

Table S1. Description of the study population (weighted numbers).

Year	N of deliveries in the cohort	Mean of maternal age at delivery in the cohort (sd)	Mean maternal age at delivery in Switzerland (BfS)	Percentage of cesarean section in the cohort	Percentage of cesarean section in Switzerland (BfS)
2014	9'560	32.09 (5.06)	31.7	34.6	33.7
2015	9'409	32.10 (5.20)	31.8	34.8	33.3
2016	9'163	32.03 (5.25)	31.8	34.1	33.2
2017	8'811	32.12 (5.33)	31.9	33.8	32.3
2018	8'300	32.09 (5.23)	32.0	33.4	32.1

Table S2. Exposure prevalence to different drug groups and active substances during pregnancy overall and within trimester of pregnancy and pre-pregnancy separately (weighted numbers).

ATC code	Drug substance	Pre pregnancy N (/10'000)	T1 N (/10'000)	T2 N (/10'000)	T3 N (/10'000)	T1-T3 N (/10'000)
At least one drug from any of the following drug groups		5'267 (1'164.0)	4'837 (1'068.9)	5'052 (1'116)	7'020 (1'551.3)	9'939 (2'196.4)
H03	Thyroid therapy	1'287 (284.4)	2'115 (467.4)	2'316 (511.8)	2'139 (472.7)	3'021 (667.6)
H03A	Thyroid preparations	1'244 (274.9)	2'071 (457.7)	2'283 (504.5)	2'113 (467.0)	2'967 (655.7)
H03AA01	Levothyroxine sodium	1'227 (271.2)	2'057 (454.6)	2'268 (501.2)	2'100 (464.1)	2'945 (650.8)
H03AA02	Liothyronine sodium	21 (4.6)	15 (3.3)	15 (3.3)	15 (3.3)	25 (5.5)
H03B	Antithyroid preparations	48 (10.6)	46 (10.2)	34 (7.5)	26 (5.7)	58 (12.8)
H03BA02	Propylthiouracil	22 (4.9)	33 (7.3)	16 (3.5)	11 (2.4)	38 (8.4)
H03BB01	Carbimazole	30 (6.6)	22 (4.9)	20 (4.4)	16 (3.5)	37 (8.2)
C02, C03, C07, C08, C09	Anti-hypertensive drugs	340 (75.1)	301 (66.5)	583 (128.8)	2'077 (459.0)	2'431 (537.2)
C08	Calcium channel blockers	32 (7.1)	51 (11.3)	348 (76.9)	1'733 (383.0)	1879 (415.2)
C08CA05	Nifedipine	18 (4.0)	36 (8.0)	338 (74.7)	1'714 (378.8)	1'850 (408.8)
C08CA01	Amlodipine	10 (2.2)	13 (2.9)	*	16 (3.5)	25 (5.5)
C07	Beta blocking agents	197 (43.5)	209 (46.2)	215 (47.5)	317 (70.1)	474 (104.7)
C07AG01	Labetalol	28 (6.2)	70 (15.5)	100 (22.1)	210 (46.4)	259 (57.2)
C07AB02	Metoprolol	67 (14.8)	79 (17.5)	70 (15.5)	68 (15)	127 (28.1)
C09	RAA acting agents	70 (15.5)	27 (6.0)	12 (2.7)	*	42 (9.3)
C09CA06	Candesartan	*	*	*	*	*
C09AA03	Lisinopril	11 (2.4)	*	*	*	*

