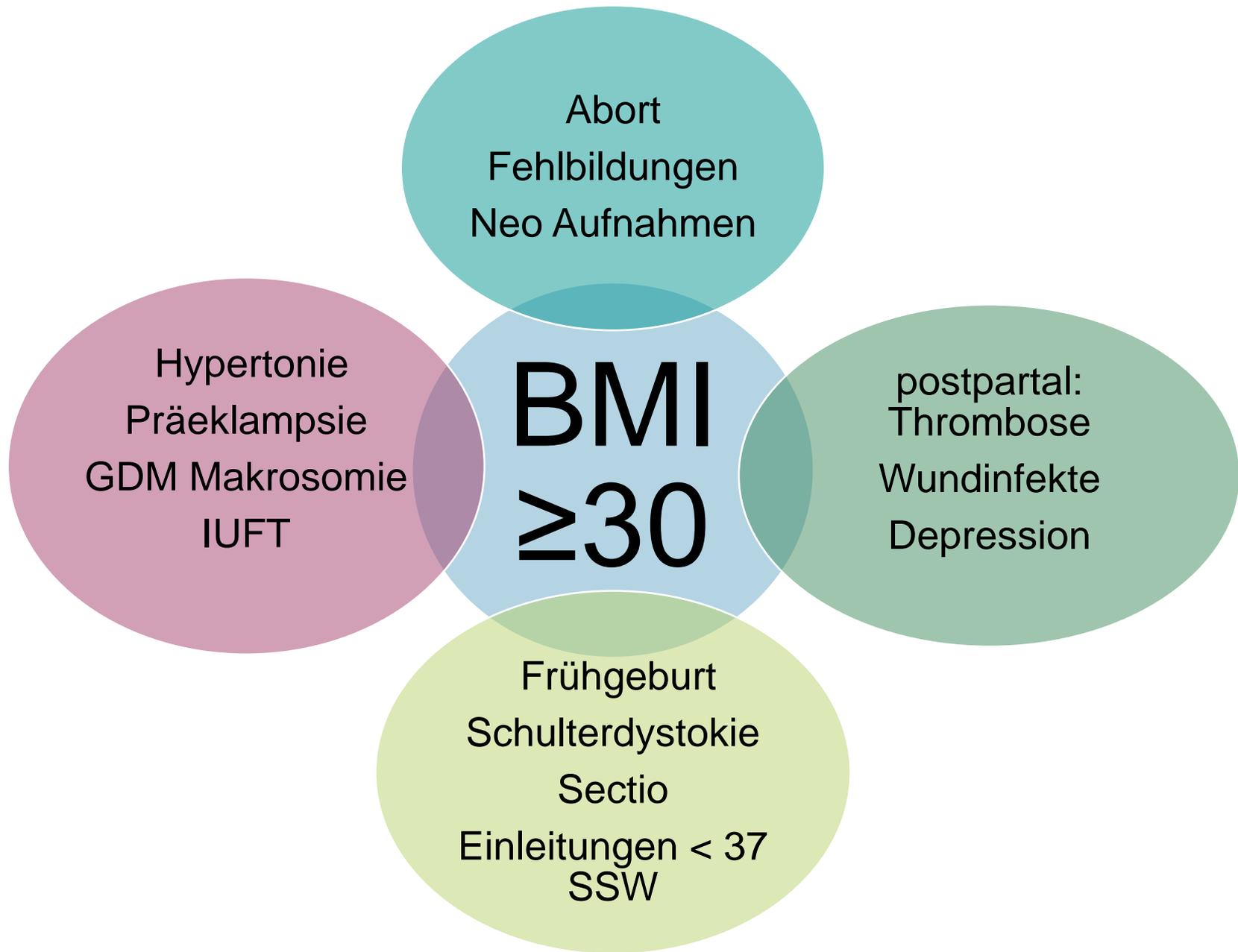
# Übergewicht und Adipositas nach Alter, 2012

G 2



Quelle: BFS – SGB

© BFS, Neuchâtel 2014



## The Influence of Maternal Obesity on Pregnancy Complications and Neonatal Outcomes in Diabetic and Nondiabetic Women

[Burcu Budak Timur](#), [Hakan Timur](#), [Aytekin Tokmak](#), [Hatice Isik](#), and [Elif Gul Yapar Eyi](#)

