Guangzhou Women & Children's Medical Center

UNIVERSITY OF BIRMINGHAM

广州出生队列 BIGCS

Born in Guangzhou Cohort Study

The Born in Guangzhou Cohort Study

(BIGCS)

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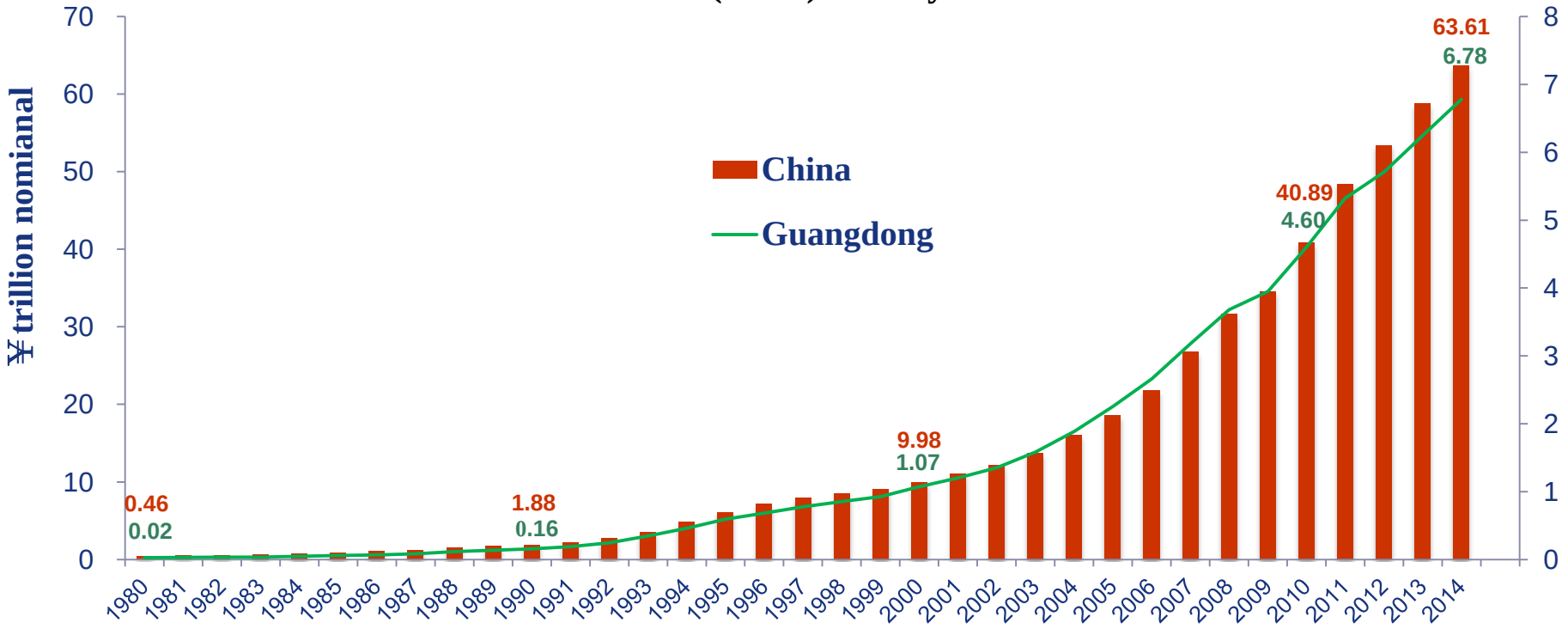
Why to Set up BIGCS？

Who is going to be the parents?
Are they Special?

