

# Integration of multi-omics with precision nutrition for gestational diabetes: study protocol for the Westlake Precision Birth Cohort

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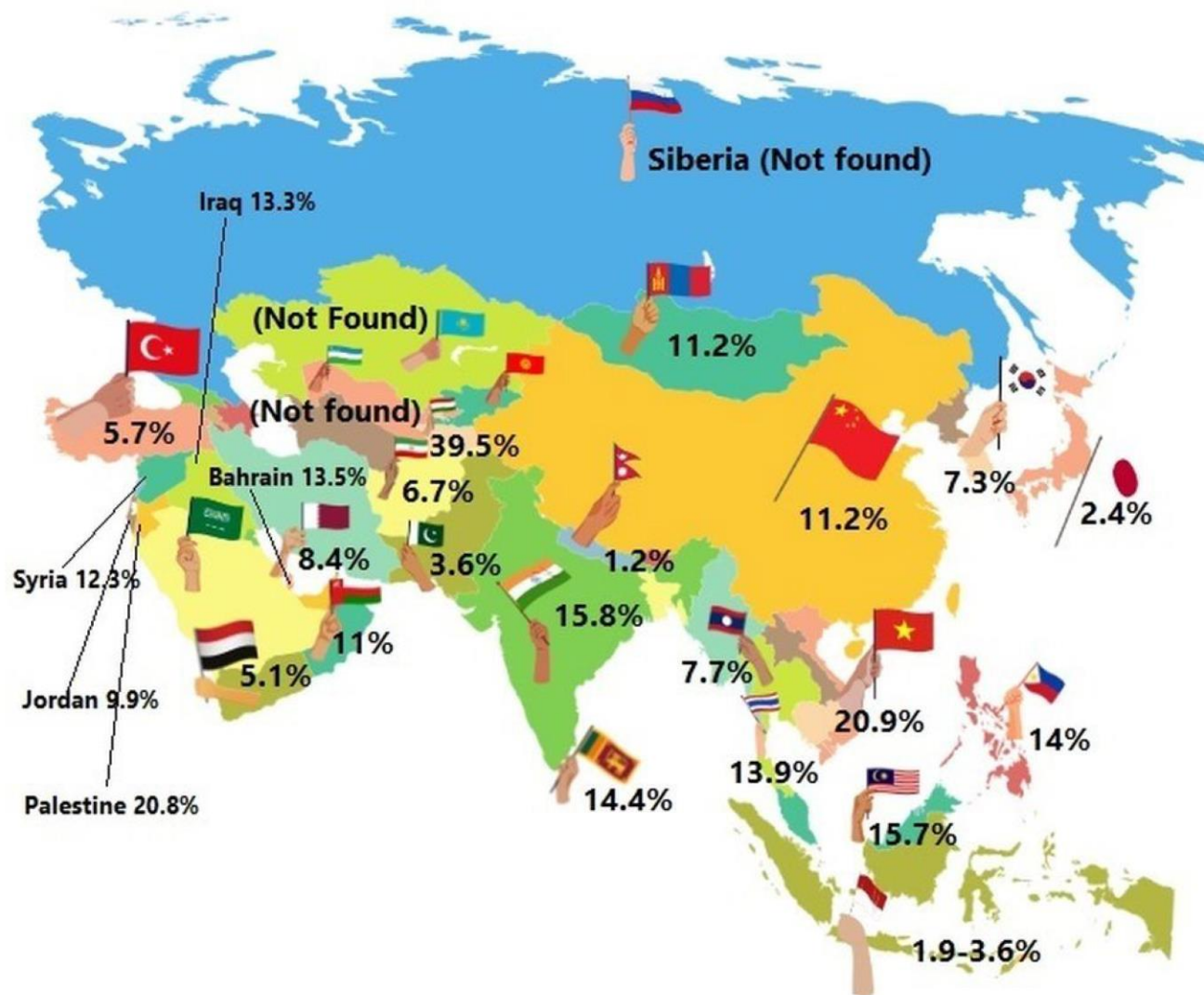


