Supplementary Table 1. Studies examining maternal lipids in pre-existing and gestational diabetes mellitus. \*

Reference	n	Type of diabetes	HbA1c %	BMI	Blood	Main outcomes
			(mmol/mol)	$(kg/m^2)$	sampling	
			Studies examining pr	re-existing dia	abetes	
Montelongo, 1992 (1)	12	Normal	FT 4.50 ± 0.36SE (26 ± 3.9 SE)	PP 22.4 ± 0.4SE	Following a 12h	FFA levels ↑ in pre-existing and gestational diabetes compared to normal
Spain			$ST 4.30 \pm 0.43SE$ (23 ± 4.7)		overnight fast, prior to	Triglyceride, VLDL-triglyceride, LDL- triglyceride, HDL-triglyceride and
No comment on			$TT 4.40 \pm 0.27SE$		morning	VLDL-C, LDL-C, HDL-C increased over
ethnicity			$(25 \pm 3.0 \text{SE})$		insulin dose.	gestation but no difference between
	12	Pre-existing DM (10 T1DM, T2DM)	FT $6.43 \pm 0.26SE$ (47 ± 2.8SE) ST 5.54 ± 0.20SE (37 ± 2.2SE) TT 5.52 ± 0.17SE (37 ± 1.9)	PP 22.2 ± 0.3SE	Samples at gestational wks. 9-10, 21-23, 32-24, postpartum and post	diabetic and normal pregnancies
	9	GDM Diagnosed in the first trimester using a 50gGCT and 100g OGTT based on the 2 <sup>nd</sup> International workshop conference on GDM	FT $5.37 \pm 0.37SE$ ( $35 \pm 4.0SE$ ) ST $4.83 \pm 0.18SE$ ( $29 \pm 2.0SE$ ) TT $4.90 \pm 0.18SE$ ( $30 \pm 2.0SE$ )	PP 23.3 ± 0.6SE	lactation	
Biesenbach, 1994 (2) Austria No comment on ethnicity	10	T1DM	$\begin{array}{c} PP \ 6.9 \pm 0.9 \ SD \ (52 \\ \pm \ 9.8 \ SD) \\ FT \ 5.9 \pm 0.6 \ SD \ (41 \\ \pm \ 6.6 \ SD) \\ ST \ 5.3 \pm 0.4 \ SD \ (34 \\ \pm \ 4.4 \ SD) \\ TT \ 5.2 \pm 0.5 \ SD \ (5.2 \end{array}$	Weight FT 62 kg ± 9 SD	After an overnight fast Blood tests at 12 <sup>th</sup> , 20 <sup>th</sup> , 24 <sup>th</sup> weeks then every 4	Women with macroproteinuria had ↑ cholesterol, triglycerides, LDL-C and lower HDL-C in the third trimester compared to those without macroproteinuria The total and percent increase in

