Confidential Maternal Death Enquiry in Ireland

Report for the Triennium 2009 - 2011

August 2012
Confidential Maternal Death Enquiry in Ireland

Report for Triennium

2009 – 2011
Index of Contents

Historical Background of the UK Confidential Maternal Death Enquiry ........................................ 1
Reasons for Ireland Joining the UK-based Enquiry ........................................................................... 1
Establishment of the Confidential Maternal Death Enquiry in Ireland ........................................... 1
MDE UK: Definitions and Methodology ............................................................................................. 2
MDE: Case Ascertainment .................................................................................................................. 3
Maternal Death Notification Process to MDE Ireland ....................................................................... 3
MDE Ireland: Implementation Issues .................................................................................................. 4
MDE Ireland: Results for Triennium 2009-2011 ............................................................................. 5
Causes of Maternal Deaths in Ireland 2009-2011 ........................................................................... 6
Lessons to date from MDE Ireland 2009-2011, with reference to recommendations in
previous UK Enquiry Reports ............................................................................................................. 6
Measuring Maternal Mortality in Ireland ............................................................................................ 8
Recommendations ............................................................................................................................... 10
Continuing Professional Development ............................................................................................. 10
Future of the MDE in the UK ............................................................................................................. 11
Future Irish Collaboration with MBRRACE-UK ................................................................................. 12
Appendix 1: Membership of the Working Group on Maternal Mortality in Ireland ................. 13
Appendix 2: Case Assessors for the Maternal Death Enquiry in Ireland ...................................... 14
Appendix 3: Saving Mothers’ Lives Interactive Workshop, December 2009 ............................. 15
Appendix 4: Saving Mothers’ Lives Conference Programme, March 2011 ................................. 16
Historical Background of the UK Confidential Maternal Death Enquiry

The Confidential Maternal Death Enquiry (MDE) was initiated in England and Wales in 1952 and became UK-wide in the 1980’s. Ireland became a participant in 2009. Although much has changed since its inception in 1952, the lessons to be learned from the MDE remain as valid now as in the past. For many years, the MDE UK enquiry has been acknowledged globally as a gold standard for a confidential maternal death enquiry.

Since its inception in 2009, MDE Ireland has carried out confidential enquiries into maternal deaths occurring within Ireland using the UK model. Funded and endorsed by the Health Service Executive (HSE), the MDE is a 'stand-alone' office based in the National Perinatal Epidemiology Centre, Cork. The aim of the Enquiry is to investigate why some women die during or shortly after pregnancy, and to learn how such tragedies can be avoided in the future. This will ensure that all pregnant and recently delivered women receive safe, high quality care delivered in appropriate settings.

Reasons for Ireland Joining the UK-based Enquiry

Given the number of maternities reported annually in Ireland (74,318 maternities in 2010) and with due regard to confidentiality, it was imperative to join a larger cohort in order to maintain anonymity. Further, a larger cohort would allow more meaningful analysis and recommendations. The UK confidential MDE has a respected and validated research methodology. Recommendations from previous MDE UK reports have historically informed Irish health care professionals in ensuring continued improvement in Irish maternity services. Further, international evidence has shown that in the absence of active case ascertainment, under-reporting and misclassification of maternal deaths occur, even in developed countries with advanced civil registration systems.

Establishment of the Confidential Maternal Death Enquiry in Ireland

In July 2007, a Maternal Mortality in Ireland Working Group was established with the stated objective of linking Ireland with the UK based Confidential Enquiries into Maternal and Child Health (CEMACH). This Working Group was a joint Institute of Obstetricians and

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Gynaecologists/HSE collaboration. Members of the group are identified in Appendix 1. Following consultation with the relevant advisory authorities⁶, funding for CEMACH Ireland was secured from the HSE. In April 2009, MDE Ireland was established with the support of the Department of Health and Children and the State Claims Agency.

**MDE UK: Definitions and Methodology**

Definitions and classification of maternal deaths used by the UK MDE are outlined in Table 1. Of note, the Enquiry classifies most deaths from suicide as indirect maternal deaths because they were usually the result of puerperal mental illness, although this is not recognised in the International Classification of Diseases (ICD) coding of such deaths.