Characteristics of the childbearing age women

- ✓ Same age with the reform
- ✓ Grow-up 'with' the fast economic bloom

China Gross Domestic Product (GDP) History from FY 1980 to FY 2014

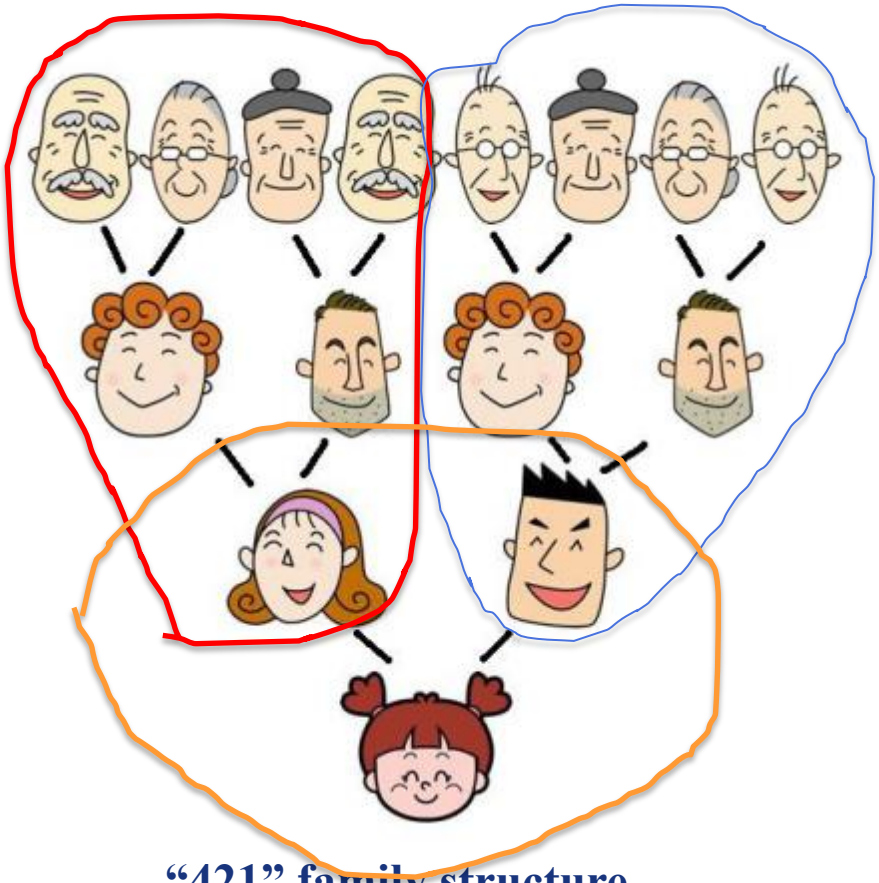


Rapid Urbanization

Exposed to the 'puberty' of economic development

One-child policy in China

The first one-child certificate in1979

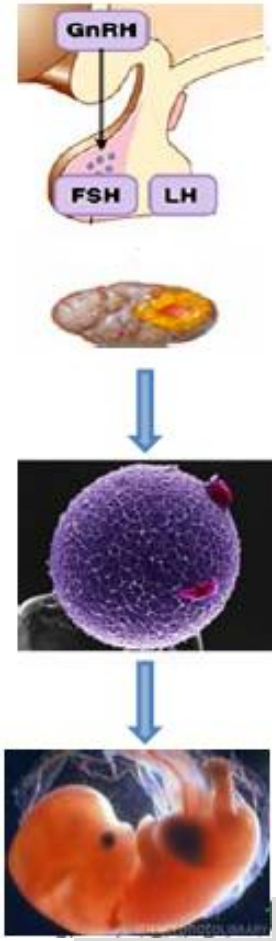


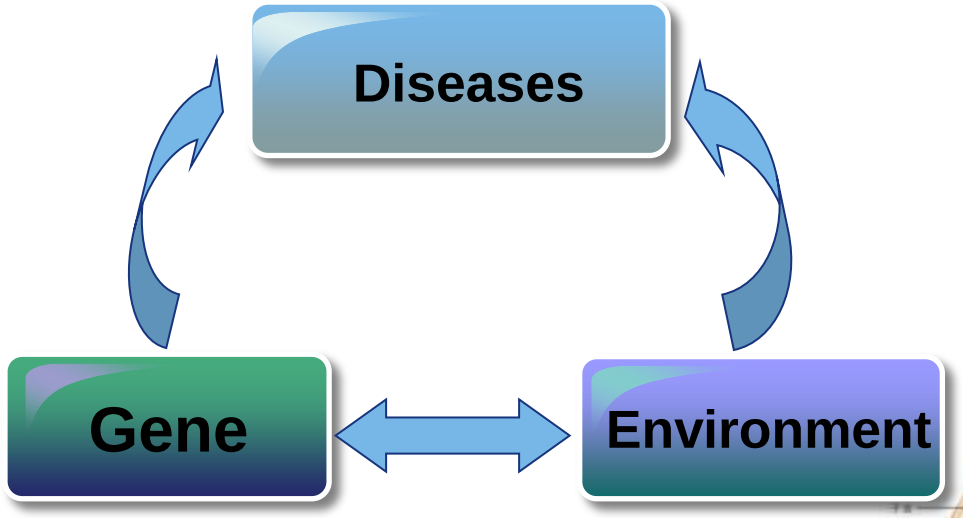
“421” family structure

妇儿中心

Objective of BIGCS

To examine the effects of genetic, nutritional, environmental and social factors on pregnancy outcomes and the health and development of infants and children





https://clinicaltrials.gov/ct2/show/NCT02526901

Core Research Areas

- Concerned about the focus of the health problems of children in both developed and developing countries

