Supplementary Table 1 Definition of categorical variables

Variable name	Definition
Optimal yield_WGS	DNA yield ≥ 100 ng
Optimal yield_WES	DNA yield ≥ 50 ng
Optimal yield_Amplicon based NGS	DNA yield ≥ 10 ng
Optimal DNA purity	A260/280 ≥ 1.7
WGS adequate	DNA yield ≥ 100 ng AND A260/280 ≥ 1.7
WES adequate	DNA yield ≥ 50 ng AND A260/280 ≥ 1.7
amplicon based NGS adequate	DNA yield ≥ 10 ng AND A260/280 ≥ 1.7

DNA: Deoxyribonucleic acid; NGS: Next generation sequencing; WES: Whole exome sequencing; WGS: Whole genome sequencing.

Supplementary Table 2 Adequacy for next generation sequencing by needle size

NGS type	Adequacy rate by needle type		*P* value
	19G	**22G**	
WGS	90%	89%	0.92
WES	90%	91%	0.92
Amplicon based NGS	90%	91%	0.92

G: Gauge; NGS: Next generation sequencing; WES: Whole exome sequencing; WGS: Whole genome sequencing; NGS adequacy: A260/280 ≥ 1.7 and DNA yield: ≥ 10 ng for targeted amplicon based NGS, ≥ 50 ng for WES, ≥ 100 ng for WGS respectively.