concerns, providing that the removal of tobacco is well managed and enhanced support measures are available for smokers. Some of the general factors shaping the successful introduction of smokefree prisons in Scotland are relevant to other areas of public health transformation e.g. setting clear objectives and timescales; collaboration and teamwork; and involving staff at all levels and end-users in change processes.

Thursday 10 September

Cohort Studies

OP67 HYPERTENSIVE DISORDERS OF PREGNANCY AND THE RISK OF CHRONIC KIDNEY DISEASE: A NATIONAL REGISTRY-BASED COHORT STUDY

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Background Hypertensive disorders of pregnancy (HDP) (preeclampsia, gestational hypertension) are increasingly common complications of pregnancy. HDP are associated with increased risk of cardiovascular disease and end-stage kidney disease in women. Chronic kidney disease (CKD) is highly prevalent, but evidence for associations between HDP and CKD is limited and inconsistent. The underlying causes of CKD are wide-ranging, and HDP may have differential associations with various aetiologies of CKD. We aimed to identify whether HDP are associated with CKD and whether this risk differs by CKD aetiology.

Methods Using data from the Swedish Medical Birth Register, singleton live births from 1973–2012 were identified and linked to data from the Swedish Renal Register and National Patient Register (up to 2013). Preeclampsia was the main exposure of interest and treated as a time-dependent variable. Gestational hypertension was also investigated as a secondary exposure. The primary outcome was maternal CKD, and this was classified into 5 subtypes: hypertensive, diabetic, glomerular/proteinuric, tubulo-interstitial, other/non-specific CKD. Cox proportional hazard regression models were used, adjusting for year of delivery, maternal age, country of origin, education level, antenatal BMI, smoking during pregnancy, gestational diabetes, and parity. Women with pre-pregnancy comorbidities were excluded.

Results The final sample consisted of 1,924,409 women who had 3,726,554 singleton live-births. The mean age of women at first delivery was 27.0 (± 5.1) years. Median follow-up was 20.7 (interquartile range 9.9–30.0) years. 90,917 women (4.7%) were diagnosed with preeclampsia, 43,964 (2.3%) had gestational hypertension, and 18,477 (0.9%) developed CKD. Women who had preeclampsia had a higher risk of developing CKD during follow-up (adjusted hazard ratio (aHR) 1.92, 95% CI 1.83–2.03). The risk differed by CKD subtype, and was higher for hypertensive CKD (aHR 3.72, 95% CI 3.05–4.53), diabetic CKD (aHR 3.94, 95% CI 3.38–4.60) and

glomerular/proteinuric CKD (aHR 2.06, 95% CI 1.88–2.26). The risk of CKD was increased after preterm preeclampsia, recurrent preeclampsia, or preeclampsia complicated by pre-pregnancy obesity. Women who had gestational hypertension also had increased risk of developing CKD (aHR 1.49, 95% CI 1.38–1.61).

Conclusion Women with history of HDP are at increased risk of CKD, particularly hypertensive or diabetic CKD. Preterm preeclampsia, recurrent preeclampsia, and preeclampsia complicated by pre-pregnancy obesity are all associated with higher risk of maternal CKD. Since 10% of women develop clinically significant CKD in their lifetime, the absolute risk of CKD related to HDP may be substantial. Women who experience HDP may benefit from future systematic renal monitoring to prevent CKD onset or progression.

OP68 TECHNICAL AND PRACTICAL CHALLENGES IN IMPLEMENTING DIGITAL APPLICATIONS FOR SELF-MONITORING VISUAL FUNCTION IN THE MONARCH STUDY

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Background The development and implementation of self-monitoring technologies for chronic conditions would ease the burden on patients and hospital services. Digital applications (apps) on smartphones or tablets can transfer information from a remote setting to a care provider, though technical and practical challenges can arise. The MONARCH study is a multi-centre cohort study evaluating the diagnostic test accuracy of two apps for self-testing visual function at home to detect reactivation of neovascular age-related macular degeneration.

Methods Participants are provided with an iPod to test their visual function weekly using both apps. Data are transmitted automatically using a mobile router to online databases maintained by the app developers. Details of anticipated and unanticipated challenges faced throughout set-up, recruitment and follow-up, and remedial actions, have been carefully documented.

Results As of 17/02/2020, 233/274 (85%) participants (40% male; average age 75) from 6 hospitals self-tested their vision at least once.

Anticipated challenges included potential inequalities in recruitment due to the technologies involved and the need for participant technical support. The primary reason given for non-participation was 'put off by technology' (21%). A participant helpline received 186 calls (19.7 hours). Issues with one or both apps was the primary reason for calls (47%), followed by connectivity issues (15%).

Unanticipated challenges included issues setting up and managing iPods remotely, technical issues with the apps, and adherence to self-testing during follow-up. Apple's multiple device management system was used, which resulted in limited control over devices and failed to prevent standard system updates. System updates interfered with app compatibility and confused some participants. Issues with the app databases temporarily halted recruitment and data monitoring on several occasions and prevented some participants from testing.