<table>
<thead>
<tr>
<th>Maternal deaths**</th>
<th>Deaths of women while pregnant or within 42 days of the end of the pregnancy* from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct**</td>
<td>Deaths resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above.</td>
</tr>
<tr>
<td>Indirect**</td>
<td>Deaths resulting from previous existing disease, or disease that developed during pregnancy and which was not the result of direct obstetric causes, but which was aggravated by the physiological effects of pregnancy.</td>
</tr>
<tr>
<td>Coincidental (Fortuitous)***</td>
<td>Deaths from unrelated causes which happen to occur in pregnancy or the puerperium</td>
</tr>
<tr>
<td>Late***</td>
<td>Deaths occurring between 42 days and 1 year after abortion, miscarriage or delivery that are the result of Direct or Indirect maternal causes.</td>
</tr>
</tbody>
</table>

*This term includes delivery, ectopic pregnancy, miscarriage or termination of pregnancy.  **ICD 9  ***ICD 10  ****ICD 9/10 classifies these deaths as Fortuitous but the Enquiry prefers to use the term Coincidental as it a more accurate description.

(G. Lewis, *Saving Mothers’ Lives Report 2011*)

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⁶ Relevant advisory authorities included the Data Protection Commissioner and the Director of the General Register Office.
Calculating Maternal Mortality Rates

The international definition of the maternal mortality ratio is the number of Direct and Indirect deaths per 100,000 live births. Conversely, the MDE UK Enquiry has defined its maternal mortality rate as the number of Direct and Indirect deaths per 100,000 maternities as a more accurate denominator to indicate the number of women at risk. Maternities are defined as the number of pregnancies that result in a live birth at any gestation or stillbirths occurring at or after 24 completed weeks of gestation. Total estimated pregnancies (including miscarriage, ectopic pregnancy and therapeutic termination) are sometimes used as a denominator when assessing maternal mortality. However, this denominator is inaccurate and underestimated. In view of this, the MDE Ireland has used the number of total maternities as a denominator to assess maternal mortality rates and trends (see Table 2).

MDE: Case Ascertainment

For the past 50 years the overall number of maternal deaths identified by the proactive case-finding methodology used by the UK Enquiry has always exceeded those officially reported by the UK Office of National Statistics (ONS). This is because not all maternal deaths are recorded as such on death certificates. Proactive case-finding includes a nation-wide reporting network to the Enquiry by hospital coordinators, coroners, pathologists, community midwives and doctors. Further, in collaboration with the MDE UK, ONS has conducted a record linkage study as follows: death records of women of fertile age living in England and Wales have been matched with birth registrations up to 1 year previously. This has identified very few additional cases.

MDE Ireland: Case Ascertainment

MDE Ireland has endeavoured to develop a similar reporting network for maternal deaths from a wide variety of sources including coroners, pathologists, maternity units, general hospitals, public health nurses and general practitioners. The key factor to this network has been the development of an identified contact person within each maternity and general hospital. Case ascertainment by MDE Ireland has been verified with the Central Statistics Office (CSO). The possibility of the CSO conducting a cross linkage study, as described above, was also explored by MDE Ireland, but such a study was deemed not possible due to an inability to match identifiers.

Maternal Death Notification Process to MDE Ireland

Coroners

MDE Ireland has requested that Coroners report all maternal deaths to the MDE. To date, active notification from coronial offices has been inconsistent. MDE Ireland continues to

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engage with the Coroner’s Society regarding: (1) a national approach to notification of deaths; (2) timeliness of accessing post-mortem reports; and (3) the possibility of adding a question regarding pregnancy status at time of death to the Coroner's certificate.

Maternity Units

MDE Ireland has established a network of local coordinators within maternity units to notify cases of maternal death. For the purpose of the MDE process, this has also facilitated an effective line of communication within units to access documentation necessary for assessment of the case. Overall, maternity units have been very supportive and have engaged very willingly with the MDE process. This is very likely related to familiarity of professionals with the UK MDE and the value placed on the learning outputs of previous UK triennial reports.

General Hospitals

Many maternal deaths occur in general hospitals, particularly following admission to the Intensive Care Units. Issues identified by the MDE in some cases occurring in general hospitals included:

- Recent pregnancy not documented /considered on admission.
- No feedback to the relevant maternity unit in known cases of maternal deaths.
- Risk management has, in many cases, been identified as responsible for reporting to MDE Ireland.
- Reporting to MDE Ireland is likely to be most effective if the pathologist is involved in case ascertainment. However, it is acknowledged that in some cases of maternal deaths a post-mortem is not performed (particularly in cerebral events when there has been recent high quality radiological imaging).