Concerns of developing countries

- **Infectious diseases**
- **Birth defects**
- **Vector-borne diseases**
- **Respiratory system diseases**
- **Malnutrition**

Concerns of developed countries

- **Obesity**
- **Autism**
- **Asthma**
- **Diabetes**
- **Cardiovascular disease**
- **Tumor**

Exposures & Outcomes

Environment
Living condition
Occupational history

Life-style
Passive smoking
Incense burning
Dietary pattern (double-stewed soup, dessert, BBQ)
Mineral substance, Vitamin,
Infant feeding mode

Social economic factors

Genetic factors

Gestational disease
GDM, PIH, FGR,etc

Pregnancy outcome
Low birth weight, Preterm birth, Stillbirth, Birth defects, etc

Growth and Development
Growth (overweight, obesity, etc)
Neuropsychology (Autism,etc)

Allergic diseases
Eczema, asthma, etc

Others
Infectious disease, Diabetes, cardiovascular disease, cancer, etc

Sample Size

- Target to recruit 30,000 pregnant women from 2012 to 2018

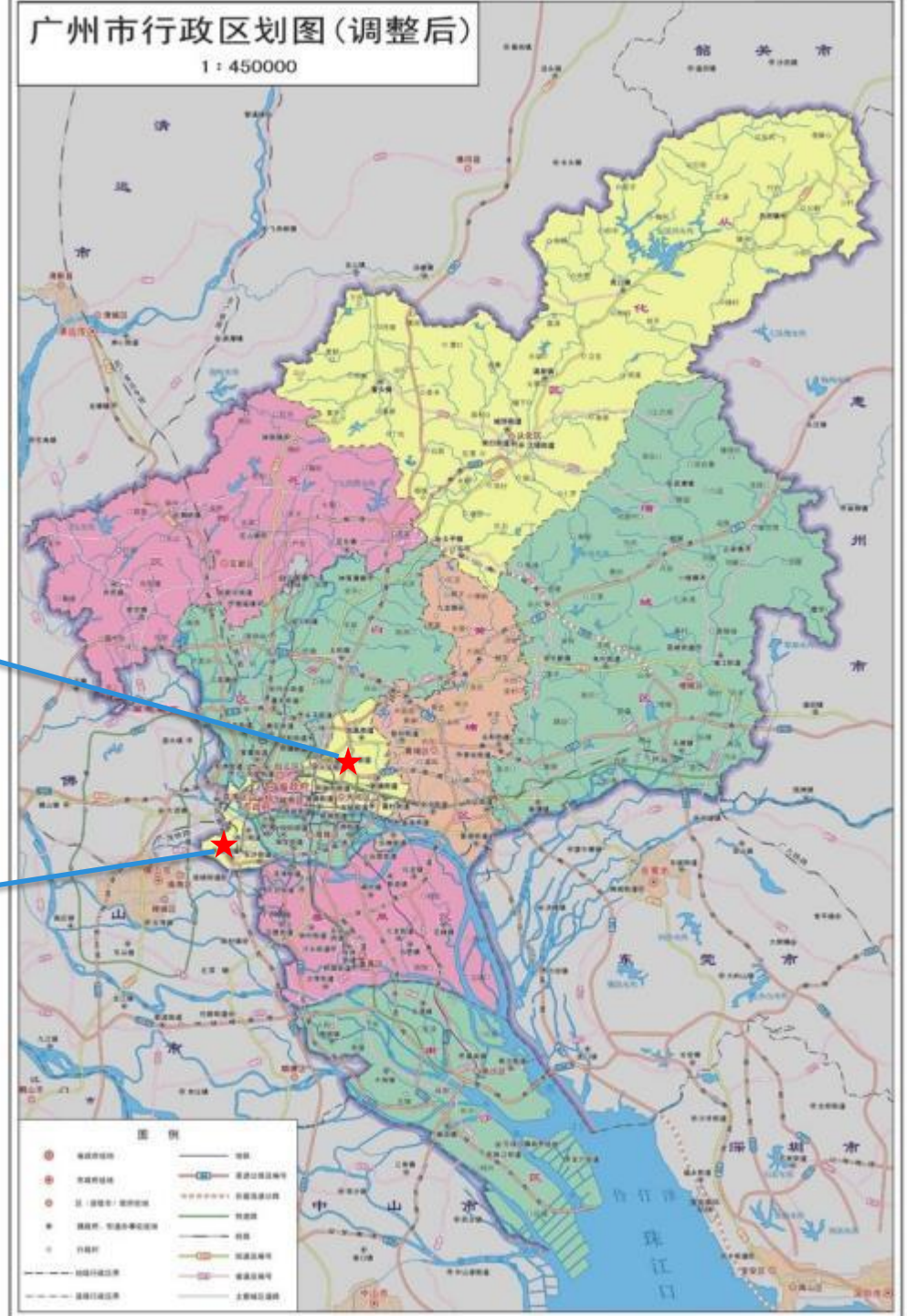
Stage	Period	Target Sample Size
Pilot	2011.10~2012.01	50
1st Recruitment Stage	2012.02~2014.12	10,000
2nd Recruitment Stage	2015.01~2018.12	30,000