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	5	T1DM with macroproteinuria (>0.05g protein/24H in urine)	$ \begin{array}{c} \pm 5.5 \text{ SD} \\ \hline \text{PP 7.6} \pm 0.4 \text{ SD (60} \\ \pm 4.4 \text{ SD} \\ \text{FT 7.1} \pm 0.7 \text{ SD (54} \\ \pm 7.7 \text{ SD} \\ \text{ST 6.6} \pm 1.2 \text{ SD (49} \\ \pm 13.1 \text{ SD} \\ \hline \text{TT 6.1} \pm 1.2 \text{ SD (43} \\ \pm 13.1 \text{ SD} \\ \end{array} $	Weight FT 63 kg ± SD 6 SD	weeks until delivery	cholesterol and LDL-C across gestation was greater in women with macroprotienuria whereas the percent increase in triglycerides was similar between the groups and HDL fell in women with macroproteinuria.
Kilby 1998 (3) United Kingdom	22	Normal	TT 6.8 (IQR 6.3 – 7.8) (51, IQR 45 – 62) **	PP 24.3, (IQR 23.6 - 25.3)	Fasting, at time of planned caesarean	Women with T1DM had ↓free fatty acids concentrations, and ↑ HDL-phospholipid concentration compared to normal women. The increase in HDL-
Caucasian	10	T1DM	TT 9.6, (IQR 8.2 –	PP 25.2,	section.	phospholipid concentration was due to an
Values median (IQR)			10.7) (81, IQR 66 – 93)	(IQR 24.2 - 26.7)	Maternal glucose was maintained between 3-6 using an IV dextrose and insulin infusion (unclear if this was in both groups)	increase in HDL <sub>2</sub> -phospolipid concentration. Total cholesterol and triglyceride levels were not different The cord blood of infants born to women with T1DM was higher in cholesterol, triglycerides, Apo-AI and Apo-B. Additionally, the cord blood HDL had a composition more similar to maternal HDL in infants born to women with T1DM.
Merzouk, 2000 (4) Algeria	30	Normal	TT $5.8 \pm 0.2$ SEM ( $40 \pm 2.2$ SEM)	21.8 ± 2.3 SEM	Fasting blood samples at < 8 weeks	Women with good glucose control had similar lipoprotein levels to control
No comment on ethnicity	20	T1DM, well controlled	TT 6.1 ± 0.3 SEM (43 ± 3.3 SEM)	22.14 ± 2.01 SEM	gestation and within 48 hours of	women No difference in cholesterol concentration between groups in the first or third trimester
	20	T1DM, poorly controlled	TT $8.9 \pm 0.3$ SEM (74 $\pm 3.3$ SEM)	22.4 ± 1.9 SEM	delivery	<ul> <li>↑ total triglycerides, VLDL triglycerides, HDL<sub>2</sub>-triglyceride content, HDL<sub>3</sub>- triglyceride content, Apo B-100 in the</li> </ul>

Merzouk 2000 (5) Algeria No comment on ethnicity	20	T1DM, poorly controlled and macrosomic infant T1DM, well controlled and appropriately grown infant	TT $8.9 \pm 0.3$ SEM (74 $\pm 3.3$ SEM) TT $6.3 \pm 0.4$ SEM (45 $\pm 4.4$ SEM)	$22.4 \pm 1.9 \\ SEM \\22.1 \pm 1.6 \\ SEM \\$	Fasting sample, collected within 48 hours of delivery	<ul> <li>women with poor glucose control compared to control and those with good control in both the first and third trimesters</li> <li>↓ HDL<sub>3</sub>-cholesterol and lower Apo A-I in the women with poor glucose control compared to control and those with good control in both the first and third trimesters</li> <li>Women with well controlled diabetes had lipoprotein and apolipoproteins levels similar to non-diabetic women</li> <li>Women with poorly controlled diabetes had higher triglyceride, VLDL, Apo B- 100 and HDL triglyceride concentrations, and lower Apo A-I and HDL<sub>3</sub></li> </ul>
	18	Non-diabetic women with macrosomic infant	TT $6.0 \pm 0.3$ SEM ( $42 \pm 3.3$ SEM)	22.8 ± 1.7 SEM		concentrations than non-diabetic women. Macrosomic infants born with women with poorly controlled diabetes had ↑
	30	Non-diabetic women with appropriately grown infant	TT 5.8 ± 0.2 SEM (40 ± 2.2 SEM)	21.8 ± 2.3 SEM		concentrations of all lipoproteins, Apo A- I and Apo B-100 than appropriately grown infants Macrosomic infants born to non-diabetic mothers had similar lipoprotein profiles to appropriately grown infants.
Toescu, 2004 (6)	17	Normal	-	24.9 ± 1.1 SEM	Non fasting, morning	Total cholesterol and triglycerides ↑ in all groups through pregnancy but no
United Kingdom No comment on	19	T1DM		27.6 ± 1.2 SEM	sample 2 hours after	difference between groups except that women with GDM had higher
ethnicity	12	T2DM		$\begin{array}{c} 30.7\pm2.2\\ \text{SEM} \end{array}$	breakfast. Samples	triglycerides in the second trimester than normal
	12	GDM		30.9 ± 1.7 SEM	taken week 12, 24, 36.	<ul> <li>Small dense LDL ↑ in all diabetic groups</li> <li>compared to normal but no difference</li> <li>between diabetic groups.</li> <li>Total antioxidant capacity was lower in</li> </ul>