C03	Diuretics	35 (7.7)	13 (2.9)	* (1.5)	16 (3.5)	34 (7.5)
C03CA01	<i>Furosemide</i>	10 (2.2)	*	*	11 (2.4)	17 (3.8)
C03CA04	<i>Toraseamide</i>	10 (2.2)	*	*	*	14 (3.1)
C02	Antihypertensives	*	*	*	*	*
C02AB01	<i>Methyldopa</i>	*	*	*	*	*
C02CA04	<i>Doxazosin</i>	*	*	*	*	*
N06A, N05A, N05AN, N05BA, N05CD, N05CF	Psychotropic drugs	1'912 (422.5)	1'117 (246.8)	790 (174.6)	771 (170.4)	1'716 (379.2)
N06A	Antidepressants	1'151 (254.4)	793 (175.2)	563 (124.4)	497 (109.8)	1'127 (249.1)
N06AB	Selective serotonin reuptake inhibitors	689 (1.5)	505 (1.1)	398 (88)	355 (78.5)	726 (1.6)
N06AB10	<i>Escitalopram</i>	286 (63.2)	173(38.2)	126(27.8)	117(25.9)	255 (56.4)
N06AB06	<i>Sertraline</i>	163 (36.0)	130 (28.7)	136 (30.1)	134 (29.6)	219 (48.4)
N06AX	Other antidepressants	474 (104.7)	294 (65.0)	169 (37.4)	141 (31.2)	423 (93.5)
N06AX25	<i>Hyperici herba</i>	112 (24.8)	74 (16.4)	63(13.9)	60 (13.3)	160 (35.4)
N06AX16, N06AX21	Serotonin and noradrenaline reuptake inhibitors (duloxetine, venlafaxine)	151 (33.4)	110 (24.3)	58 (12.8)	43 (9.5)	124 (27.4)
N06AX11, N06AX03	Alpha antagonists (mirtazapine, mianserine)	71 (15.7)	46 (10.2)	24 (5.3)	17 (3.8)	65 (14.4)
N06AA	Non selective monoamine reuptake inhibitors	70 (15.5)	45 (9.9)	17 (3.8)	17 (3.8)	60 (13.3)

N06AA06	Trimipramine	39 (8.6)	23 (5.1)	*	*	28 (6.2)
N06AA09	Amitriptyline	19 (4.2)	14 (3.1)	11 (2.4)	12 (2.7)	23 (5.1)
N05A	Antipsychotics	227 (50.2)	130 (28.7)	85 (18.8)	92 (20.3)	171 (37.8)
N05AH04	Quetiapine	93 (20.6)	63 (13.9)	54 (11.9)	56 (12.4)	82 (18.1)
N05AX12	Aripiprazole	30 (6.6)	20 (4.4)	13 (2.9)	15 (3.3)	29 (6.4)
N05AH03	Olanzapine	22 (4.9)	14 (3.1)	*	11 (2.4)	21 (4.6)
N05AX08	Risperidone	14 (3.1)	*	*	*	11 (2.4)
N05AD01	Haloperidol	*	*	*	*	10 (2.2)
N05AD08	Droperidol	46 (10.2)	*	*	*	*
N05AF03	Chlorprothixene	10 (2.2)	*	*	*	*
N05AN01	Lithium	*	*	*	*	*
N05BA, N05CD, N05CF	Benzodiazepine derivatives / related drugs	898 (198.4)	410 (90.6)	234 (51.7)	259 (57.2)	733 (162.0)
N05BA, N05CD	Benzodiazepine derivatives	765 (169.1)	317 (70.1)	204 (45.1)	211 (46.6/10'00)	602 (133)
N05BA06	Lorazepam	331 (73.1)	158 (34.9)	102 (22.5)	122(27.0)	329 (72.7)
N05CD08	Midazolam	238 (52.6)	45 (9.9)	11 (2.4)	14 (3.1)	65 (14.4)
N05CF	Benzodiazepine related drugs	188 (41.5)	116 (25.6)	40 (8.8)	61(13.5)	177 (39.1)
N05CF02	Zolpidem	169 (37.3)	108 (23.9)	39 (8.6)	60 (13.3)	167 (36.9)
N05CF01	Zopiclone	21 (4.6)	*	*	*	11 (2.4)
A10	Anti-diabetics	440 (97.2)	389 (86.2)	551 (121.8)	1'565 (345.8)	1'786 (394.7)
A10A	Insulins and analogues	124 (27.4)	189 (41.8)	495 (1.1)	1'522 (336.3)	1'582 (349.6)
A10AE	Long acting	56 (12.4)	100 (22.1)	310 (68.5)	939 (207.5)	1'011 (223.4)
A10AB	Fast acting	110 (24.3)	153 (33.8)	252 (55.7)	714 (157.8)	749 (165.5)
A10AC	Intermediate acting	*	24 (5.3)	115 (25.4)	435 (96.1)	469 (1.0)
		330 (72.9)	221 (48.8)	70 (15.5)	65 (14.4)	273 (60.3)
A10B	Blood glucose lowering drugs					