Location

Two sites:

Hospital in Zhujiang Newtown

Women and Infant's Hospital



Follow-up Strategy

	Interview Point	Visit	Questionnaire	Biologic Samples
Mother	Before 20 w	Clinic visit	Questionnaire 1 SAS, SDS	Blood
	24~27+6 w	Clinic visit	Nutrition Questionnaire	Stool
	35~38+6 w	Clinic visit	Questionnaire 3 SAS, SDS	Blood, Urine
At birth		Hospital delivery	Clinic Records	Cord blood, Placenta, Cord, Dry blood spots of NB
Child	42 d	Phone call / clinic visit	Questionnaire 5	Stool
	6 m	Phone call / clinic visit	Questionnaire 6 ASQ	
	12 m	Clinic visit	Questionnaire 7 ASQ, GESELL	Blood, Urine
	3 yrs.	Clinic visit	Questionnaire 8 GESELL	Blood
	6 , 10, 12-13, 15-16, Plan To 18 yrs.			

Info

Level 1 Level 2	No. of Variables
Questionnaire for Pregnant Women	**2877**
Q1 - Early Pregnancy Questionnaire	**1754**
0. Cover Page	16
1. Demographic Background	68
2. Occupation	140
3. Living Situation	155
4. Life Style	435
5. Past Medical History	123
6. Family History	348
7. Menstrual History and Pregnancy History	115
8. Maternal Health Status	136
9. The supplements of Vitamins, minerals and dietary	145
10.Family relationships and psychological Impact	73
Q2 - Maternal dierary questionaire FFQ	**492**
0. Cover Page	15
1. Basic Condition	3
2. Eating Habits and Behaviors	245
Change of Preferred Taste Before, During, and After Pregnancy	21
Type of Diet	1
Source of Food	36
Cuisine of Food	77
Guangdong Speical Food Intake	13
Source of Drinking Water	73
Beverage Intake	19
Change of Speical Food Before and After Pregnancy	5
3. Food Frequencies	175
4. Other Diet Habits	34
5. Calorie Intake Survey	20
Q3 - Late Pregnancy Questionnaire	**631**
Questionnaire for the Children	**3026**