**BMI 25-30**

**x 2-6**

**BMI > 30**

**x 20**

**BMI > 35**

**noch höher**

**IUFT** erhöht bei hohen Insulindosen oder bei schlechter Glukosekontrolle

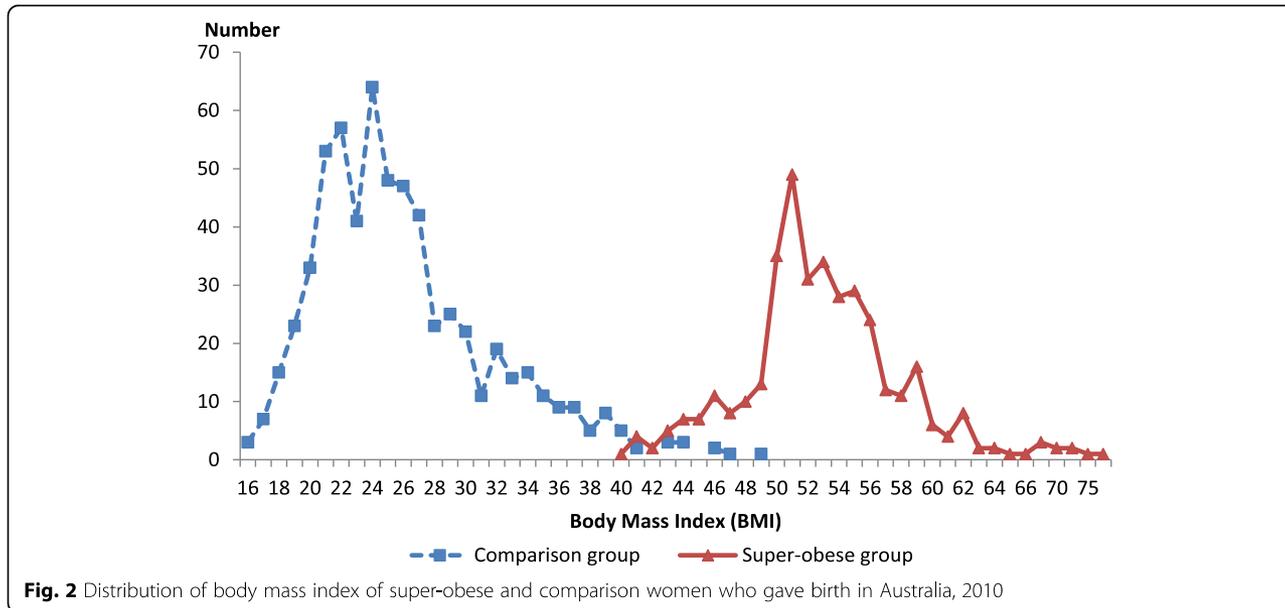
**RESEARCH ARTICLE**

**Open Access**



# Maternal super-obesity and perinatal outcomes in Australia: a national population-based cohort study

Elizabeth A. Sullivan<sup>1,2\*</sup>, Jan E. Dickinson<sup>3</sup>, Geraldine A. Vaughan<sup>1</sup>, Michael J. Peek<sup>4,5</sup>, David Ellwood<sup>6,7</sup>, Caroline SE Homer<sup>1</sup>, Marian Knight<sup>8</sup>, Claire McLintock<sup>9</sup>, Alex Wang<sup>1</sup>, Wendy Pollock<sup>10,11</sup>, Lisa Jackson Pulver<sup>12</sup>, Zhuoyang Li<sup>1</sup>, Nasrin Javid<sup>1</sup>, Elizabeth Denney-Wilson<sup>1</sup>, Leonie Callaway<sup>13,14</sup> and on behalf of the Australasian Maternity Outcomes Surveillance System (AMOSS)



**Fig. 2** Distribution of body mass index of super-obese and comparison women who gave birth in Australia, 2010

**Table 4** Maternal, obstetric and perinatal outcomes among super-obese and comparison women who gave birth in Australia, 2010<sup>a</sup>