Wender-Ozegowska, 2011 (7) Poland No comment on ethnicity Median (min-max values)	74	T1DM with metabolic syndrome pre- pregnancy T1DM without metabolic syndrome pre- pregnancy	FT 6.9, (range 5.5- 9.3) (52, range 37 – 78) ** TT 6.6, (range 5.1- 7.9) (49, range 32 – 63) ** FT 7.6, (range 5.0- 13.2) (60, range 31- 121) ** TT 6.4, (range 4.9- 9.4) (46, range 30- 79) **	PP 30.8, (range 21.7-42.4) ** PP 20.8, (range 16.0 – 35.8) **	Fasting maternal bloods collected between 8-13 weeks and again in the week before delivery. Retrospective observational study	women with diabetes throughout pregnancy, lipid hyroperoxides higher in all diabetic women compared to normal Triglycerides were ↑ and HDL-C↓ in the first trimester in women with metabolic syndrome There were no differences in lipoprotein concentrations in the third trimester. In women with metabolic syndrome the only lipoprotein to change significantly from first to third trimester was HDL, which increased. In women without metabolic syndrome, triglyceride, cholesterol, HDL-C, LDL-C increased from first to third trimester Oxidised LDL-C was not different between women with and without metabolic syndrome and did not change from first to third trimester Oxidised LDL-C was higher in those women with hypertension There were no differences in infant outcome between women with and without metabolic syndrome
Gobl 2010	137	Normal	-	-	unclear	Women with T2DM had ↑ triglycerides
(8) Austria	109	T1DM	7.2 ± 1.4 SD (55 ± 15.3 SD)	$\begin{array}{r} 24.8\pm \ 3.8\\ \text{SD} \end{array}$		and $\downarrow$ HDL-C than women with T1DM in the first trimester
No comment on	64	T2DM	$6.8 \pm 1.3$ SD (51 ±	$32.0 \pm 7.4$		In the third trimester, the lipid levels of
ethnicity			14.2 SD)	SD		women with T1DM were similar to those in women with normal glucose tolerance.
						In the third trimester, women with T1DM
						had higher cholesterol, LDL-C and HDL-
						C than women with T2DM
						Elevated triglycerides and low HDL cholesterol in the third trimester were

						significant predictors for LGA infants,
						and remained significant after correction
						for maternal age and HbA1c
Basu, 2012 (9)	21	Normal	FT $5.0 \pm 0.3$ SD (31	$FT 24 \pm 4$	Overnight	Women with T1DM who later developed
			± 3.3 SD)	SD	fast, samples	preeclampsia had higher LDL-C in early
Austria, Norway,	26	T1DM +	FT $7.3 \pm 1.1$ SD (56	$FT 28 \pm 6$	taken before	pregnancy and higher total cholesterol
United States		preeclampsia	± 12.0 SD)	SD	insulin	and LDL-C in the second trimester than
No comment on	92	T1DM	$FT 6.8 \pm 1.1 \text{ SD} (51)$	FT 26 ± 5	administratio	women with T1DM who did not develop
ethnicity			± 12.0 SD)	SD	n at 12, 22,	preeclampsia
					32 weeks	Women with T1DM who did not develop
					gestation.	preeclampsia had lower triglycerides and
					(Blood also	VLDL-C in the first trimester than
					taken at term	women without diabetes
					but not	HDL-C did not differ between groups
					shown here)	Women with T1DM who later developed
						preeclampsia had increased large LDL
					Note, none of	particles, increase ApoB and
					the	ApoB:ApoAI ratio.
					preeclampsia	
					term bloods	
					were fasting.	
	1		Studies examining gestat		1	
Knopp 1992 (10)	521	Normal	ST $4.7 \pm 0.6$ SD $(28 \pm$		Taken 1 hour	Women with GDM had higher
			6.6 SD)	SD	after 50g oral	triglycerides than the other two groups
United States	264	Abnormal	$ST 4.9 \pm 0.7 SD (30 \pm$	$22.8 \pm 4.1$	glucose after	which were similar to each other
		50gGCT, normal	7.7 SD)	SD	an overnight	
No comment on		75g OGTT			fast between	
ethnicity	96	GDM	ST $5.2 \pm 0.7$ SD $(33 \pm$	$23.8\pm4.6$	24-32 weeks	
			7.7 SD)	SD	gestation	
		100g OGTT by				
		Carpenter and				
		Coustan criteria				
		(5.3/10.1/8.7/4.8				
		mmol/L)				
Koukkou, 1996 (11)	22	Normal	$ST 6.0 \pm 0.7 SD (42 \pm$	$29.7 \pm 5.1$	Fasting	Women with GDM had elevated

