Small for gestational age babies from Malaysian tertiary hospitals:
A 5 year cohort study from the National Obstetrics Registry, Malaysia.

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INTRODUCTION
Small for gestational age (SGA) and intrauterine growth restriction have often be used interchangeably however not all small babies are growth restricted. In obstetric practice SGA is defined as an estimated fetal weight below the 10th centile and are at high risk of poor perinatal and infant outcome.

METHOD
This is a retrospective cohort study over a 5 year period from 1st January 2010 to 31st December 2014. Data was obtained from the National Obstetric Registry (NOR), Malaysia. NOR is an online data base that captures obstetric data from 14 tertiary hospitals in Peninsular Malaysia and East Malaysia. All newborns delivered between 1st Jan 2010 to 31st Dec 2014 with birthweight below the 10th centile. NOR represents approximately one third of the deliveries in Malaysia. Statistical analysis performed using STATA 11.0.Simple logistic regression was used to access variables in order of fetal outcomes in SGA. P value< 0.05 was taken as the cut off value of significance

REFERRENCES
1. Small for Gestational age fetus, investigation and management- RCOG green-top guideline No:31
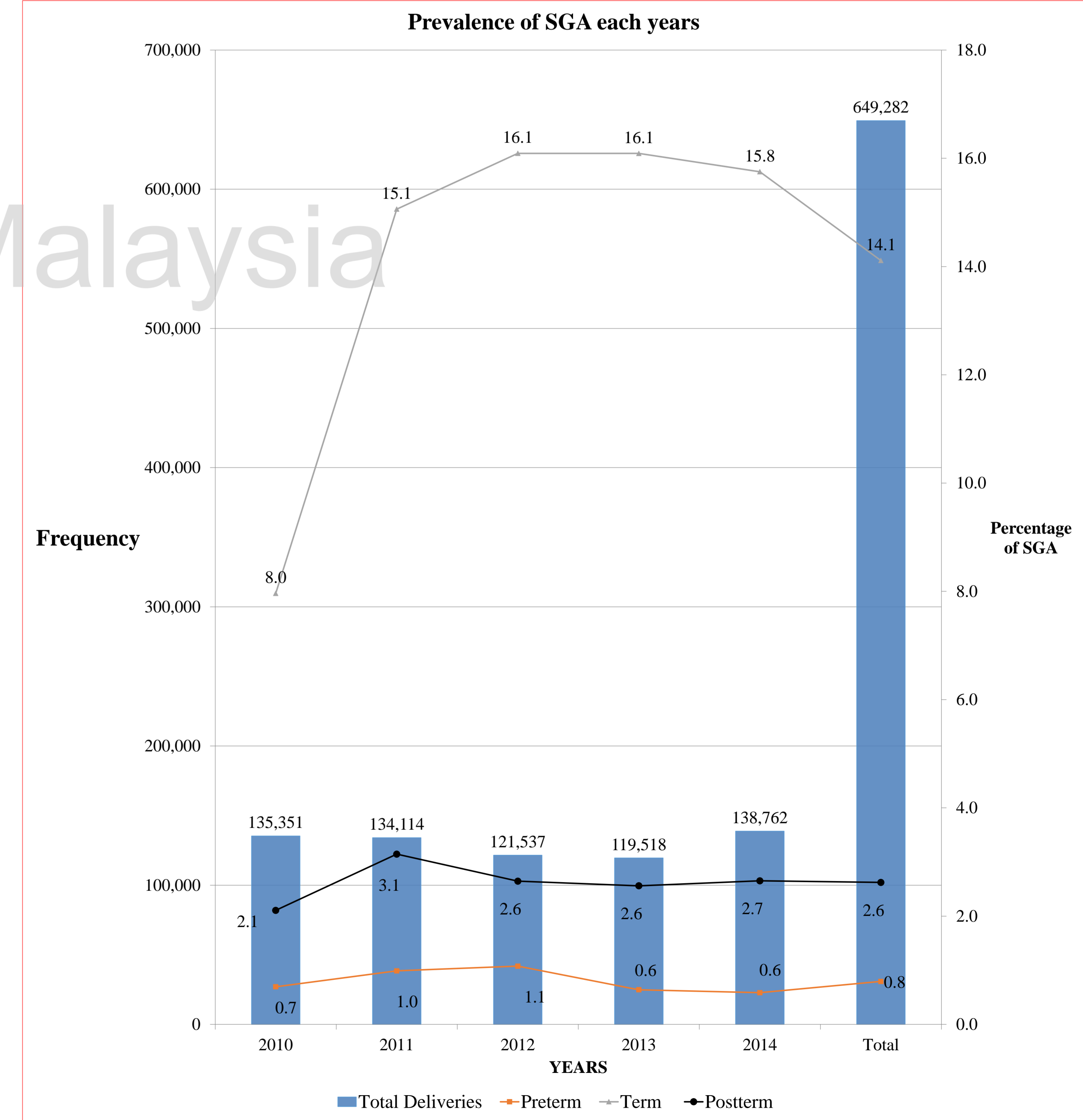2. Revised intrauterine growth charts. Aust. Paediatrir.J.(1983) 19:157-161

RESULTS
A total of 663027 singleton deliveries were analysed. The overall prevalence of SGA in Malaysian tertiary hospitals was 17.2 %. Indian women had a higher prevalence of SGA when compared to other ethnicity at 20% in the term babies. Adolescent girls had a 17.6% and those who were single had a 16.8% prevalence of SGA babies at term. It was more in women in their first pregnancy and 15% of term SGA had an instrumental delivery. There was a higher prevalence of preterm SGA with Diabetes and hypertension in pregnancy.