	Super-obese group (N = 370) %	Comparison (N = 621) %	OR	AOR <sup>b</sup>
Complications during pregnancy				
Medical problems during pregnancy	33.3	13	3.35 (2.43–4.62)	2.89 (2.64–4.11)
Obstetric problems during pregnancy	42	23.2	2.40 (1.81–3.17)	2.42 (1.77–3.29)
Gestational diabetes	15.6	7.2	2.36 (1.56–3.59)	2.52 (1.58–4.65)
Gestational hypertension	12.3	1.5	8.33 (4.50–19.33)	10.24 (4.67–22.44)
Preeclampsia	8.5	2.6	3.42 (1.85–6.35)	3.43 (1.72–6.84)
Obstetric				
Labour	65.8	77.6	0.55 (0.42–0.74)	0.49 (0.35–0.68)
Induction of labour	58.3	26.9	3.81 (2.75–5.28)	4.33 (3.21–6.24)
Caesarean section	52	31.7	2.33 (1.79–3.65)	2.73 (2.02–3.69)
Perinatal outcomes (singletons only)				
Birthweight $\geq$ 4500 g	10.1	0.8	13.44 (7.22–34.57)	19.94 (6.81–58.36)
Admitted to NICU	23.7	13.9	1.93 (1.38–2.71)	1.83 (1.27–2.65)
Need for transfer	8.5	2.7	3.39 (1.82–6.31)	3.81 (1.93–7.55)
Preterm birth <37 weeks	10.1	8.1	1.28 (0.81–2.00)	1.18 (0.72,1.93)
Maternal outcomes				
Admission to ICU	2.2	0.5	4.56 (1.5–17.32)	7.38 (1.52–35.87)
Admission to HDU	4.3	0.8	5.58 (2.43–15.37)	5.40 (1.78–16.38)
Admission to either ICU or HDU	6.2	1.3	5.09 (2.25–11.51)	5.67 (2.31–13.93)

OR odds ratio, AOR adjusted odds ratio, NICU neonatal intensive care unit, ICU intensive care unit, HDU high dependency unit

<sup>a</sup>Table 4 data excludes not stated and this may produce discrepant results to previous tables where not stated is included

<sup>b</sup>Outcomes are adjusted for age, Indigenous status, marital status, private health insurance, smoking during pregnancy, assisted reproductive technology, parity, multiple gestation pregnancy, and Socio-Economic Indexes for Areas Index for Relative Socio-economic Disadvantage

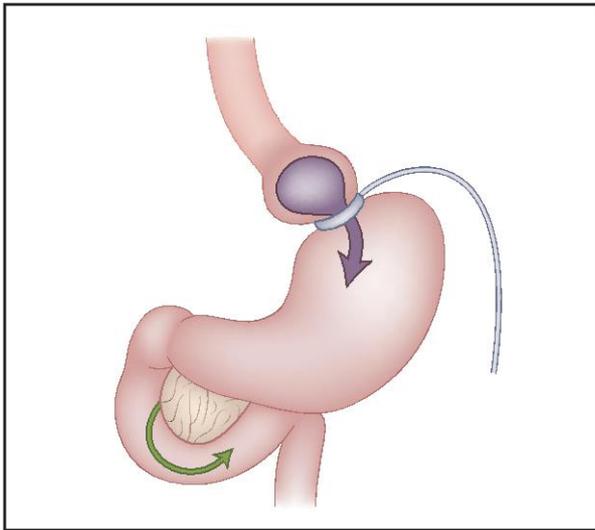
BMI >50	n=370	n=113
Sectio	51.6 %	80%
IUFT	-	3.5 % <b>x 10 !</b>
GDM	15.6%	31.8%
Hypert. SS- Erkrankung	12.3	46.3%
Wundinfektion	-	17%
IPS	6.2%	-