			7.7 SD)	SD	bloods at the	triglycerides and lower LDL-C compared
United Kingdom	20	GDM	ST 6.6 ± 0.7 SD (49 ± 7.7 SD)	$\begin{array}{c} 32.2\pm5.2\\ \text{SD} \end{array}$	time of OGTT	to normal
Mixed ethnicity,		Diagnosis per the		~ -		
mostly Caucasian,		EASD criteria:				
Asian,		glucose > 9				
African/Afrocaribbea		mmol/L at 120				
ns		mins post glucose				
(1, 1, 1007, (12))	10(	load		27.5 (IOD	D1 1	
Clark 1997 (12)	126	Normal	-	27.5, (IQR 22.8 –	Blood	Women with GDM had higher fasting
United States				22.8 - 32.8) **	samples taken at	triglycerides and free fatty acids and higher 2H triglycerides.
United States				52.8)	fasting and	Women with GDM had lower HDL-C
Median, IQR	52	GDM	-	30.4, (IQR	2H during the	fasting
				24.9 -	OGTT	
Mixed ethnicity,		GDM diagnosed		42.2) **	Median	
mostly African-		by 50g GCT –		-	gestation of	
American and		positive if $> 7.2$			screening	
Caucasian		at 1H			27.6 weeks	
		Followed by a				
		100g 3H test: any				
		two of 5.3/9.5/8.3/7.4				
		5.3/9.3/8.3/7.4 mmol/L				
Couch 1998 (13)	25	Normal	$ST 4.56 \pm 0.34 SD$	PP 23.6 ±	Fasting	Women with GDM had higher plasma
			$(26 \pm 3.7 \text{ SD})$	3.6 SD	samples after	triglycerides and higher HDL and VLDL
United States			$TT 4.77 \pm 0.37 SD$		GDM	triglyceride content.
			$(29 \pm 4.0 \text{ SD})$		diagnosis and	In women with GDM, there were
Mixed ethnicity,	25	GDM	$ST 4.98 \pm 0.48 SD$	PP 25.6 ±	before	increased VLDL core lipids (triglycerides
Mainly Caucasian			$(31 \pm 5.2 \text{ SD})$	6.3 SD	treatment, at	and cholesterol) and the
		GDM diagnosed	$TT 5.05 \pm 0.49 SD$		33-34 weeks	triglyceride/cholesterol ratio was higher
		by the O'Sullivan	$(32 \pm 5.4 \text{ SD})$		and at 37-38	in HDL.
		and National			weeks.	

		Diabetes Data Group criteria				
Barden, 2004 (14)	22	GDM + preeclampsia	5.27 ± 0.16 SEM (34 ± 1.7 SEM)	PP 33.7 ± 1.4 SEM	Fasting sample at 28	12% of women with GDM developed preeclampsia
Australia	162	GDM	$5.03 \pm 0.04$ SEM (31 $\pm 0.4$ SEM)	PP 29.8 ± 0.4 SEM	weeks gestation	At diagnosis of GDM, there was no difference in lipoproteins between women
No comment on ethnicity		GDM diagnosed using ADIPS				who later did or did not develop preeclampsia
		criteria after 75gOGTT				In logistic regression, the significant independent predictors for developing preeclampsia were fasting glucose, c- reactive protein, family history of hypertension, and the proband's mother having gestational diabetes
Di Cianni, 2005 (15)	121 23	Normal Impaired glucose	-	PP 23.6 ± 4 SD	Fasting sample at the	Triglycerides significantly $\uparrow$ in women with GDM compared to IGT or normal at
Italy	25	tolerance		4 DD	time of the	28 weeks
No comment on ethnicity	36	GDM Impaired glucose tolerance and GDM diagnosed using a 50g CGT		Data given for the group as a whole	oral glucose tolerance test at 27 weeks gestation	Macrosomia and LGA were more common in IGT than in GDM or normal In women with IGT, the incidence of LGA infants was increased in those with triglyceride levels $> 75^{\text{th}}$ centile (2.30 mmol/L)
		then a 100g OGTT, using Carpenter and Coustan criteria				Pre-pregnancy BMI, weight gain in pregnancy, fasting serum triglycerides, and 2H post OGTT glucose levels were all positively and significantly associated with neonatal body weight With multiple regression, only pre- pregnancy BMI and serum triglycerides remained significantly associated with birth weight
Sanchez-Vera, 2007	34	Non-diabetic and	-	21.6 ±	Sample after	Women with GDM had higher
(16)	1	BMI<25		1.70 SD	overnight	triglycerides and cholesterol compared to