<i>A10BA02</i>	<i>Metformin</i>	308 (68.1)	212 (46.8)	66 (14.6)	58 (12.8)	255 (56.4)
<i>A10BJ02</i>	<i>Liraglutide</i>	*	*	*	*	*
<i>A10BB01</i>	<i>Glibenclamide</i>	*	*	*	*	*
R03	Obstructive airway diseases	893 (197.3)	694 (153.4)	773 (170.8)	739 (163.3)	1'637 (361.8)
R03AK	Adrenergics with glucocorticoids or other drugs (excl anticholinergics)	624 (137.9)	426 (94.1)	479 (105.9)	425 (93.9)	968 (213.9)
<i>R03AK07</i>	<i>Formoterol and budesonide</i>	421 (93.0)	273 (60.3)	330 (72.9)	277 (61.2)	673 (148.7)
<i>R03AK06</i>	<i>Salmeterol and fluticasone</i>	175 (38.7)	132 (29.2)	139 (30.7)	131 (28.9)	275 (60.8)
R03AC	Selective B2 adrenoreceptor agonists	317 (70.1)	296 (65.4)	327 (72.3)	279 (61.7)	717 (158.4)
<i>R03AC02</i>	<i>Salbutamol</i>	272 (60.1)	252 (55.7)	283 (62.5)	249 (55.0)	637 (140.8)
<i>R03AC13</i>	<i>Formoterol</i>	25 (5.5)	30 (6.6)	19 (4.2)	16 (3.5)	43 (9.5)
R03BA	Inhaled Glucocorticoids	78 (17.2)	95 (21.0)	118 (26.1)	98 (21.7)	255 (56.4)
<i>R03BA02</i>	<i>Budesonide</i>	30 (6.6)	50 (11.0)	65 (14.4)	52 (11.5)	149 (32.9)
<i>R03BA05</i>	<i>Fluticasone</i>	27 (6.0)	24 (5.3)	34 (7.5)	27 (6.0)	65 (14.4)
R03CC	Selective beta-2 adrenoreceptor agonists	*	*	*	59 (13.0)	61 (13.5)
<i>R03CC05</i>	<i>Hexoprenaline</i>	*	*	*	56 (12.4)	56 (12.4)
<i>R03CC02</i>	<i>Salbutamol</i>	*	*	*	*	*
R03BB	Anticholinergics	21 (4.6)	19 (4.2)	16 (3.5)	18 (4.0)	45 (9.9)
<i>R03BB01</i>	<i>Ipratropium bromide</i>	16 (3.5)	16 (3.5)	13 (2.9)	16 (3.5)	40 (8.8)
<i>R03BB04</i>	<i>Tiotropium bromide</i>	*	*	*	*	*
R03AL	Adrenergics in combination with anticholinergics	17 (3.8)	12 (2.7)	13 (2.9)	20 (4.4)	40 (8.8)