# Zusammenfassung Adipositas

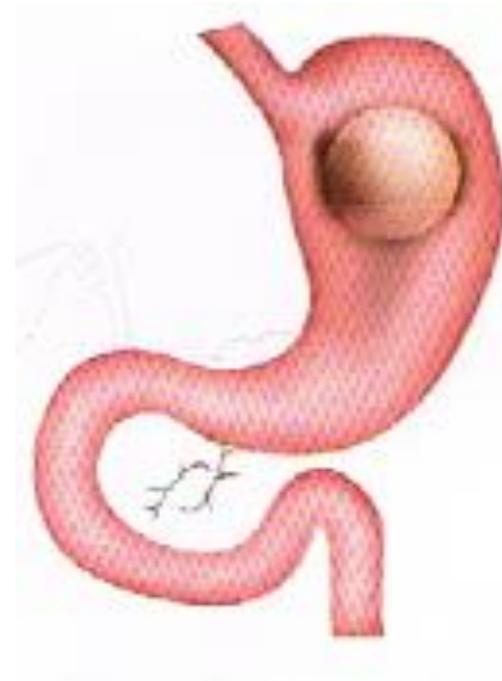
- Alle Risiken steigen bereits ab BMI > 25  
GDM, Wehenschwäche, Sectio, Wundinfektionen
- Mutter Anästhesie Komplikationen erhöht
- Kind sind die Aufnahmen auf Neonatologie erhöht  
Makrosomie, Hyperinsulinismus, Schulterdystokie, FG,

# Restriktive Chirurgie

## Magenbanding



## Magenballon



Reproductive Implications of Bariatric Surgery: Pre- and Postoperative Considerations for Extremely Obese Women of Childbearing Age

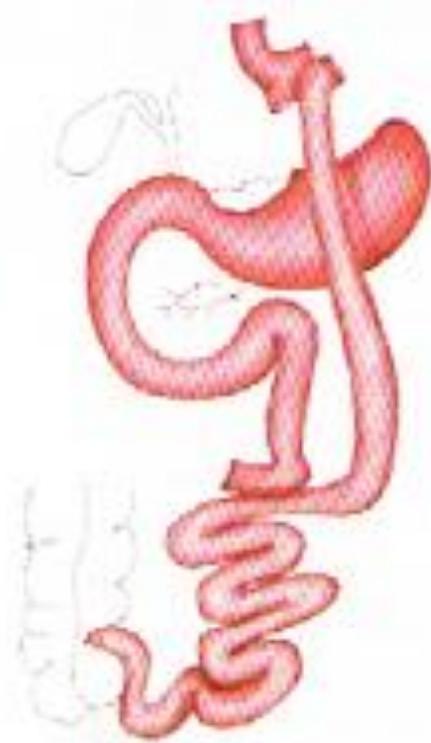
*Ellen J. Landsberger, MD, MS, and Edith D. Gurewitsch, MD*

# Malabsorptive Chirurgie

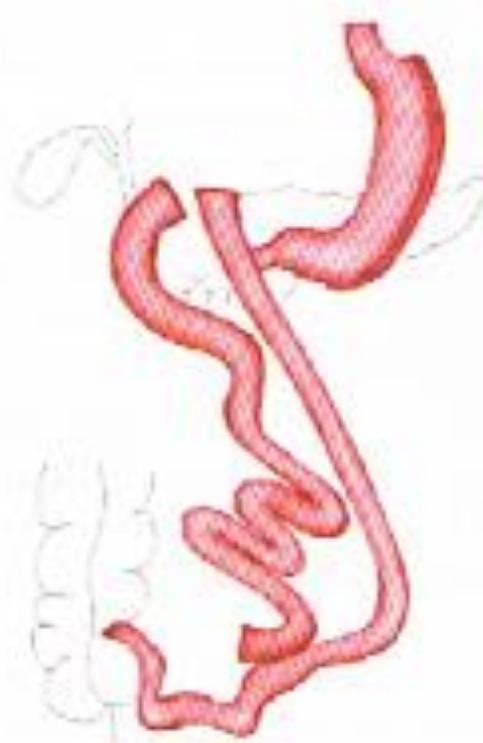
(Duodenalswitch mit) Schlauch- Roux-en-biliopankreatischer Diversion



Sleeve-Gastrektomie



Magenbypass



Bilder aus FHA aktuell 4/14

# Malabsorption

Frühdumping-Syndrom	Wassereinstrom in die hyperosmolare Masse im Darm
Spätdumping-Syndrom	Hypoglykämie durch vermehrte Insulinausschüttung
Resorption von Medikamenten?	Spiegelkontrollen!!
Vitamine	Folsäure, B 12, Vit A,D,E, K, Thiamin (B1)
Spurenelemente	Fe, Ca,

# Practical Recommendations of the Obesity Management Task Force of the European Association for the Study of Obesity for the Post-Bariatric Surgery Medical Management

