The development of Perinatal Psychiatry as a C-L subspecialty
The Plan

• Introduction
  • Perinatal psychiatry
  • C-L psychiatry

• Studies of psychiatric disorder in obstetrics populations

• The growth of perinatal C-L psychiatry
  • Three developments
    • Prevalence of depression, NPD, routine universal screening
    • Effects of maternal mental ill health during pregnancy on the foetus
    • Early attachment relationships and infant mental health
  • Enablers

• Perinatal C-L psychiatry in Tasmania
Perinatal Psychiatry

• Interest in the link between childbirth and psychiatric illness dates from at least early 19th century- 1845, Esquirol described post-partum psychosis in *Mental Maladies. A Treatise on Insanity.*
  • *Mental Alienation of those recently confined, and of nursing mothers*

• Marce (1858) differentiated clinical characteristics of prepartum and postpartum mental illness- wrote a major treatise on postpartum mental illness
Perinatal Psychiatry

• And a century later, Paffenbarger (1964) showed that admissions to psychiatric hospitals increased 18-fold during the first post-partum month- subsequently these findings supported by Kendell et al (1976, 1981)

• Initial interest of psychiatrists in this area was the management of new mothers with psychotic disorders
  • Focus on safety of prescribing psychotropics during pregnancy and to mothers who were breastfeeding
  • And also on how to prevent relapse during the perinatal period and maintain a healthy mother-baby relationship
Perinatal Psychiatry

• As psychiatry generally broadened scope to look at recognition and management of common mental disorders in the community in 1980s, postnatal depression became a focus of attention

• 1987 John Cox and colleagues published their initial validation study of the Edinburgh Postnatal Depression Scale (EPDS)

• The EPDS became widely used as a case finding tool with multiple studies conducted in Australia and New Zealand to examine prevalence and risk factors for postnatal depression (PND)
Perinatal Psychiatry

• Attention also turned to the impact of maternal depression on the infant with the publication of studies by Lynne Murray and colleagues in 1990’s demonstrating that there was an adverse impact on infant development

• EPDS used to detect antenatal depression

• Attention to the impact of other maternal mental health problems esp those affecting the attachment relationship

• And with this, the development of Infant Mental Health as a discipline - focuses on the social and emotional wellbeing of infants and their caregivers, and the various contexts within which caregiving takes place – so focuses on relationships
C-L Psychiatry

• Emerged in the US in 1930’s; in Australia, C-L Psychiatry began in a few key centres in 1970’s

• C-L Psychiatry within O&G was long neglected in comparison with other specialties
  • Although Lipowski (1983) defined C-L Psychiatry as the provision of psychiatric consultations and teaching to nonpsychiatric physicians and other health workers in all types of medical care settings, many felt that women attending antenatal clinics were different from those with a medical illness/physical complaints
  • O&G were reluctant to assess the emotional state of patients
    • Lack of experience/confidence in assessing emotional difficulties
    • Time pressure in busy clinics
Early studies

• Descriptive papers with case reports
  • Appleby et al (1989), King’s College Hospital, London
  • Stewart & Lippert (1988), St Michael’s Hospital, Toronto
  • Phillips & Dennerstein (1993), Mercy Hospital for Women, Melbourne
    • Issues around pregnancy and childbirth including extreme ambivalence, marital conflict related to pregnancy, prenatal anxiety and depression, hyperemesis gravidarum related to psychological conflicts, non-compliance with pregnancy care, stress related to infertility and its treatment, foetal loss (miscarriage, SB, NND), termination of pregnancy
  • Just a hint about identification of ‘at risk’ women i.e. those at risk for developing post-partum depression
Early studies

• Rates and types of mental health problem in O&G populations
  • Hrasky & Morice (1986), Queen Alexandra Hospital, Hobart
    • Public antenatal clinic, n=81 consecutive attenders @ 33-34 weeks gestation
    • Used GHQ and found n=33 (40.7%) had score ≥ 6
    • Interviewed 30 with PSE and found 24 ‘cases’
    • ICD-9 diagnoses: neurotic depression n=14; anxiety neuroses n=8; paranoid schizophrenia n=1, paranoid reaction n=1
More recent studies