Community Services

Public Health Nurses (PHN) and General Practitioners (GP) are well placed to identify maternal deaths occurring within the postnatal period. Many women are discharged early from maternity units and postnatal care within the community is more often delivered by the PHN and the GP. However, there remains some uncertainty regarding responsibility for reporting to MDE Ireland. Notably, these professionals are also part of the MDE reporting network in the UK.

MDE Ireland: Implementation Issues

The Enquiry has been labour-intensive and occasionally difficult in some hospitals despite letters of support from the Health Service Executive and State Claims Agency. Issues of concern, particularly in general hospitals, have been data protection, potential litigation and anticipated review of cases by other agencies outside the MDE process. Establishment of the
network of contacts has required visits to maternity and general hospitals to raise awareness of the MDE process and recommendations from the MDE UK reports through single and multidisciplinary presentations, articles in newsletters and journals, hosting a workshop and more recently, the launch of the most recent *Saving Mothers’ Lives* 2006-2008 report in Dublin.

**MDE: Case Assessment Process**

The enquiry approach of the MDE is based on a two-stage process of regional data collection, anonymisation, and assessment of cases, followed by central assessment in the UK and aggregation into a fully anonymised overall triennial report. At regional level in Ireland, similar to Scotland and Northern Ireland, assessment of anonymised cases is carried out at regional assessor panel meetings.

**Regional and Central Assessors**

Regional and central assessors are clinicians who work independently of the MDE but contribute to the maternal death enquiry. Nominated assessors bring a broad range of clinical expertise to the maternal death enquiry from the following disciplines: Obstetrics, Midwifery, Anaesthesia and Perinatal Psychiatry. Experts from Emergency Care/Critical Care and Primary Care review cases at central assessment level if relevant.

In Ireland, regional assessors have been nominated by the relevant professional bodies. A list of Irish regional assessors is available in Appendix 2. The role of regional assessors is to identify key areas of substandard care or avoidable factors in the management of each case. The central assessor is responsible for aggregating the information, and developing the chapter of the triennial report for which they are responsible.

**MDE Ireland: Results for Triennium 2009-2011**

- The total number of maternal deaths ascertained by MDE Ireland for the triennium 2009 – 2011, using the CMACE maternal death classification system, was twenty five.

- Of these deaths, six were classified as direct maternal deaths, thirteen as indirect maternal deaths, and the remaining six were attributed to coincidental causes.

- For the years 2009 and 2010 there were 149,128 maternities in Ireland\(^8\). There were 12 maternal deaths (includes direct and indirect causes but not coincidental causes). This gave a Maternal Death Rate of 8.0 per 100,000 maternities for the combined years 2009 and 2010. Data on the number of maternities for 2011 are unavailable at time of writing.

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There was no evidence of clustering of cases in any one hospital.

National and international comparisons of Maternal Death Rates / Ratios are outlined in Table 2.

Table 2: International Comparison of Maternal Mortality Rates

<table>
<thead>
<tr>
<th>Country</th>
<th>Maternal Mortality Rate / Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDE Ireland 2009-2010</td>
<td>8.0 (95% CI: 3.5 – 12.6) per 100,000 maternities</td>
</tr>
<tr>
<td>†Ireland: CSO 2009</td>
<td>4 per 100,000 Live and Stillbirths</td>
</tr>
<tr>
<td>†MDE UK 2006-2008</td>
<td>11.39 per 100,000 maternities</td>
</tr>
<tr>
<td>*France: 2008</td>
<td>8 per 100,000 Live Births</td>
</tr>
<tr>
<td>*Norway: 2008</td>
<td>7 per 100,000 Live Births</td>
</tr>
<tr>
<td>*Sweden: 2008</td>
<td>5 per 100,000 Live births</td>
</tr>
<tr>
<td>*United States of America: 2008</td>
<td>24 per 100,000 Live Births</td>
</tr>
</tbody>
</table>

Abbreviation: 95% CI, 95% confidence interval

Causes of Maternal Deaths in Ireland 2009-2011
The causes of deaths in each category were:

Direct Maternal Deaths:
Pulmonary embolism (3); Amniotic Fluid Embolism (1); Uterine Rupture with no known uterine scar (1); and Multi-organ Failure secondary to HELLP (1).