Spain		BMI>25		SD	week 15, 24,	non-diabetic women from the first
-	20	GDM and BMI	ST 4.73 (28)	$22.2 \pm 2.1$	32.	trimester onward
Caucasian		<25		SD		LDL from women with GDM had
	42	GDM and BMI >		30.5 ±		increased susceptibility to oxidation
		25		4.22 SD		1 2
		GDM diagnosis				
		by American				
		Diabetes				
		Association				
		criteria at 24				
		weeks using a				
		50g GCT				
Qiu, 2007 (17)	96	Normal	-	PP 22.8 ±	Non-fasting	Mean LDL particle size is reduced in
United States				0.4 SE	blood	women with GDM
	105	GDM	-	PP 29.5 ±	samples	The OR 1.8 (95%CI 0.9-3.3) of
Mixed ethnicity,				0.7 SE	collected	developing GDM for every 10-A
primarily non-		GDM diagnosed			intrapartum	reduction in LDL particle size
Hispanic White,		by the National				
African American		Diabetes Data				
and Other.		Group expert				
		committee 1997				
		criteria using				
Schoofer Craf 2000	150	100g OGTT GDM		PP 27.8 ±	Taken at 28	Material trialectorials 10 0 4 1
Schaefer-Graf, 2008 (18)	130	UDIVI	-	$PP 27.8 \pm 6.2 \text{ SD}$	Taken at 28 weeks, 32, 36	Maternal triglycerides and free fatty acids
(10)		GDM diagnosed		0.2 SD	and 39 weeks	correlated positively with fetal abdominal
Germany		with a 75g OGTT			gestation.	circumference, and with birth weight and infant fat mass
Guinnany		using the			Reported on	
		Carpenter and			bloods close	After adjustment maternal free fatty acids and triglycerides at delivery remained
		Coustan criteria			to delivery.	positively and significantly related to
					Fasting status	LGA
					unclear	LUA
Szymanska 2008 (20)	41	Normal		PP 23.15	Unclear if	Women with GDM had higher
Szymanska 2000 (20)	41	INUIIIIAI	-	FF 23.13		women with ODW had higher

				± 0.56	fasting.	triglyceride levels
Poland				fault	_	
	81	GDM	-	PP 25.94	Average	
No comment on				$\pm 0.73$	GDM	
ethnicity		GDM diagnosed		fault	diagnosis	
		with fasting			testing at 28	
		glucose and a			weeks	
		50gCGT or a				
		75gOGTT			Samples	
		Fasting above 6.9			were taken	
		mmol/L twice =			after	
		GDM,			diagnosis or	
		If on the 50			exclusion of	
		GGCT 1H			GDM	
		glucose>11.1				
		mmol/L, GDM				
		was diagnosed.				
		If 1H between				
		7.8 mmol/L and				
		11.1 mmol/L then				
		a 75g OGTT was				
		performed:				
		fasting 7.5				
		mmol/L, 1H 10				
		mmol/L, 2H 7.8				
		mmol/L then				
		GDM				
Rizzo, 2008 (21)	23	Normal	$ST 4.4 \pm 0.6 SD (25 \pm 0.6 SD)$	$PP 28 \pm 4$	Between 24-	No difference in the concentration of any
- 1			6.6 SD)	SD	28 weeks	of the lipoproteins.
Turkey	27	GDM	$ST 5.1 \pm 0.5 SD (32 \pm$	$PP 29 \pm 4$	gestation,	They also measured Apo AI, Apo B and
No comment on			5.5 SD)	SD	following a	Lp(a) and there was no difference.
ethnicity		GDM diagnosed			12-14 hour	
		by American			overnight fast	
		Diabetes				
		Association				

