

等 別：薦任
類 科：衛生行政
科 目：流行病學
考試時間：2小時

座號：_____

※注意：(一)禁止使用電子計算器。

(二)不必抄題，作答時請將試題題號及答案依照順序寫在試卷上，於本試題上作答者，不予計分。

- 一、2009年新型流感病毒 H1N1 五月進入臺灣，官方在九月初採取「325 停課措施」，請問您如何用流行病學研究設計評量此防疫措施的有效性？又其與日本、香港的學校防疫做法有何不同，何者為優？為什麼？（20分）
- 二、臺北市今年（2011）發生登革熱流行，病例數不斷增加，且有擴散趨勢，請問您要在短時間內提升防疫效能，可以依據那些流行病學原理進行防治？又在 2002 年高雄前鎮鳳山發生六十年來最大規模的登革出血熱流行，其防治重點與流行病學發現為何？兩者有何不同考量？（20分）
- 三、日本於 2011 年 3 月 11 日發生規模嚴重的核災事件，請問您若是日本官員，想了解核災後的健康問題，您的流行病學研究設計為何？將做那些健康評估？而您最關切的假說與欲探究的因素有那些？您覺得此研究如何進行，將會對有核能電廠的其他國家之公共衛生有所助益？（20分）
- 四、泰國最近發生規模甚大的水災，氣候變遷已是全球關注的重要議題，而極端氣候發生的頻率已逐漸上升，當此問題越來越嚴重時，您覺得公共衛生的重點依據為何？要如何提升整合性的防治疾病能力？又當如何評量政府的反應是否妥當？您覺得泰國和臺灣相比，應有那些相同與相異的考量？（20分）

(請接背面)

等 別：薦任
類 科：衛生行政
科 目：流行病學

五、香港某醫院為評估分娩後呈持續性葡萄糖耐受不良的妊娠期糖尿病華籍婦女的風險，並探查其因素，進行歷史性世代研究 (Historical cohort study)。因此在 2000 年 1 月至 2006 年 12 月期間，針對於分娩後六星期接受 75 克口服葡萄糖耐受試驗而確診為葡萄糖耐受不良的婦女為研究對象，其結果如下 (Table 1,2,3,4)。請問您身為公共衛生決策者，您將依據此研究結果的重要結論與發現，對公共衛生政策有何建議？又後續應該進行那些研究，其假說為何？(20 分)

TABLE 1. Antepartum and postpartum risk factors for the development of diabetes mellitus (DM) in 238 women with postpartum impaired glucose tolerance

Variable*	DM (n=47) [†]	Non-DM (n=191) [†]	P value
Age at delivery (years)	34.1 ± 5.1	33.6 ± 3.9	0.05
Parity	1.83 ± 1.01	1.52 ± 0.72	0.02
Positive family history of DM	24 (51%)	74 (39%)	0.13
Smoking	2 (4%)	10 (5%)	0.78
Alcohol	2 (4%)	5 (3%)	0.56
Insulin use during pregnancy	8 (17%)	10 (5%)	0.01
Antepartum fasting plasma glucose (mmol/L)	5.4 (4.8-6.2)	4.6 (4.3-5.0)	<0.001
Antepartum 2-hour post-75-gram OGTT plasma glucose (mmol/L)	10.3 (9.6-11.2)	9.0 (8.4-9.7)	<0.001
Birth weight (kg)	3.19 ± 0.59	3.22 ± 0.54	0.77
BMI at postpartum OGTT (kg/m ²)	25.6 ± 4.0	24.1 ± 3.2	0.02
Postpartum fasting plasma glucose (mmol/L)	5.4 (5.0-5.9)	4.9 (4.6-5.3)	<0.001
Postpartum 2-hour post-75-gram OGTT plasma glucose (mmol/L)	9.3 (8.6-10.0)	8.8 (8.2-9.5)	0.001

* OGTT denotes oral glucose tolerance test, and BMI body mass index

[†] Data are shown as mean ± standard deviation, No. (%), or median (interquartile range)