• Rates and types of mental health problem in O&G populations
  • Dunsis & Smith (1996), Monash Medical Centre, Melbourne
    • Obstetric inpatient unit, all referrals over 3 year period prospectively recorded on the MICRO-CARES clinical database system
    • N=90 referred over 3 year period (1.2% of obstetric admissions)
    • Most common reason for referral: coping problems, depression, anxiety/fear, PH of major psychiatric illness
    • Most common DSM-111-R diagnoses: personality disorders (19%), mood disorders (17%), schizophrenic disorders (15%), adjustment disorders (13%)
    • The referral rate was low compared with other specialty units
More recent studies

- Rates and types of mental health problem in O&G populations
  - Tsai et al (1996), Taiwan
    - Over 3 year period, n=28 obstetric inpatients referred (0.3% of all obstetric admissions)
    - Most common reason for referral: anxiety, depression
    - Most common diagnoses: depression or dysthymia
  - Sloan & Kirsh (2008), Canada
    - Over 1 year period, n=106 obstetric inpatients referred (1.6% of all obstetric admissions)
    - Most common reasons for referral: risk for PPD due to psychiatric history, pending or completed perinatal loss or complication
    - Most common diagnoses: depression, adjustment disorder, Axis 11
More recent studies

• Rates and types of mental health problem in O&G populations
  • Judd et al (2010), Melbourne
    • Maternity inpatients referred 2004-2008
    • Major expansion of service in 2007
    • Increase in referrals from 153 in 2004 to 247 in 2008 (2.3% maternity inpatients)
    • Most common reasons for referral—depression detected by maternity team, past psychiatric history, concerns regarding woman’s coping
  • Most common diagnoses
    • depressive disorder 27.8%
    • Substance use disorder 18.0%
    • Anxiety disorder 15.2%
    • Personality disorder 14.2%
How could O&G become a focus for C-L Psychiatry

“One challenge to C-L psychiatrists is to secure a more formalised position for mental health service delivery within the general health care sector, in both organisation and funding.”

C-L: from dream to reality
Huyse FJ & Smith GC Psychiatric Bulletin 1997
And then something(s) happened......

• The data about the prevalence of postnatal depression were not able to be ignored- mean prevalence was 13%

• And in Australia
  • *beyondblue* (October 2000)-reduce the impact of depression in the Australian community
  • The *beyondblue* National Postnatal Depression Program (commenced in 2002) introduced routine perinatal (antenatal and postnatal) depression screening protocols into 43 health services across Australia
  • In 2008, the Australian government, together with the State and Territory governments, agreed to collaborate on the development of a National Perinatal Depression Initiative (NPDI)- and AUD $85 million collaboration- aimed to improve the detection and management of perinatal depression
NPDI 2008-2013

• Universal and routine screening for perinatal depression using EPDS
• Training of primary care health professionals
• Community awareness raising and education
• New perinatal mental health services under the Access to Allied Psychological Services (ATAPS) initiative, part of the Better Outcomes in Mental Health Care Program initiated in 2001
• In 2011, beyondblue Clinical Practice Guidelines-endorsed routine universal screening with EPDS to detect perinatal depression as well as enquiry about psychosocial factors in all women, in both antenatal and postnatal periods
Routine universal screening
(UK National Screening Committee guidelines)

• The condition should
  • Be an important health issue
  • Have a well-understood history, with a detectable risk factor or disease marker
  • Have cost-effective primary preventions implemented

• The screening tool should
  • Be a valid tool with known cut-off
  • Be acceptable to the public
  • Have agreed diagnostic procedures
Routine universal screening
(UK National Screening Committee guidelines)

• The treatment should
  • Be effective, with benefits of early intervention
  • Have adequate resources
  • Have appropriate policies as to who should be treated