Sample Collection

Maternal samples

Blood 7 ml → **<20 w** → 10 aliquots

Stool → **24-28w** → 1 aliquot

Blood 7 ml → **28-42w** → 10 aliquots

Placenta 4
Umbilical cord 2
Cord blood 20 ml
→ **Delivery** → 29 aliquots

Offspring samples

dried blood Spots → **3 days** → 3 spots

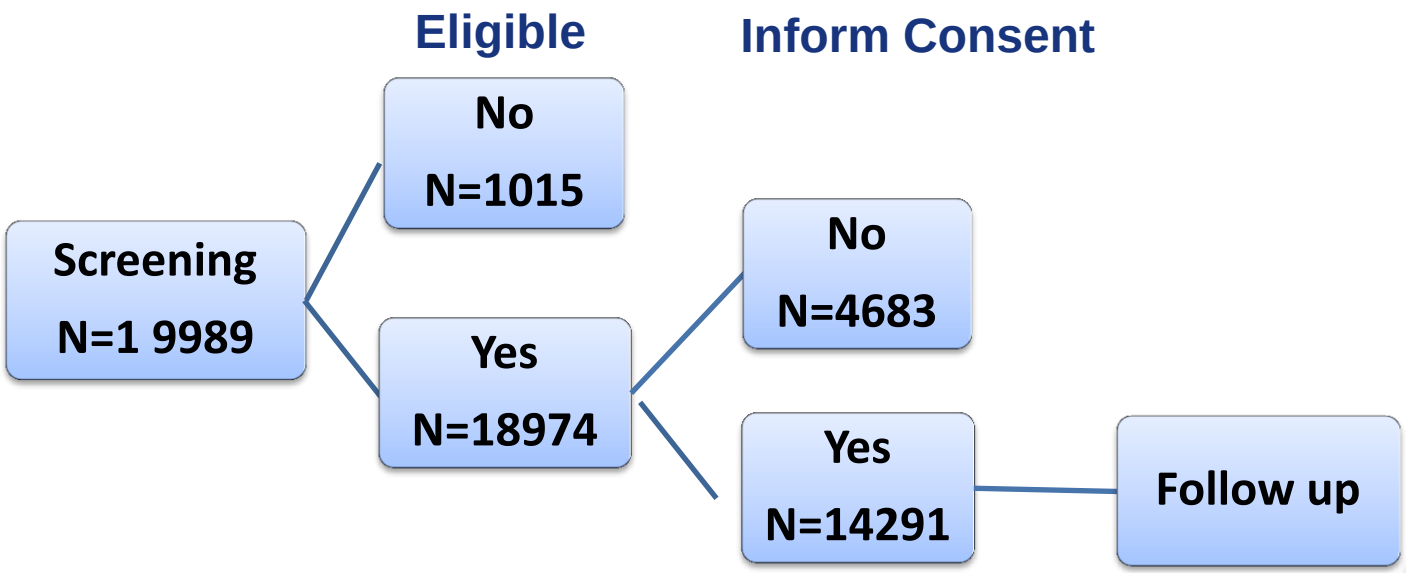
Blood 4 ml → **1 year** → 8 aliquots

Blood 4 ml → **3 year** → 8 aliquots

69 aliquots in 7 times per participant

Study Progress

Recruitment



- <20 weeks of gestational age
- Permanently live in Guangzhou
- Plan to deliver in GZWCMC

Note：data updated by 30th Sep 2015

Introduction & Informed consent

诊疗卡号：□□□□□□□□□□□□□□□□□□□□

问卷编号：□□□—□□□□

知情同意书（孕妇 – Q+B）

第一部分　　知情部分

1. 感谢您参加广州宝贝计划。该计划的目的在于长期追踪观察孕妇在怀孕期间和分娩后的社会、经济、行为、健康等情况以及孩子早期的营养、发育等情况对儿童健康的长期影响，为提高儿童健康水平提供科学线索。
2. 该计划是一个公益性的、非盈利性的项目，得到了广州市政府的大力支持，并且已经通过了广州市妇女儿童医疗中心医学伦理委员会审批，对您和您孩子的调查都是符合医学伦理要求的。
3. 参与这个计划，您无需支付任何费用。只需在您怀孕期间和分娩后完成相关问卷调查以及提供少量生物样本（具体见附件）。问卷内容主要涉及您和您小孩的健康疾病情况以及医学上认为可能会影响健康的一些因素。生物样本包括与您和您小孩的健康疾病相关的生物组织标本，主要包括血

Population distribution (On 30th Sep, 2015)