15.7 % of women who were retroviral positive had term SGA. More than a third of preterm, term and post term SGA was seen in women who were anaemic at booking. Higher risk of SGA was observed in women with eclampsia and risk of birth injury was higher in preterm SGA. There was a higher risk of fresh stillbirth in preterm SGA (2.60; 95%CI: 2.18-3.11) term SGA (3.07; 95% CI: 2.43-3.87) and post term SGA (4.04; 95% CI: 2.33-6.99). There was a higher risk of macerated stillbirth in preterm SGA (7.25; 95%CI: 6.56-8.01), term SGA (3.35; 95% CI: 2.88-3.88) and post term SGA (5.39; 95% CI: 3.23-8.98).

CONCLUSION
From this study we were able to see the increased risk of stillbirth in preterm, term and post term SGA. Prenatal care is important to identify problems with fetal growth. Correction of anaemia and control of hypertension and diabetes in pregnancy is crucial

Prevalence of SGA each years

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Eclampsia	Yes		No		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	149	2.89	5001	97.11	2.49	(2.07, 3.00)
Non SGA	538	1.18	45028	98.82	1.00	
Term						
SGA	237	0.26	91383	99.74	2.75	(2.33,3.25)
Non SGA	333	0.09	352883	99.91	1.00	
Postterm						
SGA	14	0.08	17009	99.92	2.69	(1.24, 5.81)
Non SGA	12	0.03	39184	99.97	1.00	

Genital tract trauma (GTT)	Yes		No		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	403	7.83	4747	92.17	0.46	(0.41, 0.51)
Non SGA	7111	15.61	38455	84.39	1.00	
Term						
SGA	19074	20.82	72546	79.18	0.76	(0.75, 0.78)
Non SGA	90460	25.61	262756	74.39	1.00	
Postterm						
SGA	3370	19.80	13653	80.20	0.78	(0.74, 0.81)
Non SGA	9458	24.13	29738	75.87	1.00	

Induction	Yes		No		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	755	14.7	4395	85.3	1.11	(1.02, 1.19)
Non SGA	6129	13.5	39437	86.5	1.00	
Term						
SGA	21237	23.2	70383	76.8	1.02	(1.00, 1.04)
Non SGA	80609	22.8	272607	77.2	1.00	
Postterm						
SGA	4832	28.4	12191	71.6	0.88	(0.85, 0.92)
Non SGA	12136	31.0	27060	69.0	1.00	

Apgar Score 1 min	<7		>7		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	937	18.2	3224	62.6	1.78	(1.65, 1.93)
Non SGA	5987	13.1	36722	80.6	1.00	
Term						
SGA	4896	5.3	85676	93.5	1.23	(1.19, 1.27)
Non SGA	15261	4.3	328464	93.0	1.00	
Postterm						
SGA	1110	6.5	15677	92.1	1.17	(1.09, 1.27)
Non SGA	2150	5.5	35659	91.0	1.00	

Apgar Score 5 min	<7		>7		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	334	6.5	3749	72.8	1.86	(1.65, 2.10)
Non SGA	1925	4.2	40221	88.3	1.00	
Term						
SGA	1073	1.2	89062	97.2	1.48	(1.37, 1.58)
Non SGA	2771	0.8	339439	96.1	1.00	
Postterm						
SGA	259	1.5	16449	96.6	1.32	(1.13, 1.54)
Non SGA	443	1.1	37220	95.0	1.00	

Tables indicating SGA and outcomes

Birth Injuries	Yes		No		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	3	0.06	5147	99.94	1.9	(0.54, 6.60)
Non SGA	14	0.03	45552	99.97	1.00	
Term						
SGA	23	0.03	91597	99.97	0.84	(0.53, 1.31)
Non SGA	106	0.03	353110	99.97	1.00	
Postterm						
SGA	3	0.02	17020	99.98	0.43	(0.13, 1.48)
Non SGA	16	0.04	39180	99.96	1.00	

Dead (FSB)	Yes		No		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	159	11.7	4,991	0.8	2.60	(2.18, 3.11)
Non SGA	551	40.5	45,015	6.9	1.00	
Term						
SGA	128	9.4	91,492	14.1	3.07	(2.43, 3.87)
Non SGA	161	11.8	353,055	54.5	1.00	
Postterm						
SGA	35	2.6	16,988	2.6	4.04	(2.33, 6.99)
Non SGA	20	1.5	39,176	6.0	1.00	

Dead (MSB)	Yes		No		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	726	24.2	4,424	0.7	7.25	(6.56, 8.01)
Non SGA	1009	33.6	44,557	6.9	1.00	
Term						
SGA	322	10.7	91,298	14.1	3.35	(2.88, 3.88)
Non SGA	372	12.4	352,844	54.6	1.00	
Postterm						
SGA	49	1.6	16,974	2.6	5.39	(3.23, 8.98)
Non SGA	21	0.7	39,175	6.1	1.00	

Congenital Anomaly	Yes		No		Odd ratio	95% CI
	n	%	n	%		
Preterm						
SGA	77	1.5	5073	98.5	2.95	(2.28, 3.83)
Non SGA	233	0.5	45333	99.5	1.00	
Term						
SGA	179	0.2	91441	99.8	1.88	(1.57, 2.24)
Non SGA	368	0.1	352848	99.9	1.00	
Postterm						
SGA	30	0.2	16993	99.8	3.46	(1.96, 6.09)
Non SGA	20	0.1	39176	99.9	1.00	