TABLE 3. Metabolic risk factors at 1 year post-delivery for the development of diabetes in a subgroup of 150 women with persistent impaired glucose tolerance after gestational diabetes mellitus (DM)

Variable*	DM (n=18) [†]	Non-DM (n=132) [†]	P value
BMI (kg/m ²)	23.6 ± 3.6	22.7 ± 3.2	0.28
WC (cm)	76.5 ± 8.7	75.7 ± 7.4	0.68
Systolic BP (mm Hg)	114.9 ± 9.6	115.6 ± 17.2	0.87
Diastolic BP (mm Hg)	69.4 ± 8.8	71.0 ± 10.6	0.56
Fasting plasma glucose (mmol/L)	5.6 ± 0.7	5.0 ± 0.5	<0.001
2-hour post-75-gram OGTT plasma glucose (mmol/L)	8.1 ± 1.6	6.7 ± 1.5	0.001
HbA1c (%)	5.5 ± 0.4	5.3 ± 0.4	0.096
Plasma triglyceride (mmol/L)	1.3 (0.8-1.8)	0.9 (0.6-1.2)	0.37
Plasma LDL-C (mmol/L)	2.6 ± 0.5	2.8 ± 0.7	0.49
Plasma HDL-C (mmol/L)	1.3 (1.1-1.6)	1.4 (1.1-1.6)	0.49
Aspartate transaminase (IU/L)	17.0 (14.0-20)	17.5 (15.0-23.0)	0.38
Alanine transaminase (IU/L)	15.0 (12.0-25.5)	16.5 (12.0-22.0)	0.55
Metabolic syndrome	6 (33%)	9 (7%)	0.003

* BMI denotes body mass index, WC waist circumference, BP blood pressure, OGTT oral glucose tolerance test, HbA1c glycosylated haemoglobin, LDL-C low-density lipoprotein cholesterol, and HDL-C high-density lipoprotein cholesterol

[†] Data are shown as mean ± standard deviation, No. (%), or median (interquartile range)

TABLE 2. Multivariate regression analysis of antepartum and postpartum variables in predicting the development of diabetes in 238 women with postpartum impaired glucose tolerance

Variable	Adjusted hazard ratio* (95% confidence interval)	P value
Antepartum fasting plasma glucose (mmol/L)	1.93 (1.42-2.63)	<0.001
Postpartum fasting plasma glucose (mmol/L)	1.69 (1.05-2.71)	0.03

* Adjusted hazard ratio from time-dependent Cox proportional hazard models using stepwise regression analysis— independent variables entered for analysis included age at delivery, parity, insulin use during pregnancy, antepartum and postpartum fasting plasma glucose and 2-hour post-75-gram oral glucose tolerance test (OGTT) plasma glucose, and post-delivery body mass index. The time of diabetes development was estimated as the mid-point in time between the diagnosis (by OGTT) and the date of the immediate past OGTT

TABLE 4. Multivariate regression analysis of metabolic risk factors at 1 year post-delivery for the development of diabetes in a subgroup of 150 women with persistent impaired glucose tolerance after gestational diabetes mellitus

Variable	Adjusted hazard ratio* (95% confidence interval)	P value
Fasting plasma glucose at 1 year post-delivery (mmol/L)	3.25 (1.61-6.55)	0.001
2-Hour post-75-gram OGTT plasma glucose at 1 year post-delivery (mmol/L)	1.36 (1.02-1.82)	0.04

* Adjusted hazard ratio from time-dependent Cox proportional hazard models using stepwise regression analysis— independent variables entered for analysis included age at delivery, parity, fasting plasma glucose and 2-hour post-75-gram oral glucose tolerance test (OGTT) plasma glucose at 1 year post-delivery, and the presence of metabolic syndrome. The time of diabetes development was estimated as the mid-point in time between the diagnosis (by OGTT) and the date of the immediate past OGTT