Obes Facts 2017;10:597–632

Luca Busetto<sup>a</sup> Dror Dicker<sup>b</sup> Carmil Azran<sup>c</sup> Rachel L. Batterham<sup>d, e, f</sup>  
 Nathalie Farpour-Lambert<sup>g</sup> Martin Fried<sup>h</sup> Jøran Hjelmæsæth<sup>i</sup> Johann Kinzl<sup>j</sup>  
 Deborah R. Leitner<sup>k</sup> Janine M. Makaronidis<sup>d, f</sup> Karin Schindler<sup>l</sup>  
 Hermann Toplak<sup>k</sup> Volkan Yumuk<sup>m</sup>

**Table 5.** Major vitamins and minerals deficiencies after bariatric surgery: clinical manifestations and estimated frequency according to the bariatric procedure

Deficiency	Key clinical manifestations	Procedure-related frequency
Iron	microcytic anaemia	AGB + SG ++ RYGB, BPD, BPD/DS +++
Vitamin B12	megaloblastic anaemia neurologic abnormalities	SG, RYGB, BPD, BPD/DS ++
Vitamin D (and calcium)	bone demineralization increased risk of fractures	RYGB ++ BPD, BPD/DS +++
Vitamin A	ocular xerosis night blindness symptoms	BPD, BPD/DS +++
Vitamin E	anaemia ophthalmoplegia peripheral neuropathy	BPD, BPD/DS +++
Vitamin K	easy bleeding	BPD, BPD/DS +

AGB = Adjustable gastric banding; SG = sleeve gastrectomy; RYGB = gastric bypass; BPD = biliopancreatic diversion; BPD/DS = biliopancreatic diversion with duodenal switch.

## Nutrition in Pregnancy Following Bariatric Surgery

Christopher Slater <sup>1</sup>, Lauren Morris <sup>2</sup>, Jodi Ellison <sup>3</sup>  and Akheel A. Syed <sup>2,4,\*</sup> 

<sup>1</sup> Department of Nutrition and Dietetics, Salford Royal NHS Foundation & University Teaching Trust, Salford, Greater Manchester M6 8HD, UK; chris.slater@srlf.nhs.uk

<sup>2</sup> Department of Diabetes & Endocrinology, Salford Royal NHS Foundation & University Teaching Trust, Salford, Greater Manchester M6 8HD, UK; Lauren.morris@srlf.nhs.uk

<sup>3</sup> Department of Surgery, Salford Royal NHS Foundation & University Teaching Trust, Salford, Greater Manchester M6 8HD, UK; jodi.ellison2@srlf.nhs.uk

<sup>4</sup> Faculty of Biology, Medicine & Health, The University of Manchester, Manchester M13 9PL, UK

\* Correspondence: akheel.syed@manchester.ac.uk; Tel.: +44-161-206-1223

Received: 6 November 2017; Accepted: 3 December 2017; Published: 8 December 2017

**Table 1.** Summary of global recommendations for supplements post-bariatric surgery.

	Recommendation	Comments
Multivitamin and mineral supplement	1–2 daily	Avoid retinol-based vitamin A during pregnancy and lactation; safe to continue beta-carotene
Calcium	800–1500 mg daily	Calcium citrate may have better bioavailability
Vitamin D	800 units daily	Higher doses may be necessary if pre-existing deficiency
Iron	45–60 mg daily	100 mg elemental iron is recommended for menstruating women
Vitamin B12	1000 micrograms orally daily or 1000 micrograms intramuscular injection 4–12 weekly	
Thiamine (B1)	As contained in Multivitamin or 12–50 mg daily	Additional 200–300 mg if prolonged vomiting is experienced
Folic Acid	As contained in Multivitamin or 400–800 microgram daily	5 mg preconception to 12 weeks of gestation
Vitamin A	As contained in Multivitamin or 5000–1000 IU daily	Additional screening in BPD/DS * or if Steatorrhea. Increased requirements in pregnancy—avoid retinol and retinyl esters.
Vitamin E	As contained in Multivitamin or 15 mg daily	Additional screening in BPD/DS * or if Steatorrhea
Vitamin K	As contained in Multivitamin or 90–300 micrograms daily	Additional screening in BPD/DS * or if Steatorrhea
Zinc	As contained in Multivitamin to meet 100–200% RDA †	Maintain Ratio of 8–15 mg Zinc per 1 mg Copper
Copper	As contained in Multivitamin to meet 100–200% RDA †	Maintain Ratio of 8–15 mg Zinc per 1 mg Copper
Selenium	As contained in Multivitamin	