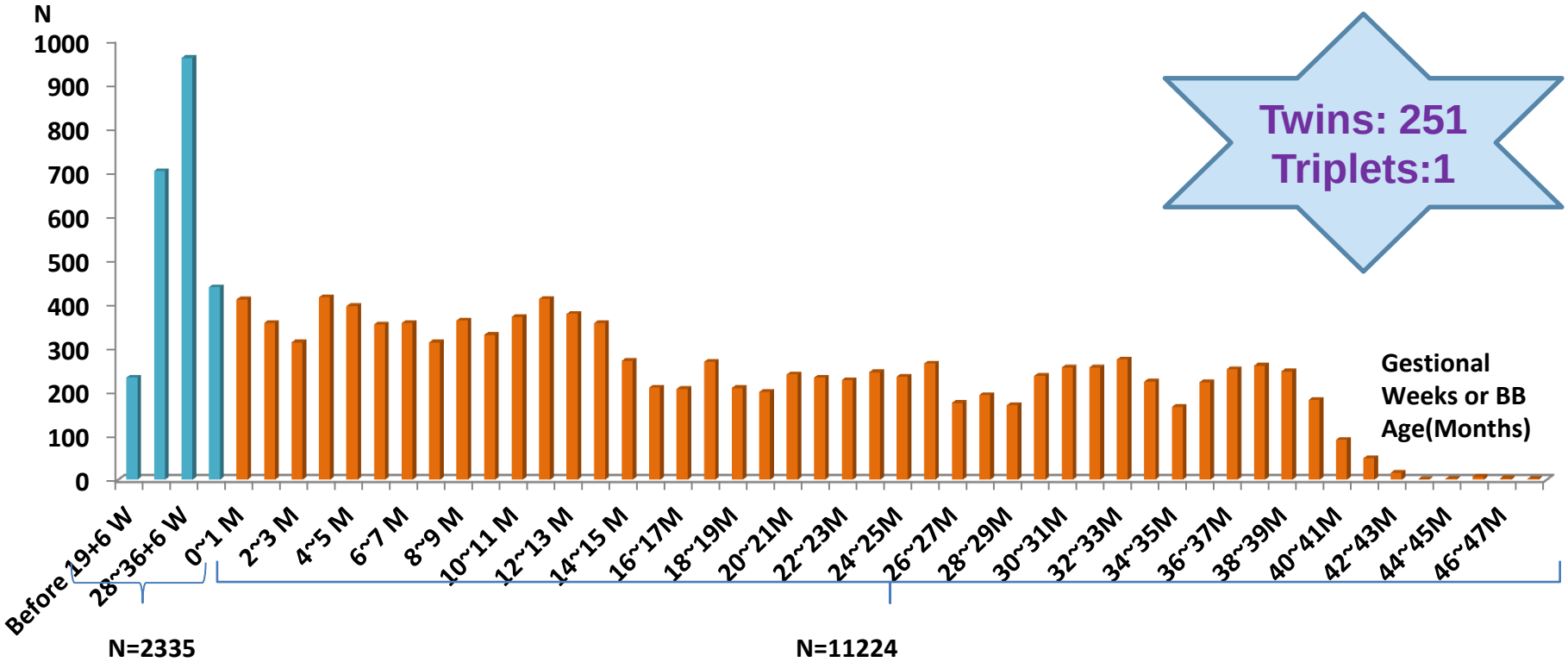
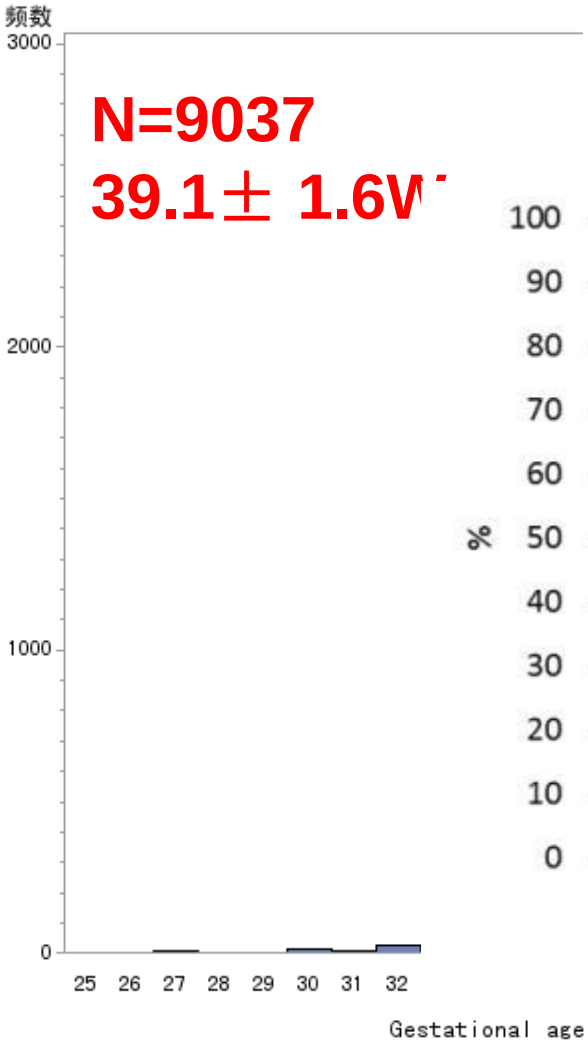