• The screening program should
  • Show evidence of reduced mortality or morbidity, with benefits of screening outweighing risks
  • Be acceptable to public and professionals, with adequate resources, and informed consent
  • Be cost effective (and have ongoing evaluation)
  • Have quality assurance strategies in place
Concerns about screening

• Stigma about mental illness
• Women who score ‘false positive’
  • May be stressed at time of completion of EPDS
  • May become anxious
  • May overburden resources
• EPDS will not identify women with more severe disorders such as schizophrenia
• Depressive symptoms are often seen in women with severe personality disorders- and need for treatment is generally not for treating depression
• No use unless clear pathway for follow-up further assessment and treatment
NPDI 2008-2013

• Jurisdictional differences in implementation of routine screening
  • Not every hospital introduced routine screening
  • Not every hospital which did implement screening had a way of providing follow-up and treatment
  • And, those hospitals with some type of C-L service had very different types of service- size and composition

• An opportunity for C-L psychiatry service expansion
And then something(s) happened....

- The mental health of women *during* pregnancy became a focus of attention because of concern about the effect of maternal mental (ill)health, maternal stress, maternal substance use on foetus.......

[TIME magazine 4 October 2010]
Negative affective states and stress exposures in pregnancy

• Led by behavioural medicine, health psychology, social epidemiology
• Explores
  • Effects on the infant in utero and later emotional, cognitive and behavioural effects on the infant/child
  • Changes in offspring biological systems that may reflect which mechanisms underlie developmental outcomes
Foetal arousal and physiology

During normal maturation
- FHR decreases linearly from 20 weeks to term
- Short-term FHR variability increases
- There is reduced but more vigorous behaviour
- There is increased coupling of FHR and foetal movement

Foetus of anxious mother
- Reduced FHR variability
- Higher activity levels
- Reduced FHR-foetal movement coupling
Infant temperament, child emotional and behavioural development

- Infants exposed to antenatal anxiety and/or depression
  - highly reactive,
  - poorer interaction with mother,
  - problems with attention regulation,
  - poorer scores on infant development measures

- Poorer long-term developmental outcomes for the child
  - Developmental delay
  - Impaired language development
  - increased rate of emotional and behavioural problems
  - increased rate of hyperactivity/inattention boys
  - Increased risk for externalising behaviours
  - lower social competence in adolescent boys
  - Lowered cognitive ability/flexibility in adolescence
  - Depressive symptoms in adolescence
Cognitive development and functioning

- In childhood maternal antenatal anxiety/depression associated with
  - Poorer verbal intelligence and language skills
  - Lower visual working memory performance
  - In girls, lower inhibitory control

- In adolescence maternal antenatal anxiety/depression associated with
  - Impulsive response pattern on cognitive tasks and lower scores on some intelligence subtests
  - Lower scores on tasks of cognitive control and less efficient pattern of decision making on endogenous control tasks
Changes in brain structure and function

• In offspring of women with anxiety/depression during pregnancy
  • Reduced head circumference corrected for birth weight
  • Slower growth of both L&R hippocampus over first 6 months of life
  • Decreased grey matter volume
    • L medial temporal lobe and both amygdalae
    • Cortical thinning esp prefrontal areas
• Functional MRI
  • Greater functional connectivity of the amygdala with several other brain regions
  • Increased connectivity between L medial temporal lobe areas and anterior cingulate cortex
Possible biological system changes
Developmental programming

• DOHaD hypothesis- adaptations made by the developing foetus to a detrimental intra-uterine environment lead to permanent changes in structure, physiology and metabolism which increase the later risk of disease

• These changes may include
  • altered set point in HPA axis,
  • changes in glucocorticoid receptor sensitivity,
  • changes in proteins and neurotransmitters involved in neuronal development and function in the CNS

• And when they interact with genetic liability and postnatal challenges, these induced changes will determine ultimate health status
Possible biological system changes