Global recommendations based on published guidelines from America, the UK and Australia [30–32,34]. In Pregnancy, we recommend a daily oral complete multivitamin and micronutrient (avoiding retinol), calcium with vitamin D, iron and 3-monthly intramuscular Hydroxocobalamin; omeprazole is our preferred choice of proton pump inhibitor. \* BPD/DS, biliopancreatic diversion/duodenal switch. † RDA, recommended dietary allowance.

## ORIGINAL ARTICLE

## Outcomes of Pregnancy after Bariatric Surgery

Kari Johansson, Ph.D., Sven Cnattingius, M.D., Ph.D.,  
 Ingmar Näslund, M.D., Ph.D., Nathalie Roos, M.D., Ph.D.,  
 Ylva Trolle Lagerros, M.D., Ph.D., Fredrik Granath, Ph.D.,  
 Olof Stephansson, M.D., Ph.D., and Martin Neovius, Ph.D.

N=670 und Vergleichsgruppe  
 N= 627'023

**Table 1. (Continued.)**

Characteristic	Before Matching			After Matching		
	Pregnancies after Bariatric Surgery (N=670) <sup>†</sup>	General-Population Pregnancies (N=627,023) <sup>‡</sup>	P Value	Pregnancies after Bariatric Surgery (N=596) <sup>†</sup>	Matched Control Pregnancies (N=2356)	P Value <sup>§</sup>
Nulliparous — no. (%)	280 (41.8)	281,705 (44.9)	<0.001	238 (39.9)	900 (38.2)	NA
Coexisting conditions before pregnancy — no. (%)						
Diabetes	20 (3.0)	4802 (0.8)	<0.001	18 (3.0) <sup>§§</sup>	62 (2.6) <sup>§§</sup>	0.62
Cardiovascular disease	21 (3.1)	6216 (1.0)	<0.001	17 (2.9)	38 (1.6)	0.12
Respiratory disease	79 (11.8)	23,359 (3.7)	<0.001	71 (11.9)	172 (7.3)	<0.001
Psychiatric disease	72 (10.7)	21,747 (3.5)	<0.001	62 (10.4)	130 (5.5)	<0.001
Substance abuse	9 (1.3)	2571 (0.4)	<0.001	9 (1.5)	10 (0.4)	<0.001

**Table 2.** Gestational Diabetes and Perinatal Outcomes among Women with and Those without a History of Bariatric Surgery.

Variable	Bariatric-Surgery Group (N=596)	Matched Control Group (N=2356)	Risk Difference	Odds Ratio (95% CI)*	P Value
	no./total no. (%)		percentage points (95% CI)		
Gestational diabetes†					
Total	11/578 (1.9)	157/2294 (6.8)	-4.9 (-6.5 to -3.4)	0.25 (0.13 to 0.47)	<0.001
Insulin-treated	4/578 (0.7)	83/2294 (3.6)	-2.9 (-3.9 to -1.9)	0.17 (0.06 to 0.49)	<0.001

Large-for-gestation	<b>GDM</b>	<b>1.9% vs 6.8%</b>
Macrosomia‡	<b>Makrosomie/LGA</b>	<b>8.6% vs 22.4 %</b>
Small-for-gestation		
Low-birth-weight	<b>SGA</b>	<b>15.6% vs 7.6 %</b>
Preterm birth§		
Stillbirth¶	<b>Kürzeres GA</b>	<b>273 vs 277</b>
Neonatal death <7 days		
Stillbirth or neonatal death	<b>Frühgeburten</b>	<b>10% vs 7.5%</b>
Major congenital anomalies		
Total	<b>IUFT</b>	<b>1.7% vs 0.7%</b>
Excluding chromosomal abnormalities		
	<b>Fehlbildungen</b>	<b>gleich</b>

# Maternal and neonatal outcomes after bariatric surgery; a systematic review and meta-analysis: do the benefits outweigh the risks?