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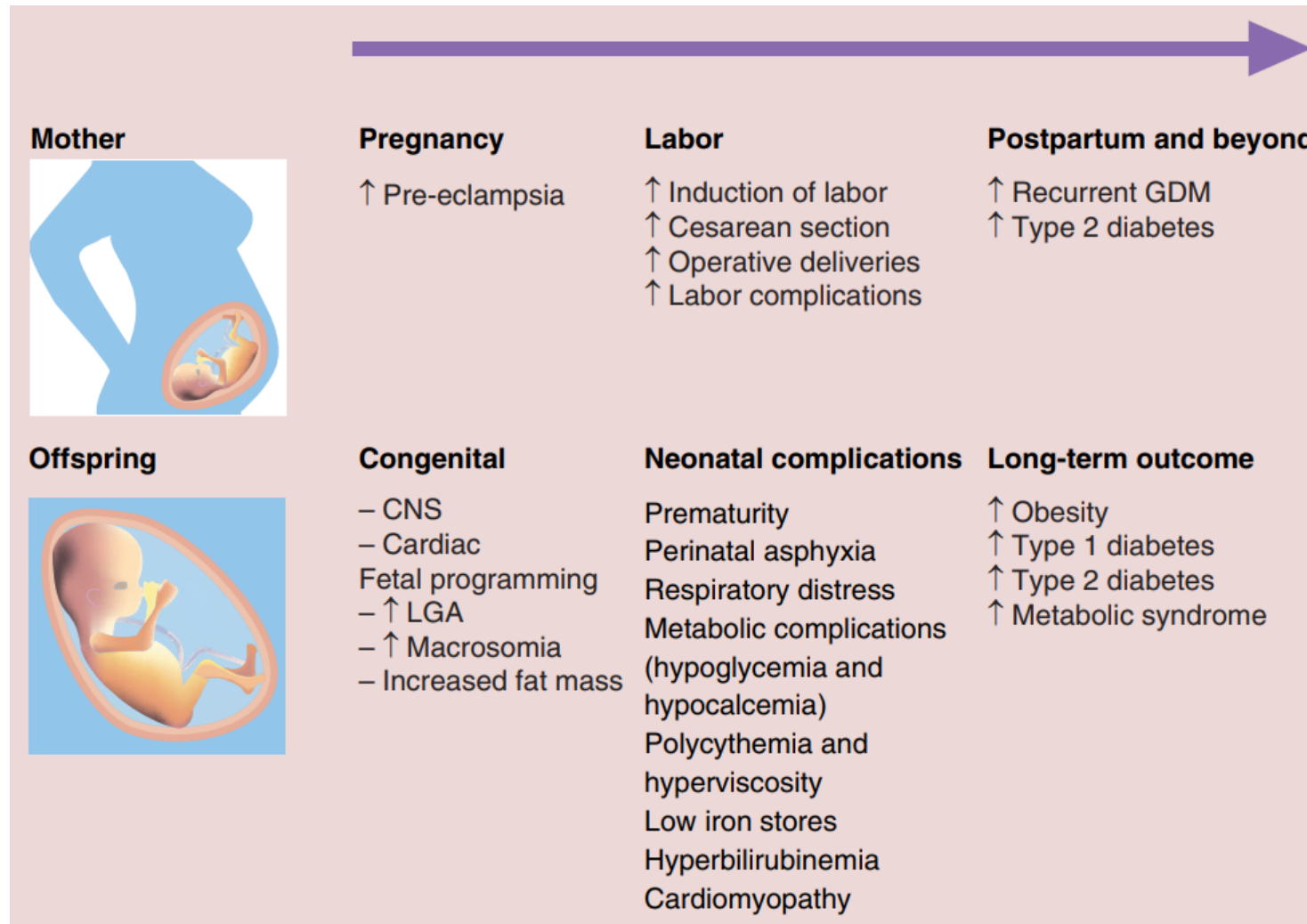
# Introduction