Fig. 2 Population distribution On 30th Sep, 2015

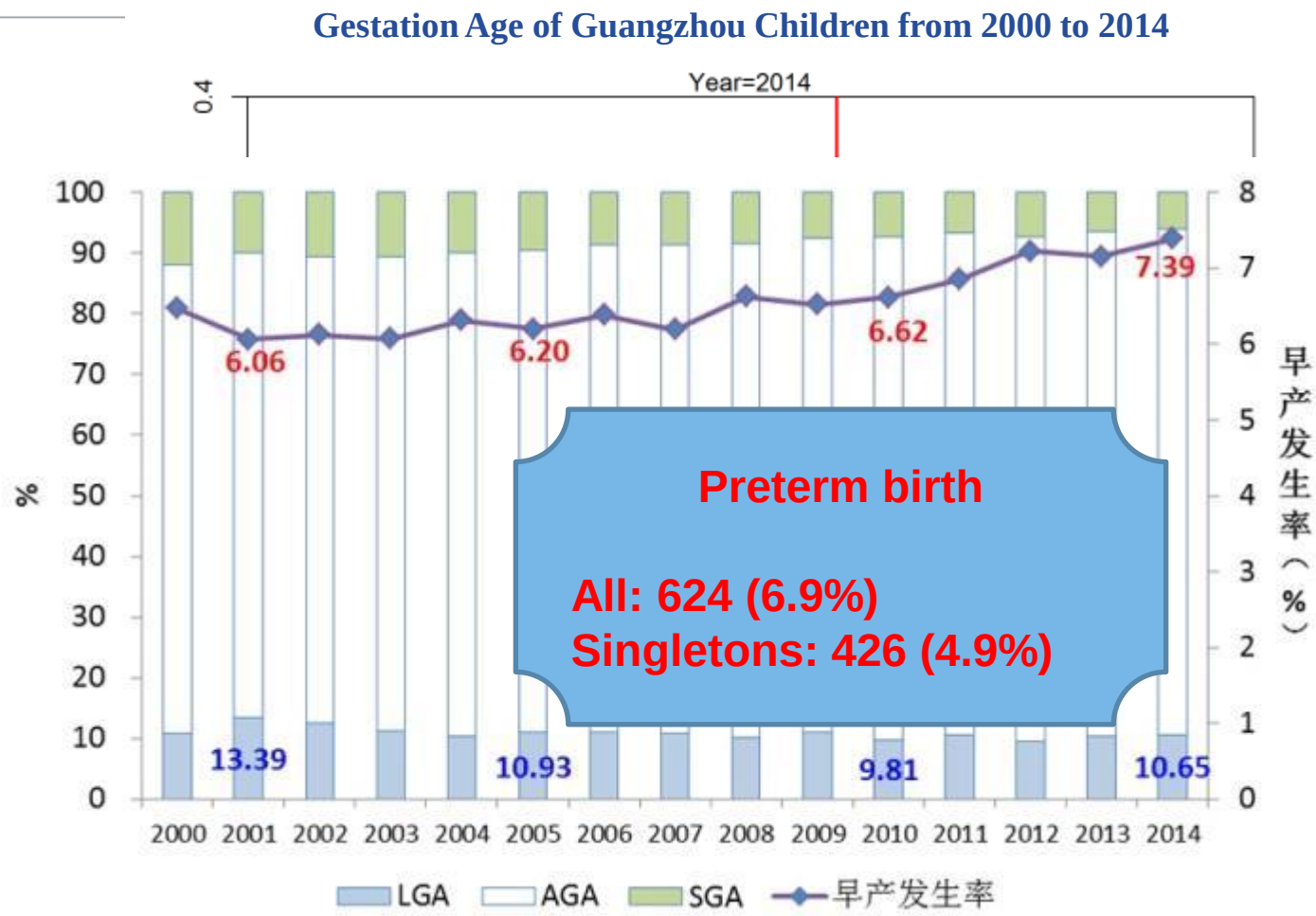
- Spouse numbers: 3872
- Drop out: 876(6.1%)
- Abnormal termination of pregnancy: 155(1.1%) , of which 44(≥28W) and 111(<28W)
- Infant death: 17