		criteria using a 100g OGTT				
Marseille-Tremblay, 2008 (22) Canada No comment on	29	Low cholesterol, no diabetes (cholesterol < the median 6.42 mmol/L)	-	PP 23.2 ± 4.9 SEM	Bloods at delivery. Unclear fasting status, unclear if pre	High maternal cholesterol at delivery is associated with higher LDL-C, ApoB100 and triglyceride concentrations in maternal blood GDM was not associated with a
ethnicity	30	High cholesterol, no diabetes (cholesterol > the median 6.42 mmol/L	-	PP 21.0 ± 3.3 SEM	or post- delivery.	difference in maternal lipid profile Cord blood cholesterol was not different between groups
	7	Normal cholesterol, no diabetes	-	PP 22.5 ± 1.6 SEM		
	7	GDM GDM diagnostic criteria unclear	-	PP 28.0 ± 4.1 SEM		
Son, 2010 (23) Korea No comment on ethnicity	104	GDM GDM by 50g GCT then 100g OGTT by Carpenter and Coustan criteria	-	PP 23.2 ± 4.1 SD	Fasting, within two weeks of diagnosis of GDM (24-32 weeks gestation)	Maternal triglyceride levels were higher in mothers of LGA infants No correlation was found between maternal glucose, total cholesterol, HDL cholesterol and infant weight
Savvidou 2010 (24)	248	Normal	-	FT 32.6 ± 5.2 SD	Bloods taken at 11-13	Women who later developed GDM had higher triglycerides, LDL-C, and
London	124	GDM	FT 5.8 ± 0.8 SD (40 ± 8.7 SD)	FT 34.3 ± 5.0 SD	weeks gestation,	cholesterol and lower HDL-C in early pregnancy. This difference was
Mixed ethnicity, mainly Caucasian, Black, Asian		Diagnosis based on 75g OGTT performed on patients selected			Fasting status unclear.	significant even when adjusted for clinical factors including maternal age, GMI, ethnicity, parity, smoking, gestational age at sampling.

		1				
		because of risk				
		factors. Criteria				
		per WHO. < 7				
		mmol/L fasting, <				
		7.8 mmol/L at 2H				
Retnakaran 2010 (25)	87	Normal	-	PP 22.9	Fasting	There were no significant differences in
				(IQR 21.3	bloods at	cholesterol, triglycerides, LDL-C, Apo B
Canada				-26.1) **	time of the	or apoA1.
	170	Abnormal GCT,	-	PP 23.5	OGTT in late	HDL-C was lower in women with GDM
Mixed ethnicity,	170	normal OGTT		(IQR 21.2	second, early	
mainly Caucasian and				(1QR 21.2) - 27.5) **	third	Postpartum, cholesterol, triglycerides,
Asian	89	Immained always		/	trimester.	apoB, LDL, cholesterol to HDL ratio all
Asiali	89	Impaired glucose	-	PP 23.5	unnester.	worsened across the groups from normal
		tolerance on		(21.9 –	T1 1	to GDM.
		OGTT		27.9) IQR	They also	
	136	GDM	-	PP 25.0	measured at 3	
				(22.0 –	months	
		GDM diagnosed		30.1 ) IQR	postpartum	
		by 100g OGTT				
		per the National				
		Diabetes Data				
		Group 1979 (any				
		two of				
		5.8/10.6/9.2/8.1				
		mmol/L)				
Schaefer-Graf 2011	190	Normal		PP 25.7 ±	Fasting	
	190	INOIIIIai	-		Fasting,	No difference in maternal glucose,
(19)	1.50	(D) (		SEM 0.4	either	triglycerides, free fatty acids or
	150	GDM	-	PP 27.7 ±	morning of	cholesterol levels between normal and
Germany				SEM 0.4	caesarean	GDM women
		Diagnosed using			section or	Cord blood glucose and free fatty acids
		a 75g OGTT with			within the	were lower in infants born to
		Carpenter and			week prior to	uncomplicated pregnancy
		Coustan criteria			delivery	In women without diabetes, maternal
		(5.0/10.0/8.6			-	glucose and fatty acids and glycerol
		mmol/L)				correlated with cord blood levels but not
						with neonatal weight or fat mass
						with neonatal weight of lat mass