**GDM in Asia—the estimated prevalence across the countries, 2022.**



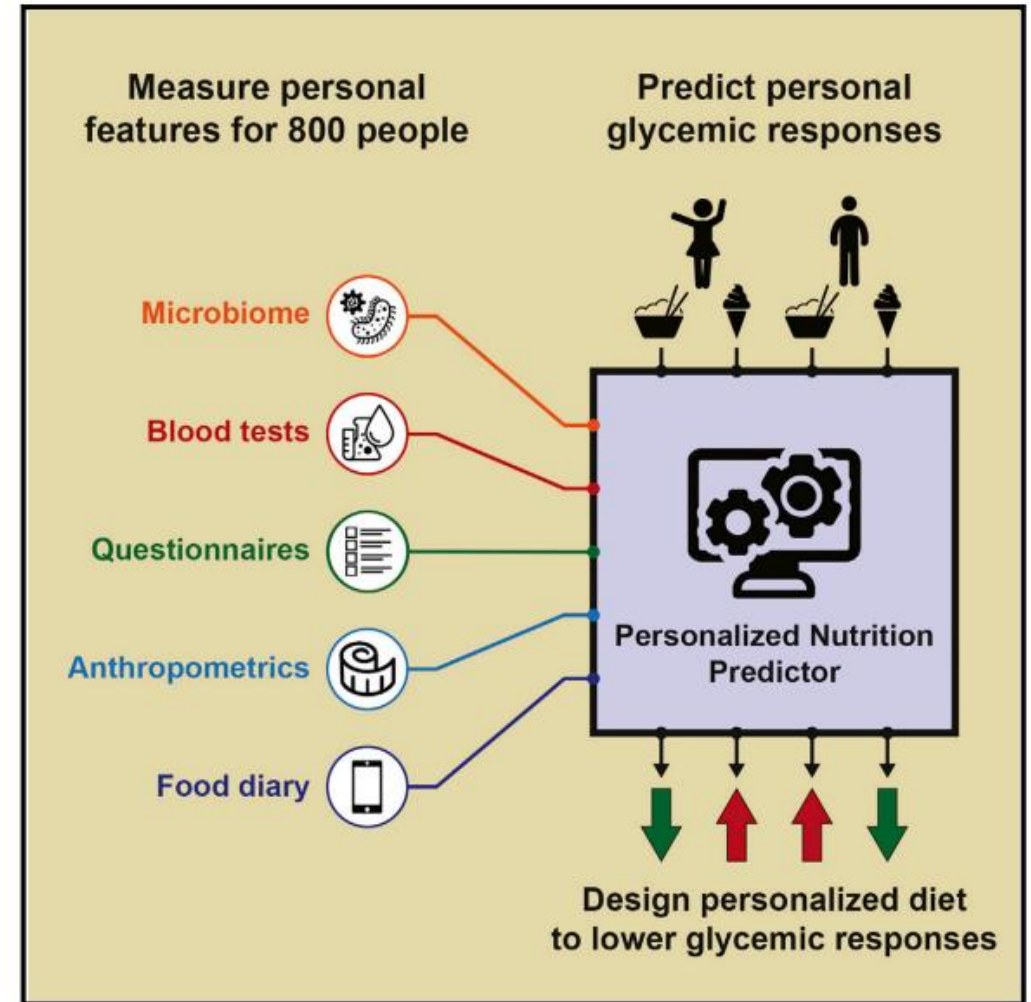
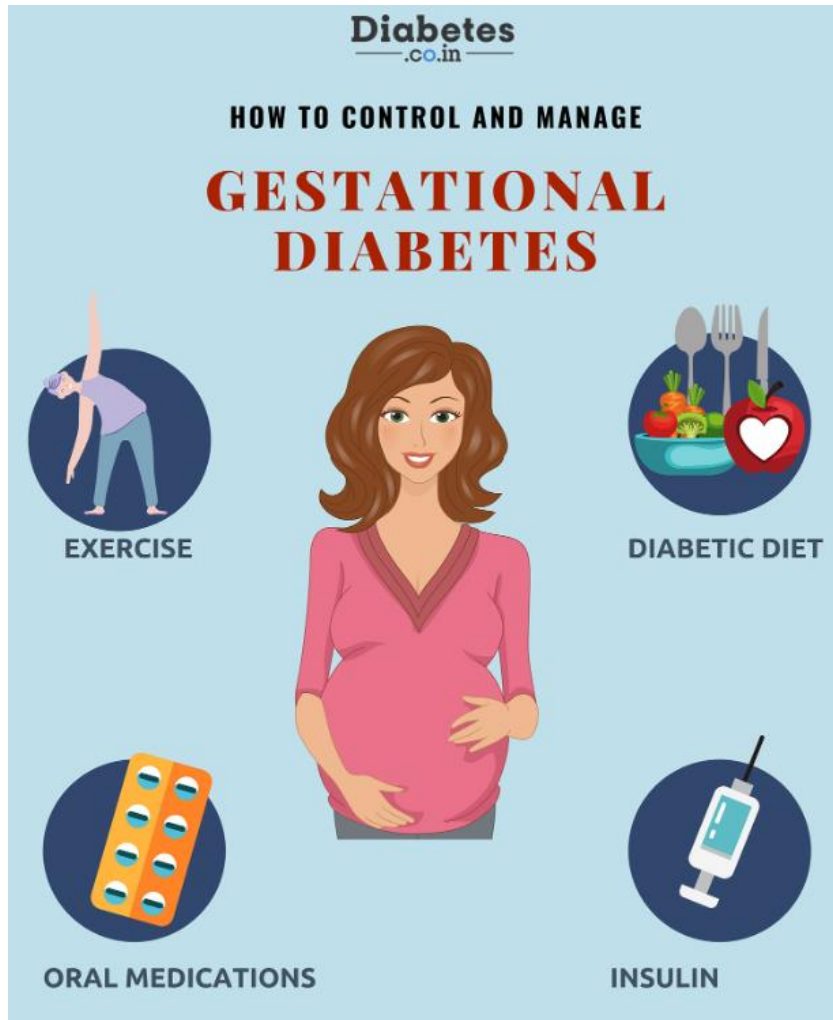
# Introduction