Placental mechanisms

• The placenta protects the foetus from the mother’s cortisol through the expression of the inactivating enzyme, 11ß hydroxy steroid dehydrogenase type 2 (11ß-HSD2)-any changes in enzyme expression in this pathway leave the foetus vulnerable to the mother’s circulating hormones
  • Cortisol is essential for normal brain development
  • Excess cortisol may affect cell proliferation and differentiation and synaptic development in various brain regions
  • Stress response pathway (HPA axis) may be affected by early/ excessive exposure to cortisol
Foetal exposure to cortisol

- Maternal cortisol exposure activates foetal HPA Axis
- Foetal HPA axis programmed to state of permanent dysregulation
- Increased risk of later psychopathological and behavioural conditions
And then something(s) happened

- The social interactions and relationships between infants and their primary carers—*early attachment relationships*—during the first years of life have a profound influence on subsequent mental and emotional development
Interaction of the infant with the primary carer

- Led by Infant Mental Health Clinicians
  - Infant development is fundamentally shaped by the quality of the interaction with the primary carer
    - A supportive and nurturing relationship that is sensitive and responsive to the infant’s needs optimises neurological and psychological development
  - Infants exposed to disrupted or traumatising early relationships may experience longer term difficulties in emotional interaction and development
Interaction of the infant with the primary carer

- Development of neural pathways and synapses and emergent neurological function is ‘experience dependent’
- Parenting and attachment relationships are the social context of
  - early brain development
  - essential processes such as stress regulation and HPA axis functioning
Some key determinants of attachment relationship

- Mother’s childhood experiences/early attachment relationships
- Mother’s representations of their unborn child and of themselves as caregivers
- The quality of the mother-infant relationship—’maternal sensitivity’
- Mother’s capacity to understand her own and others behaviour in terms of underlying mental state and intentions—*parental reflective functioning or mentalising capacity*
- Mother’s capacity to attribute an intention to the infant’s signals—*mind mindedness*
‘High-risk’ caregivers

- Caregivers who are likely to have attachment and relationship difficulties with their infant
  - Women with history of poor parenting, abuse or difficulties in relationship with their own mother
  - Women with psychoses and other severe disorders including A&D abuse
  - Those with learning difficulties or neurological problems
  - Women with severe personality disorder- intergenerational transmission of risk commonly occurs
Important enablers

• The 1001 critical days
  [the importance of the conception to age 2 period]

• A cross party manifesto setting out a vision for the provision of services in the UK for the early years period

• Launched at each party political conference in October 2013

• Politicians pledged to work to ensure all babies have the best possible start in life

• All Parliamentary group (APPG) and the 1001 Critical Days Movement
Important enablers
Important enablers

• RANZCOG Statement: Mental Health in the Perinatal Period
  • First endorsed 2012
  • Total of 13 recommendations
    • Health professionals providing care in the perinatal period should receive training in woman-centred communication skills, screening and psychosocial assessment and culturally safe care
    • The mental wellbeing of patients should be seen as important as physical health
    • All pregnant women should be routinely screened for depression and anxiety symptoms, also for psychosocial risk factors, also A&D and family violence
    • At every antenatal and postnatal visit, enquire about women’s emotional wellbeing
Important enablers

• From Nov 2017, mental health assessments are Medicare funded for women during pregnancy and up to 2 months postpartum
  • Existing MBS items 16590 & 16591 for planning and management of pregnancy changed - include an expectation that a MH assessment will be offered by the clinician or a suitably qualified health professional
  • New item 16407 - postnatal consultation between 4-8 weeks which includes a MH assessment
• And, complex birth item 16522 which includes a variety of conditions such as multiple pregnancy, placenta praevia, baby weighing <2500gm etc etc now includes mental health disorder (arising prior to pregnancy, during pregnancy or postpartum)
And so, Perinatal Psychiatry C-L services