JUNE 2018 American Journal of Obstetrics & Gynecology

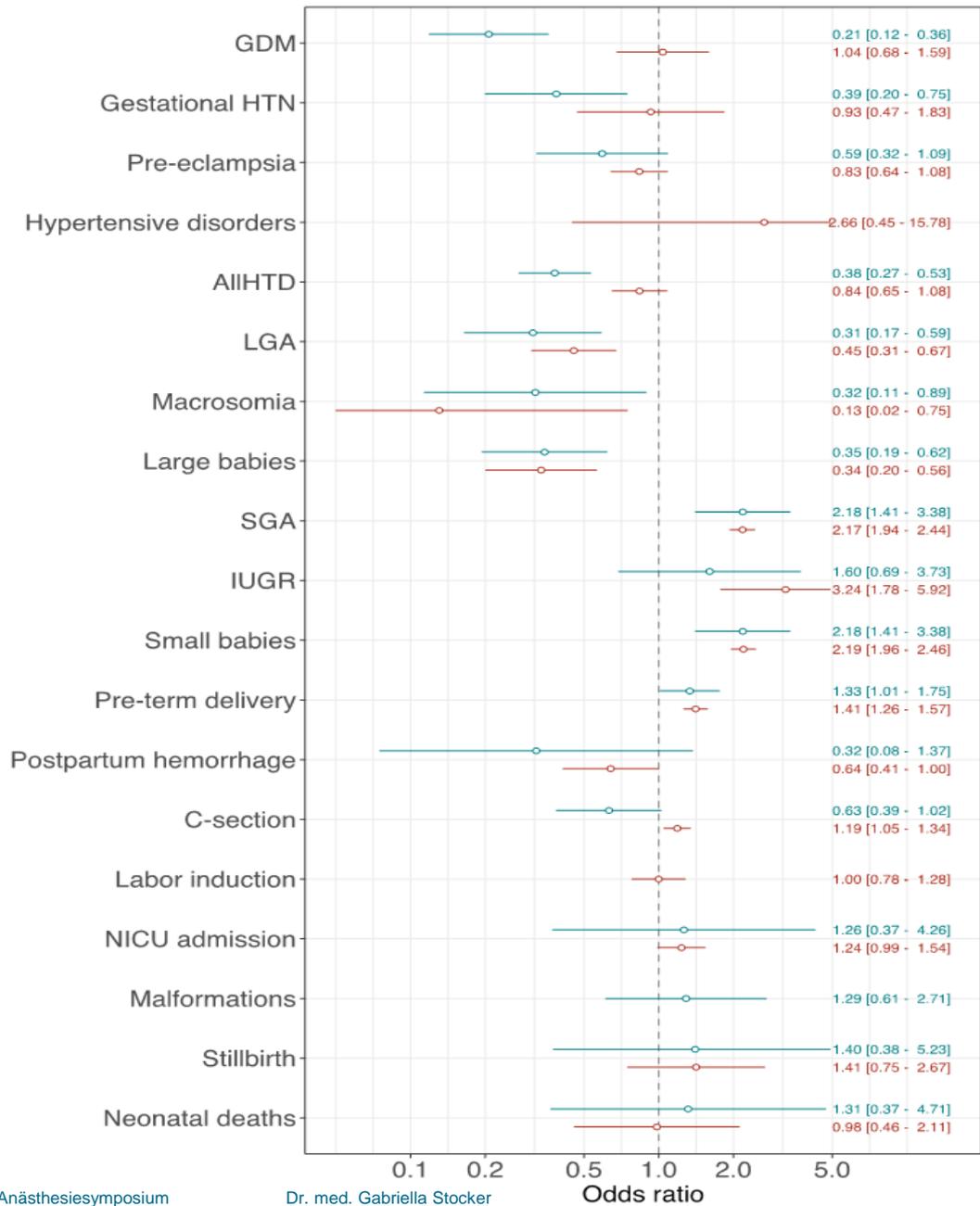
Wilson Kwong, MD; George Tomlinson, PhD; Denice S. Feig, MD