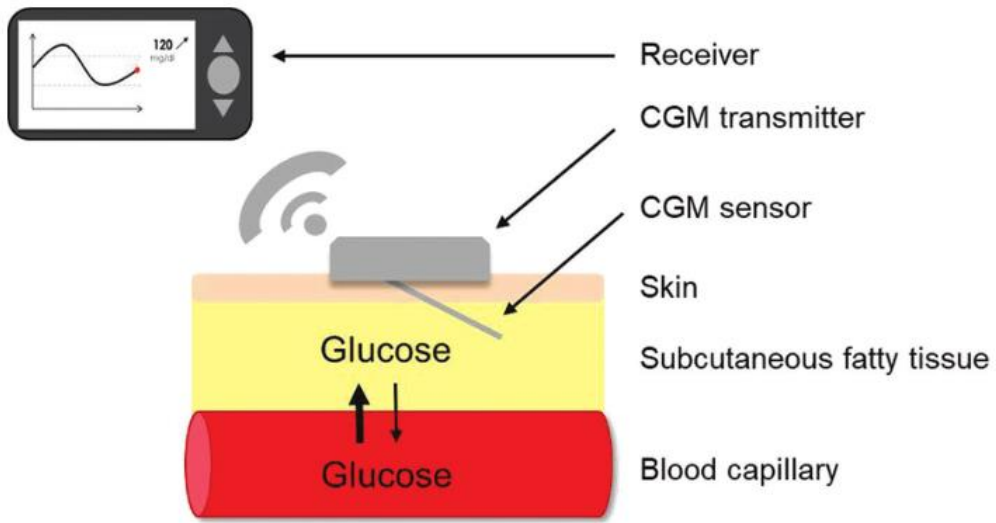
**Short- and long-term health consequences of gestational diabetes mellitus for mothers and their offspring.**