R03AL02	Salbutamol and ipratropium bromide	114 (25.2)	89 (19.7)	74 (16.4)	124 (27.4)	259 (57.2)
R03DC (R03DC03)	Leukotriene receptor antagonists (Montelukast)	42 (9.3)	27 (6.0)	12 (2.7)	6 (1.3)	34 (7.5)
R03DX	Other systemic drugs for obstructive airway diseases	11 (2.4)	*	*	*	*
R03DX05	Omalizumab	*	*	*	*	*
R03DX09	Mepolizumab	*	*	*	*	*
H02AB, A07EC, P01BA02, L03, L04AD, AX, AA, J06BA	Drugs to treat auto-immune diseases	1'057 (233.6)	628 (138.8)	417 (92.2)	556 (122.9)	1'213(268.1)
H02AB	Systemic glucocorticoids	850 (187.8)	451 (99.7)	284 (62.8)	408 (90.2)	1'003 (221.7)
L04AD, AX, AA, A07EC, P01BA02, L01XC02	Traditional immunosuppressants	463 (102.3)	453 (100.1)	429 (94.8)	468 (103.4)	591 (130.6)
A07EC02	Mesalazine	66 (14.6)	65 (14.4)	67 (14.8)	75 (16.6)	106 (23.4)
A07EC01	Sulfasalazine	23 (5.1)	22 (4.9)	18 (4.0)	16 (3.5)	24 (5.3)
P01BA02	Hydroxychloroquine	44 (9.7)	42 (9.3)	38 (8.4)	41 (9.1)	52 (11.5)
L04AX0	Azathioprine	47 (10.4)	42 (9.3)	43 (9.5)	39 (8.6)	50 (11)
L04AD02	Tacrolimus	*	*	*	*	*
L04AD01	Ciclosporin	*	*	*	*	*
L04AX03	Methotrexate	*	*	*	*	*
L01BA01	Methotrexate	*	*	*	*	*
L04AA06	Myophenolic acid	*	*	*	*	*
L04AA29	Baricitinib	*	*	*	*	*

L04AB, AC	Biologic DMARDS	92 (20.3)	81 (17.9)	53 (11.7)	37 (8.2)	86 (19.0)
L04AB	TNF alpha inhibitors	85 (18.8)	78 (17.2)	52 (11.5)	37 (8.2)	83 (18.3)
L04AB05	<i>Certolizumab</i>	18 (4.0)	20 (4.4)	19 (4.2)	18 (4.0)	28 (6.2)
L04AB02	<i>Infliximab</i>	24 (5.3)	22 (4.9)	19 (4.2)	11 (2.4)	22 (4.9)
L04AB01	<i>Etanercept</i>	20 (4.4)	17 (3.8)	7 (1.5)	3 (0.7)	19 (4.2)
L04AB04	<i>Adalimumab</i>	17 (3.8)	15 (3.3)	*	*	17 (3.8)
L04AB06	<i>Golimumab</i>	*	*	*	*	*
L04AC	Interleukin inhibitors	*	*	*	*	*
L04AC07	<i>Tocilizumab</i>	*	*	*	*	*
L04AC05	<i>Ustekinumab</i>	*	*	*	*	*
L04AA33	<i>Vedolizumab</i>	*	*	*	*	*
L01XC	Monoclonal antibodies	*	*	*	*	*
L01XC02	<i>Rituximab</i>	*	*	*	*	*
L01XC03	<i>Trastuzumab</i>	*	*	*	*	*
L01XC07	<i>Bevacizumab</i>	*	*	*	*	*
J06BA	Immunoglobulins, normal human	*	*	*	11 (2.4)	13 (2.9)
J06BA02	<i>Immunoglobulins, normal for intravascular administration</i>	*	*	*	11 (2.4)	13 (2.9)
	Multiple sclerosis specific drugs	63 (13.9)	38 (8.4)	5 (1.1)	8 (1.8)	35 (7.7)
L04AA23	<i>Natalizumab</i>	21 (4.6)	14 (3.1)	*	*	14 (3.1)
L03AX13	<i>Glatiramer acetate</i>	22 (4.9)	12 (2.7)	*	*	13 (2.9)
L03AB07	<i>Interferon beta-1 a</i>	20 (4.4)	11(2.4)	*	*	12 (2.7)
L04AX07	<i>Dimethylfumarate</i>	*	*	*	*	*
L04AA27	<i>Fingolimod</i>	*	*	*	*	*
J05AR + J05AE01 / 03 / 08 / 10 + J05AF05 / 07 / 11 +	HIV antiretrovirals	60 (13.3)	62 (13.7)	79 (17.5)	87 (19.2)	98 (21.7)

J05AG01 / 04 / 05 +						
J05AR03	<i>Tenofovir disoproxil and emtricitabine</i>	28 (6.2)	26 (5.7)	32 (7.1)	36 (8.0)	40 (8.8)
J05AE03	<i>Ritonavir</i>	16 (3.5)	15 (3.3)	25 (5.5)	27 (0.2)	29 6.4)

* Indicates numbers below 10 and are not shown due to confidentiality reasons.