- A Perinatal and Infant Psychiatry C-L service
- Provide service to Antenatal Clinics and Maternity and Neonatal Units
- Assess and treat women with/at risk of mental illness in pregnancy and postpartum
- Have a strong focus on prevention and early intervention
  - Preconception assessment/advice/planning
  - Awareness of potential ‘toxic’ influences on foetus in utero and ways to address these
  - Identification of and interaction with ‘high risk’ parents
- Well linked to a range of services such as general practitioners, Child Health, Parenting services, Child Safety (Child Protection)
The Tasmanian perinatal C-L experience
RHH maternity and perinatal C-L services

• RHH provides public maternity services for Southern Tasmania
• Routine screening with EPDS introduced in 2013
• Hospital Perinatal and Infant C-L service established in 2014
  • NPDI Co-ordinator (midwife)
  • 0.5 FTE psychiatrist funded by CAMHS
• Growth .....  
  • Trainee psychiatrist TMSD funding (+ 0.2 FTE supervisor funds)
  • Trainee psychiatrist IRTP funding
  • Clinical psychologist (infant mental health) - Health Minister growth for CAMHS
• Co-located psychiatry and psychology in ANC and regular liaison with and consultation to maternity, NICU, paediatrics, and post-natal clinic follow-up
RHH Perinatal and Infant C-L service

• Antenatal referrals to C-L PIMH service (Screening plus)
  • Score 13 or more on EPDS
  • Currently experiencing problems with mental health
  • Past treatment for anxiety or depression
  • Self-report or GP report of diagnosis of schizophrenia, bipolar disorder or personality disorder
  • Currently prescribed antipsychotics or mood stabilisers

• N=459 antenatal women referred to the service over 18 months
  • N=141 (30.7%) declined offered appointment or DNA scheduled appointment

• N=318 (69.3%) seen for assessment
  • Represents around 12% of all women birthing at RHH
Patient characteristics (n=318)