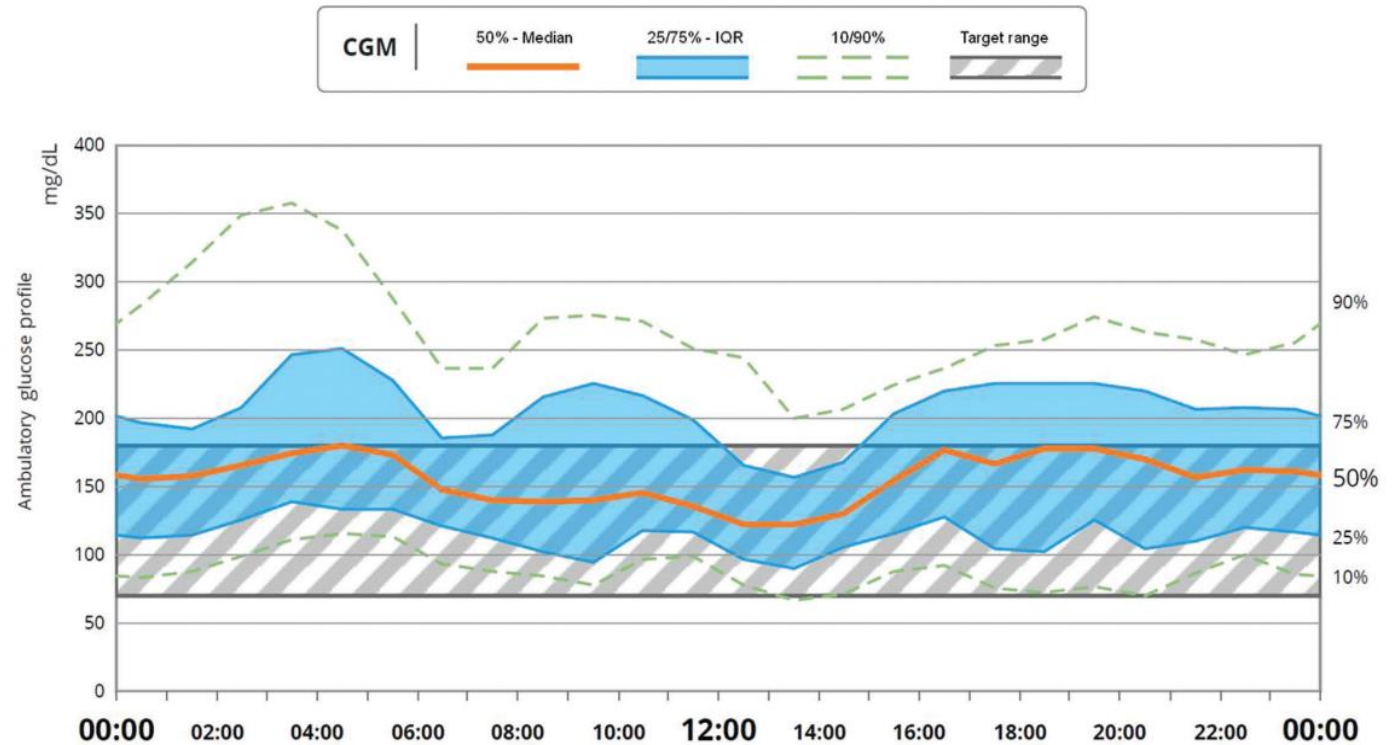
# Introduction



# Introduction



**Components of a continuous glucose monitoring (CGM) system (scheme).**



**Ambulatory glucose profile generated from CGM device**



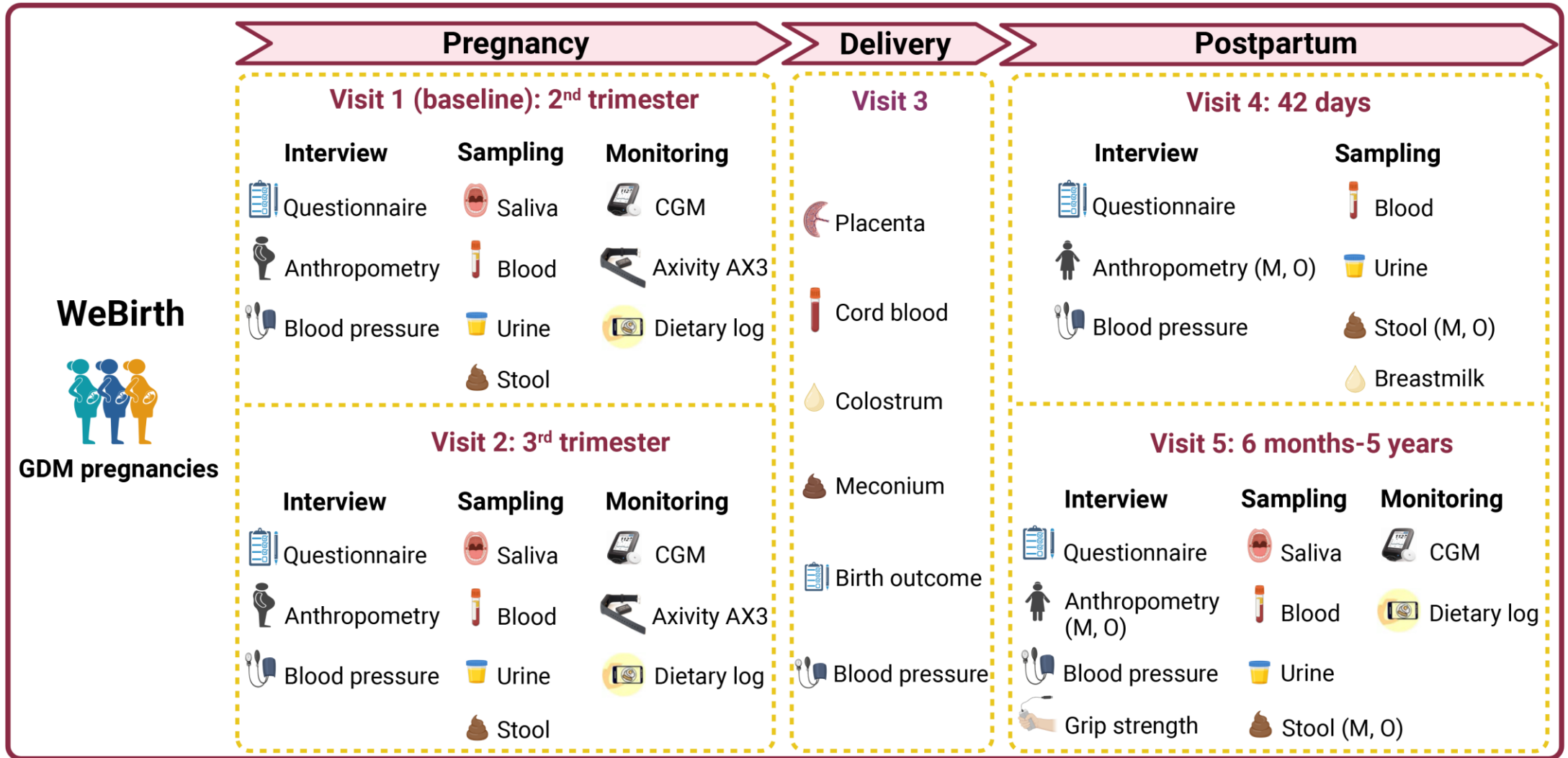
# Study aim

**The primary aims of the Westlake Precision Birth Cohort (WeBirth) are to investigate:**

- 1) The continuous blood glucose response to dietary intake and physical activity, and to facilitate the development of personalized nutritional/lifestyle recommendations among patients with GDM.
- 2) The association of dietary intake and physical activity together with continuous glucose change during pregnancy on adverse birth outcomes.