Table S3. Exposure to known or potential teratogens drugs during risk period and associated potential risks (weighted numbers).

Known or potential teratogenic drugs (ATC code)	Warnings regarding use during critical period	Risk period	Pregnancies exposed during risk period during study period (N)	Pregnancies exposed during risk period during study period (/10'000)
Methotrexate (L01BA01, L04AX03)	Risk of abortion. Malformations including face, skull, central nervous system, limbs, heart.	T1 (maximal risk between 8-10 GW)	*	*
Mycophenolic acid (L04AA06)	Risk of abortion. Malformations including cleft palate, ear deformities in up to 25% of exposed fetuses.	T1	*	*
Cyclophosphamide (L01AA01)	Malformations including the face, skull, eyes and central nervous system. Hematologic anomalies (anemia, leucopenia) in the newborn.	T1,T2 and T3	***	***
Carbimazole (H03BB01)	Malformations including aplasia cutis, choanal atresia, tracheo-esophageal fistula in up to 4% of exposed fetuses.	T1 (maximal risk between 6-10 GW)	22	4.9
Lithium (N05AN01)	Increased risk of heart malformation, especially the Ebstein malformation in 2.5% of exposed babies (including 1% of Ebstein disease vs 0.005%).	T1 (until GW 10)	*	*
Dolutegravir (J05AR13)	Suspicion of an increased risk of neural tube defects.	T1 (Maximal risk between 0-4 GW)	*	*

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Table S4. Exposure to known fetotoxic drugs during risk period and associated potential risks (weighted numbers).

Known or potential fetotoxic drugs (ATC code)	Warnings regarding use during critical period	Risk period	Pregnancies exposed during risk period during study period (N)	Pregnancies exposed during risk period during study period /10'000 95%CI)
Agents acting on the RAA system. (C09)	Renal toxicity which can induce oligo/anamnios, with potential pulmonary, skull hypoplasia and reduction of the extremities. Neonatal renal insufficiency.	T2 and T3	12, *	2.7, *
Psychotropic drugs - Antidepressants ; - Antipsychotics ; - Benzodiazepines and related drugs ((N06A, N05A, N05AN, N05BA, N05CD, N05CF)	-1/3 newborns present transient neonatal symptoms (serotonergic toxicity or weaning symptoms) ; - Risk of transient extra-pyramidal symptoms in the newborn ; - Prenatal exposure to benzodiazepines with long half-life in may cause impregnation symptoms (sleepiness, suction problems, hypotension, respiratory distress), whereas short half-life substances may cause weaning symptoms (agitation, hyperexcitability)	T3	771	170.4
Trastuzumab (L01XC03)	Oligo-anhydramnios	T2 and T3	0, 0	0.0
Rituximab (L01XC02)	Neonatal B cell depletion	T2 and T3	0, 0	0.0

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Table S5. Exposure to potential teratogenic drugs (risk found in animal studies but not in human data) during risk period and associated potential risks (weighted numbers).

Potential teratogenic drugs (ATC code)	Warnings regarding use during critical period	Risk period	Pregnancies exposed during risk period during study period (N)	Pregnancies exposed during risk period during study period (% 95%CI)
Propylthiouracil (H03BA02)		T1	33	7.3
Mitoxantrone (L01DB07)	Contraception is recommended 4 months after the last administration	Pre-pregnancy and T1.	0, 0	0.0, 0.0
Fingolimod (L04AA27)	Contraception is recommended 2 months after the last administration		*, *	*, *
Teriflunomide (L04AA31)			0, 0	0.0, 0.0
Leflunomide (L04AA13)			0, 0	0.0, 0.0
Dimethylfumarate (L04AX07)	Contraception is recommended 3.5 months after the last administration.		*, *	*, *
Cladribine (L01BB04, L04AA40)			0, 0	0.0
Alemtuzumab (L04AA34)	Contraception is recommended 4 months after the last administration.		0, 0	0.0
Tofacitinib (L04AA29) [90]			*, *	*, *
Baricitinib (L04AA37) [91]			0, 0	0.0

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