**TABLE 2**  
**Results for all study outcomes**

Outcome	Studies, n	Events/ cases, n	Events/control subjects, n	Pooled odds ratio (95% confidence interval)	Number needed to benefit
<b>Benefit</b>					
Gestational diabetes mellitus	5	45/1111	335/2923	0.21 (0.12–0.36)	5
Large for gestational age	3	78/830	777/3094	0.31 (0.17–0.59)	6
Postpartum hemorrhage	2	8/424	25/486	0.32 (0.08–1.37)	21
Macrosomia	5	77/1123	338/2965	0.32 (0.11–0.89)	13
Large babies <sup>a</sup>	6	141/1280	882/3603	0.35 (0.19–0.62)	7
All hypertensive disorders	4	88/686	162/584	0.38 (0.27–0.53)	8
Gestational hypertension	3	14/179	50/283	0.39 (0.2–0.75)	11
Preeclampsia	3	17/179	42/283	0.59 (0.32–1.09)	21
Cesarean delivery	4	176/533	297/629	0.63 (0.39–1.02)	9
<b>Harm</b>					
					Number needed to harm
Neonatal intensive care unit admission	2	25/153	35/260	1.26 (0.37–4.26)	38
Malformations	4	61/1290	126/3925	1.29 (0.61–2.71)	37
Neonatal deaths	3	16/1451	15/2991	1.31 (0.37–4.71)	447
Preterm delivery	4	95/769	216/2627	1.33 (1.01–1.75)	65
Stillbirth	4	11/859	28/3776	1.4 (0.38–5.23)	370
Intrauterine growth restriction	2	21/533	8/324	1.6 (0.69–3.73)	66
Small for gestational age	6	183/1433	238/3558	2.18 (1.41–3.38)	21
Small babies <sup>b</sup>	6	183/1433	238/3558	2.18 (1.41–3.38)	21

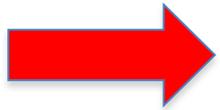
<sup>a</sup> Composite of large for gestational age and macrosomia; <sup>b</sup> Composite of small for gestational age and intrauterine growth restriction.

Kwong. *Obstetric outcomes after bariatric surgery. Am J Obstet Gynecol* 2018.



# Komplikation

SS- Beschwerden wie Hyperemesis, Reflux oder vorzeitigen Wehen fehlinterpretiert



**INNERE HERNIEN**

Diagnostik schwieriger, dringend durchgeführt werden!

**Erfordert gute interdisziplinäre Zusammenarbeit**

Arch Gynecol Obstet (2008) 277:381–388  
DOI 10.1007/s00404-008-0608-5

REVIEW ARTICLE

**Pregnancy after bariatric surgery: a comprehensive review**

Anatte Karmon · Eyal Sheiner

# Zusammenfassung

- Bariatrische Chirurgie macht lebenslängliche irreversible anatomische Veränderungen
- Malabsorption erfordert Verschreibung und Einnahme von Supplementen

# Outcome SS

Besser	Schlechter
<ul style="list-style-type: none"><li>• GDM</li><li>• Makrosomie des Kindes</li><li>• Arterielle Hypertonie</li><li>• Präeklampsie</li></ul>	<ul style="list-style-type: none"><li>• Wachstum des Kindes</li><li>• Frühgeburten</li><li>• IUFT</li></ul>

# Vorgehen

- Enge interdisziplinäre Betreuung  
Geburtshelfer, Internisten, Endokrinologen,  
Chirurgen, Anästhesisten und  
Psychologen
- Per se keine Veränderung der  
zugrundeliegenden Psychostruktur



# Take home message

- Mortalität der Mütter steigt wieder an
- Vorsorge und Betreuung greift bei den schwangerschaftsbedingten Erkrankungen
- Mortalität steigt wegen nicht schwangerschaftsbedingten Grunderkrankungen an

# Take home message

- Schwangerschafts-Vorsorge muss die Gesamtsituation der Frau erfassen und eine interdisziplinäre Betreuung unerlässlich
- Veränderungen der epidemiologischen Faktoren (Adipositas und Alter) können nur als Gesellschaft bewältigt werden.

A close-up photograph of a person's torso wearing a bright red long-sleeved shirt. The shirt has the text "GORE BIKE-WEAR" printed in white on the upper chest area. The person is also wearing dark grey shorts. The background shows a clear blue sky, a metal tower structure, and a distant mountain range under a clear sky. A bicycle and some gear are visible on the ground in the lower left.

**GORE  
BIKE-WEAR**

**Vielen Dank für die  
Aufmerksamkeit !**