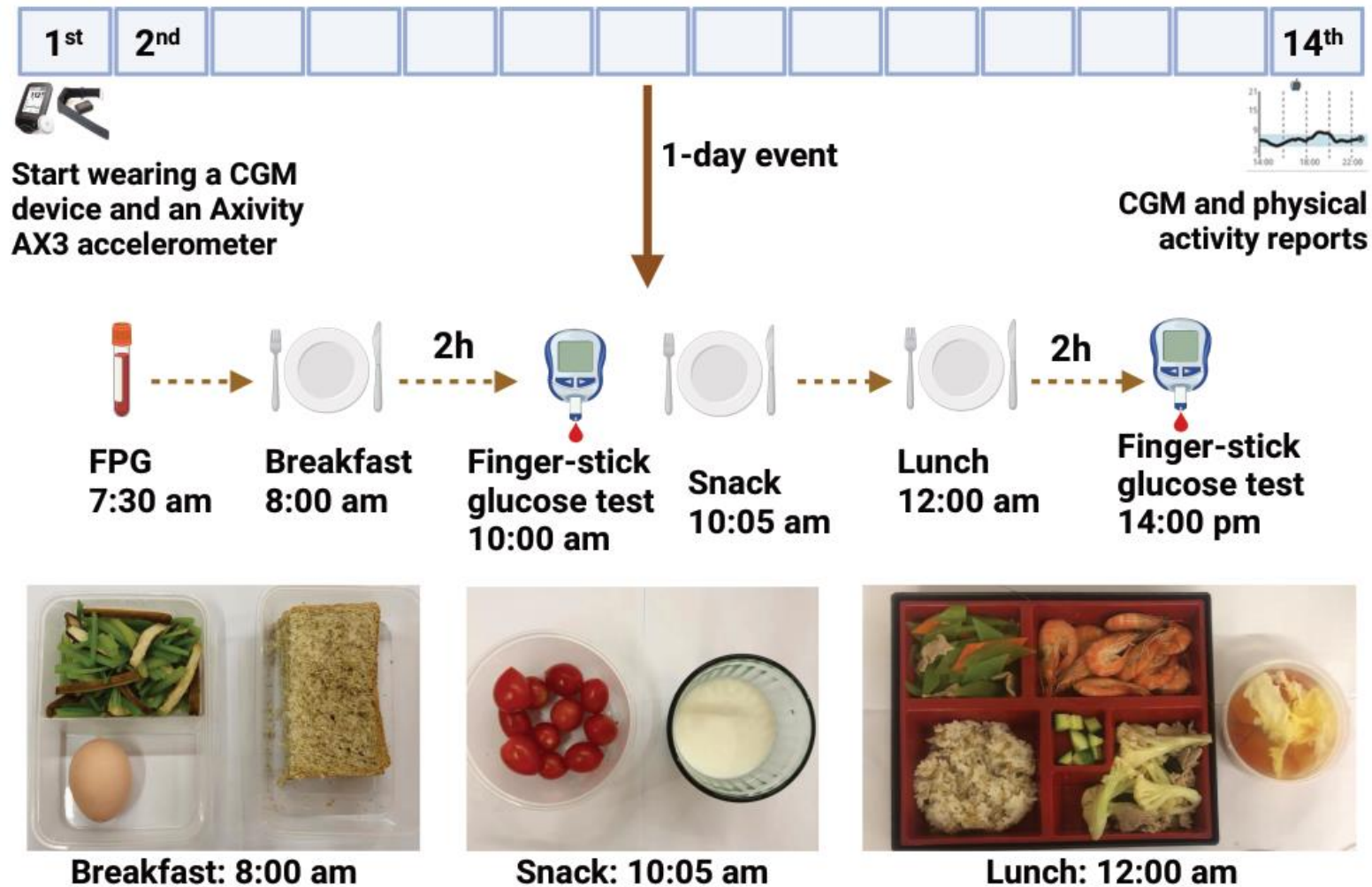
# Study design



M, mother  
O, offspring



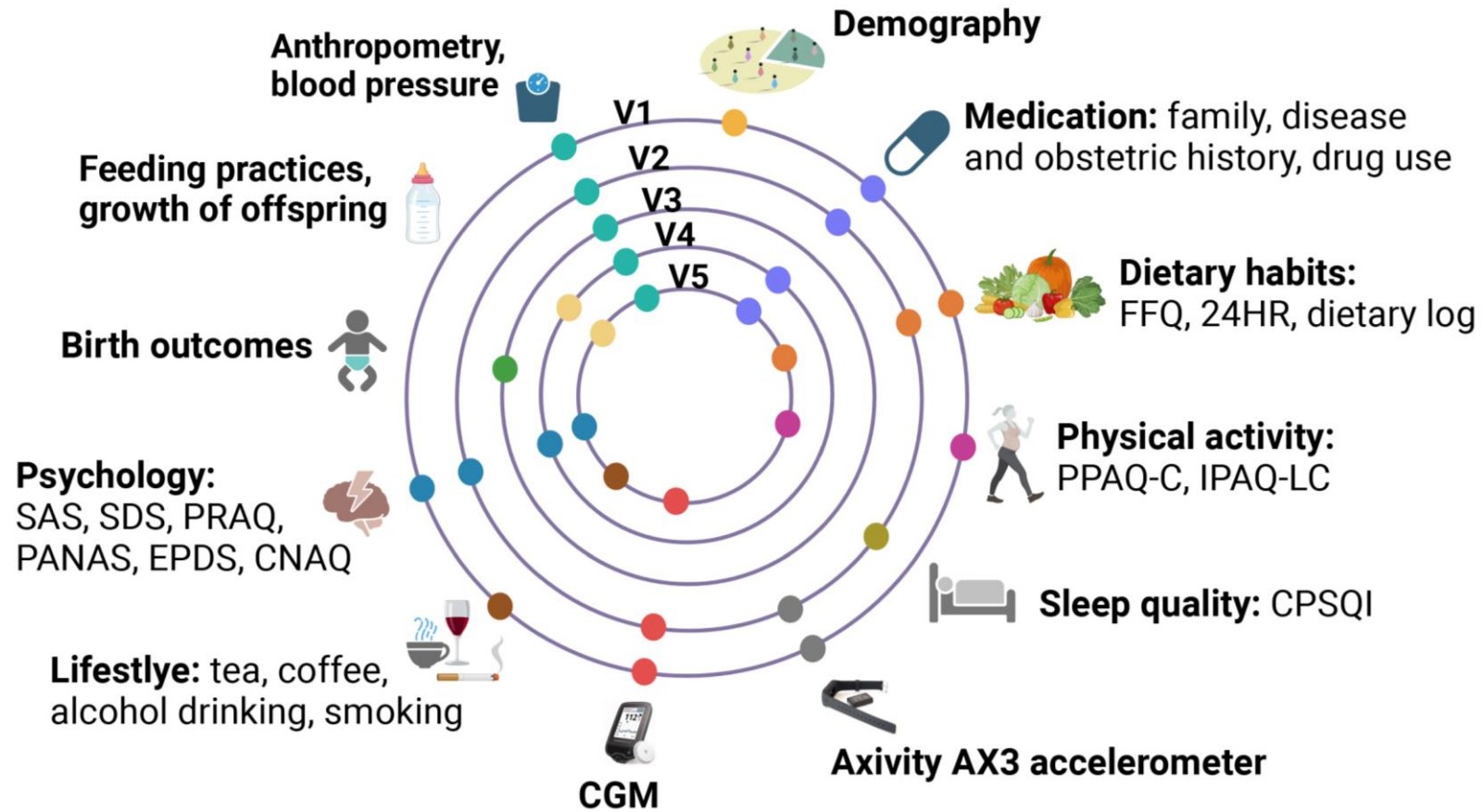
# Study design



Standardized testing meals during the 1-day visit of the participants to the clinical center.



# Study design



# Results

**Aug. 2019 ~ Oct. 2022**

	<b>Total</b>	<b>Age &lt; 35 years</b>	<b>Age ≥ 35 years</b>
No. of participants	1621	1367	254
Age, years	31.2 (3.7)	30.1 (2.7)	37.4 (1.9)
Pre-pregnancy BMI, kg/m <sup>2</sup>	22.2 (3.6)	22.0 (3.6)	23.0 (3.6)
Gestational age at baseline, week	26.0 (1.9)	26.0 (1.9)	25.9 (1.9)
Parity			
0	1098 (67.7%)	1009 (73.8%)	89 (35.0%)
1	491 (30.3%)	341 (24.9%)	150 (59.1%)
2	30 (1.9%)	17 (1.2%)	13 (5.1%)
3	2 (0.1%)	0 (0.0%)	2 (0.8%)



# Summary

- The Westlake Precision Birth Cohort is an ongoing prospective birth cohort base on ~2000 women with gestational diabetes and their offspring.
- Diversified information and biological samples are collected, and continuous glucose monitoring and physical activity record are conducted using wearable devices, with the inclusion of standard meal tests in the study design.
- Our primary objective is to study precision nutrition in women with gestational diabetes by integrating dietary intake, continuous glycemic performance, physical activity monitoring and multiomics data.

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