Barrett, 2013 (26)	242	GDM randomized	TT $5.60 \pm 1.10$ SD	TT 34.6	Fasting after	Maternal triglycerides increased more
		to insulin	$(38 \pm 12.0 \text{ SD})$	(95% CI	diagnosis of	from randomization to 36 weeks in
New Zealand and				33.7-35.5)	GDM prior to	women allocated metformin (21.93%)
Australia	236	GDM randomized	TT $5.60 \pm 1.12$ SD	TT 35.2	pharmacother	compared to those allocated insulin
		to metformin.	$(38 \pm 12.2 \text{ SD})$	(95% CI	apy	(9.69%)
Mixed ethnicity,				34.2–36.2)	commenceme	The strongest associations with birth
predominately		GDM diagnosed			nt	weight $> 90^{\text{th}}$ centile were maternal
Caucasian,		by ADIPS criteria			And at 36	triglycerides and measures of maternal
Polynesian, Asian,					weeks	glucose
Indian.						
From the Metformin						
in Gestational						
diabetes RCT (27).						

\* This includes only studies from 1990 onward and only includes the changes noted during gestation rather than postpartum or during lactation. Where possible gestational timing of measurements has been stated. HbA1c has been given as % (mmol/mol). HbA1c in mmol/mol has been calculated using the Diabetes Care online calculator. Data for HbA1c and BMI are expressed as mean, except where marked as \*\* which indicate the median has been used.

Abbreviations as follows: PP pre-pregnancy, FT first trimester, ST second trimester, TT third trimester, T1DM type 1 diabetes mellitus T2DM type 2 diabetes mellitus, GDM gestational diabetes mellitus, FFA free fatty acids, LDL-C low density lipoprotein, HDL high density lipoprotein, VLDL very low density lipoprotein, Apo apolipoproteins, IV intravenous, GCT glucose challenge test, OGTT oral glucose tolerance test, SE standard error, SEM standard error of the mean, SD standard deviation, 95%CI 95 percent confidence interval.

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#### Supplementary Table 2. Pharmacological agents.

Pharmacologica l therapy	Placental passage	Effects on lipids *	Safety in pregnancy
Metformin	Yes (1)	↓serum triglycerides, ↓total cholesterol and ↓ LDL-C, these latter two independently of glycaemic control (2) ↓free fatty acid levels from adipose tissue (3) and ↓VLDL levels (4).	No increase in congenital malformations when used in early pregnancy (5). Similar pregnancy outcomes as insulin in randomized trials for GDM. (6-8)
Insulin	None to minimal (9; 10)	↓triglycerides by 10-40%, and normalization of lipoprotein composition (11)	Safe to use
Omega-3 fatty acids	Yes (12)	20-50% $\downarrow$ in triglyceride levels, with a possible $\uparrow$ /- LDL-C $\uparrow$ /-HDL-C (13)	Supplementation with up to 1g/d DHA has not been reported to be harmful. (12; 14)
Statins	Variable depending on type of statin (15; 16)	Anti-inflammatory, antithrombotic and antioxidant effects. ↓triglycerides by 10-40%, ↓LDL-C and ↓non- HDL-C, and ↑HDL-C (13)	No recurrent pattern of malformations reported in animal studies (17) Statins have been shown to have effects on placental development in vitro, with decreased
			migration of cytotrophoblasts and syncytiotrophoblasts (18)
Niacin	Unclear	<ul> <li>↓triglycerides by 20-50%, ↓LDL-C by 5-25%, while ↑HDL-C 15-35% (13)</li> <li>↓ Hepatic synthesis of VLDL and triglycerides are also reduced (19)</li> </ul>	Very small numbers of case reports, no reported adverse infant effects (20)
Fibrates	Unclear	↓ triglyceride concentration by 20-50%, ↓ LDL- C 0-20% and $\uparrow$ HDL-C levels 6-20% (13).	Very small numbers of case reports, no reported adverse infant effects (20)
Resveratrol	Likely: detected in fetal plasma in rodents (21)	↓LDL cholesterol, ApoB, triglycerides and ↓intrahepatic lipid content (22)	Reduction in neural tube defects in rodent models of diabetic pregnancy (21) Not tested in humans

\* this refers to general effects, not pregnancy specific effects.

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