Gestational Age Distribution



N=9037

39.1± 1.6W

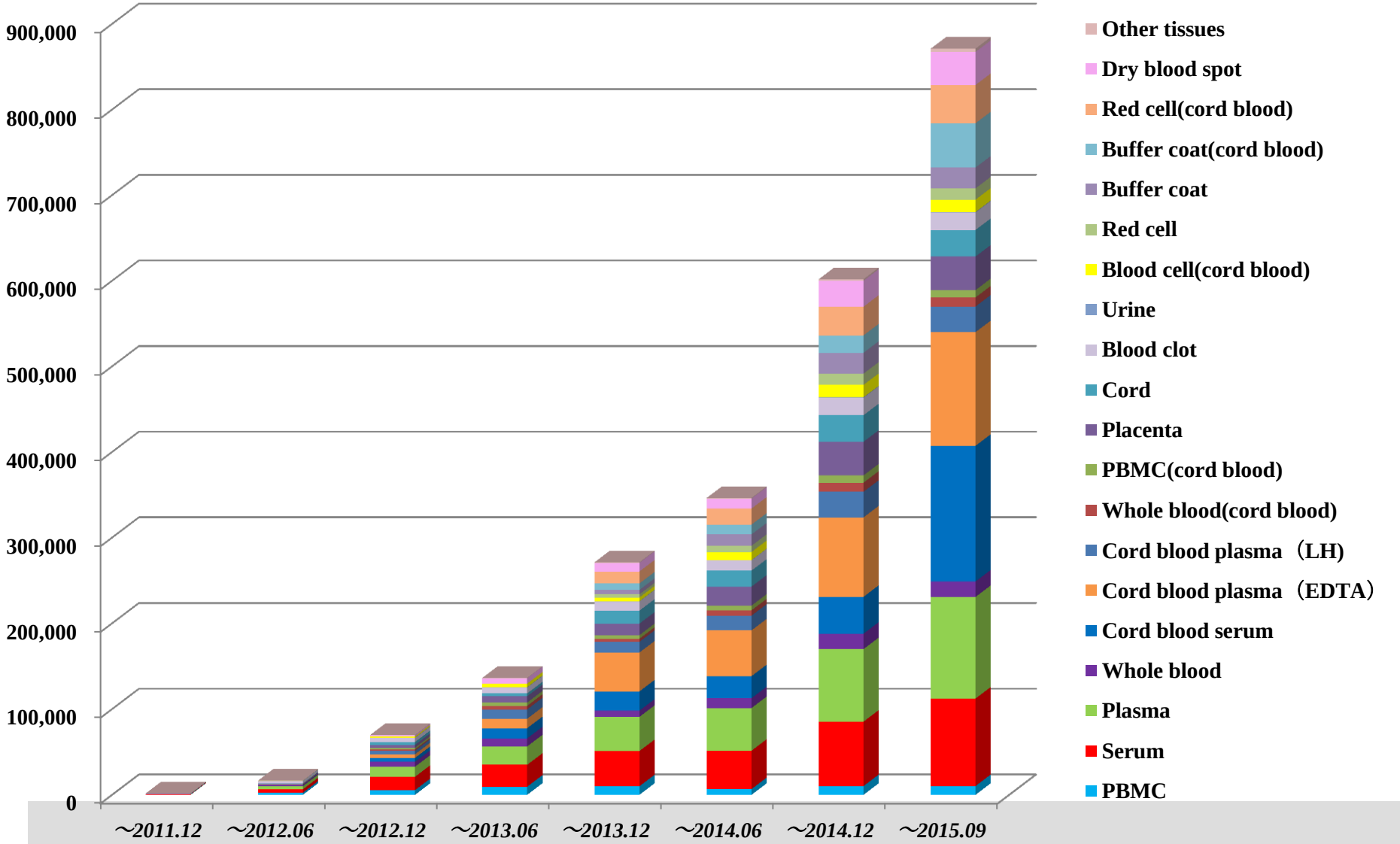


Preterm birth

All: 624 (6.9%)
Singletons: 426 (4.9%)

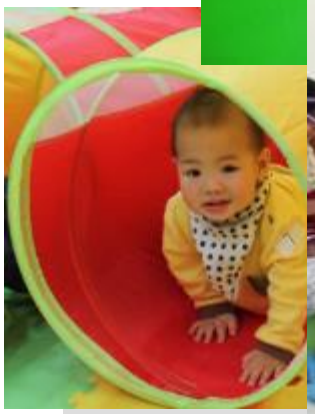
Note: Data update to 2015.03.31

Biobank is Home to Nearly 850,000 Samples



Bio-banking - Basic construction

Routine activities for babies



Team Members

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20 minutes today, 20 years in the future

Thank you !