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Mean age (SD)</td>
<td>27.6 (6.2)</td>
</tr>
<tr>
<td>Age range- years</td>
<td>13-43</td>
</tr>
<tr>
<td>Unplanned pregnancy- number (%)</td>
<td>193 (60.7%)</td>
</tr>
<tr>
<td>Unpartnered-number (%)</td>
<td>58 (18.2%)</td>
</tr>
<tr>
<td>Substance use in pregnancy-Number (%)</td>
<td></td>
</tr>
<tr>
<td>ANY</td>
<td>43 (13.5%)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>14 (4.4%)</td>
</tr>
<tr>
<td>Cannabis</td>
<td>28 (8.8%)</td>
</tr>
<tr>
<td>Amphetamines</td>
<td>7 (2.2%)</td>
</tr>
<tr>
<td>Opiates</td>
<td>4 (1.3%)</td>
</tr>
<tr>
<td>CSS involvement-number (%)</td>
<td></td>
</tr>
<tr>
<td>As child</td>
<td>37 (11.6%)</td>
</tr>
<tr>
<td>In previous pregnancy</td>
<td>43 (13.5%)</td>
</tr>
<tr>
<td>Notification made this pregnancy</td>
<td>53 (16.7%)</td>
</tr>
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Reasons for referral (n=318)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated EPDS</td>
<td>117 (36.8%)</td>
</tr>
<tr>
<td>Current symptoms anxiety/depression</td>
<td>80 (25.2%)</td>
</tr>
<tr>
<td>Past treatment anxiety/depression</td>
<td>153 (48.1%)</td>
</tr>
<tr>
<td>Self harm or suicide risk</td>
<td>9 (2.8%)</td>
</tr>
<tr>
<td>“Known” diagnosis Bipolar disorder, schizophrenia, psychosis</td>
<td>24 (7.5%)</td>
</tr>
<tr>
<td>Substance use</td>
<td>21 (6.6%)</td>
</tr>
<tr>
<td>Personality issues/anger/aggression</td>
<td>4 (1.3%)</td>
</tr>
<tr>
<td>Parenting issues or CSS issues</td>
<td>7 (2.2%)</td>
</tr>
<tr>
<td>Advice with management plan</td>
<td>13 (4.1%)</td>
</tr>
<tr>
<td>Social issues</td>
<td>24 (7.5%)</td>
</tr>
</tbody>
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# Diagnoses (n=318)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Count (Percentage)</th>
</tr>
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<tbody>
<tr>
<td>No disorder</td>
<td>110 (34.6%)</td>
</tr>
<tr>
<td>Depressive disorder</td>
<td>81 (25.5%)</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>48 (15.1%)</td>
</tr>
<tr>
<td>Personality disorder</td>
<td></td>
</tr>
<tr>
<td>- Borderline</td>
<td>32 (10.1%)</td>
</tr>
<tr>
<td>- Antisocial</td>
<td>3 (0.9%)</td>
</tr>
<tr>
<td>- Narcissistic</td>
<td>1 (0.3%)</td>
</tr>
<tr>
<td>- Other</td>
<td>0</td>
</tr>
<tr>
<td>Substance use disorder</td>
<td></td>
</tr>
<tr>
<td>- Alcohol</td>
<td>4 (1.3%)</td>
</tr>
<tr>
<td>- Cannabis</td>
<td>27 (8.5%)</td>
</tr>
<tr>
<td>- Amphetamine</td>
<td>8 (2.5%)</td>
</tr>
<tr>
<td>- Opiate</td>
<td>5 (1.6%)</td>
</tr>
<tr>
<td>- Benzodiazepine</td>
<td>1 (0.3%)</td>
</tr>
<tr>
<td>Personality traits</td>
<td></td>
</tr>
<tr>
<td>- Borderline</td>
<td>62 (19.5%)</td>
</tr>
<tr>
<td>- Antisocial</td>
<td>8 (2.5%)</td>
</tr>
<tr>
<td>- Anxious (non DSM-5)</td>
<td>19 (6.0%)</td>
</tr>
<tr>
<td>- Other</td>
<td>6 (1.8%)</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>- Schizophrenia</td>
<td>4 (1.3%)</td>
</tr>
<tr>
<td>- Bipolar disorder</td>
<td>3 (0.9%)</td>
</tr>
<tr>
<td>- Obsessive compulsive disorder</td>
<td>7 (2.2%)</td>
</tr>
<tr>
<td>- Eating disorder</td>
<td>5 (1.6%)</td>
</tr>
<tr>
<td>- Acute stress disorder</td>
<td>3 (0.9%)</td>
</tr>
<tr>
<td>- Post-traumatic stress disorder</td>
<td>3 (0.9%)</td>
</tr>
<tr>
<td>- Intellectual disability</td>
<td>7 (2.2%)</td>
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Summarising our data.....

• Referrals (screening plus)
  • Around 12% of women birthing at RHH are seen for assessment

• Our population
  • Disadvantaged/at risk- young, unplanned pregnancy, no partner, past and current CSS
  • Significant substance use continuing in pregnancy

• Diagnostic issues
  • Around 1/3 of women who are seen do not have a psychiatric illness
  • Depressive and anxiety disorders common
  • Personality disorder/traits esp BPD frequently seen
RHH experience reflects the evolution of Perinatal and Infant C-L Psychiatry

• Women with schizophrenia and bipolar disorder
  • Keeping well, preventing postpartum relapse
• Women with antenatal anxiety and depression
  • These disorders are common
  • Will effective treatment mitigate effects on foetus?
  • Might our treatments have an adverse impact on foetus?
  • Will treating antenatally prevent postnatal problems?
• Complex care clinic-‘high risk’ caregivers
  • Psychiatric disorder, including personality disorder
  • Substance use
  • Complex psychosocial issues
  • Child safety services (past and/or current)
  • Dyadic interventions and interruption of intergenerational transmission of risk
Thanks to colleagues- Ange Hay, Stephanie Lorimer, Naomi Thomas, Anna Cocks and our great psychiatry registrars