Indirect Maternal Deaths:
Cardiovascular disease (5); Suicide (2); H1N1 Influenza (2); Epilepsy (2); Chronic obstructive pulmonary disease (1); Bleeding oesophageal varices (1).

Coincidental Deaths:
Metastatic cancer (2); Road traffic accident (1); CNS lymphoma (1) and Substance abuse (2).

Lessons to date from MDE Ireland 2009-2011, with reference to recommendations in previous UK Enquiry Reports
The number of maternal death cases, inclusive of all CMACE classifications, in Ireland is small, and conclusions must incorporate the limitations of cohort size. Furthermore, this report acknowledges the importance of preserving confidentiality in the Enquiry process and for the need to amalgamate with a much larger cohort in order to preserve anonymity and to provide for more meaningful analysis of maternal death cases. Lessons from MDE Ireland triennium 2009-2011 are therefore set out in a generalised fashion below. Importantly, the

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findings from MDE Ireland show similarities with previous enquiry reports in the UK. In keeping with the MDE Ireland’s aim for excellence of care for mothers and babies in our maternity services, MDE Ireland has gleaned valuable information. It has been the MDE’s experience that the process of implementing the MDE has heightened awareness of pertinent issues among health professionals caring for pregnant women.

**Direct Deaths**

It was gratifying to note the absence of any deaths in Ireland 2009-2011 attributable to hypertensive disease, haemorrhage and anaesthetic complications, historically among the commonest causes of maternal deaths for generations. However, thromboembolic disease continues to feature prominently, and serves as a reminder of the importance of adherence to well publicised guidelines for prevention and management of this complication.

**Ethnicity/Nationality of Women**

It has been reported that 75.4 per cent of maternities in Ireland in 2010 were women of Irish nationality. Significantly, 40 per cent of all maternal deaths identified in the triennium 2009-2011 by MDE Ireland occurred in women who were not born in Ireland (5/6 direct deaths; 4/13 indirect deaths; and 1/6 coincidental deaths). This mirrors findings in the previous Saving Mothers’ Lives (SML) 2006 – 2008 report. As with recommendations in previous Saving Mothers’ Lives reports, issues include how these women engage with Irish maternity services and the importance of the availability of interpretive services. A particular concern was the issue of engagement with the services by non-national patients in receipt of alternative medical advice from outside the country. These challenges need ongoing review.

**Pre-Conceptual Counselling**

The importance of pre-conceptual counselling and patient compliance was evident in cases of pre-existing disease. Prospectively, there may be opportunities for improvement in relation to anti-epileptic and anti-depressant medication compliance in the peri-conceptional period.

**First Hospital Booking Appointment**

The number of indirect deaths underlines the importance of a comprehensive booking interview. There is particular importance in ascertaining previous medical and mental illness, and substance abuse. Previous involvement with social services requires follow up.

**Appropriate Referral to Specialist Services**

In cases of pre-existing medical and mental health disorders, appropriate referral was apparent. Timeliness of access to colleagues providing other specialist services remains a challenge in some areas.

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Modified Early Obstetric Warning Sheets (MEOWS)

The value of MEOWS to identify maternal compromise was again identified. This was noted both in cases considered to have exemplary care and in cases where the use of a MEOWS chart might have identified impending maternal collapse.

Mental Health Illness

Those women who had a previous history of mental health illness were engaged with the mental health services, and good communication between maternity services and mental health services was apparent. The absence of a mother and baby unit is a continuing and regrettable deficiency in the Irish health services. Stand-alone psychiatric units are poorly equipped to look after women with medical and obstetrical complications.

Substance Abuse

Indirect and coincidental maternal deaths related to substance abuse identified a maternal profile similar to that identified in the *Saving Mothers’ Lives* reports. These women are more likely to attend late for booking, and be poorly compliant with maternity and social services.

Maternal Profile: BMI and Age

Age: Maternal age was ≥ 35 years in seven of thirteen indirect maternal deaths and three of six deaths attributed to coincidental causes. Obesity (BMI ≥ 30.0kg) was associated with deaths from cardiovascular disease. Only two women smoked and in both cases the deaths were related to substance abuse.

Location of Maternal Deaths

When deaths occurred in general hospitals, lack of communication with the maternity unit and or GP was apparent. This serves to highlight the recommendation in the *Saving Mothers’ Lives* report 2006-2008 for a policy of follow-up for non-attenders in maternity units. There is also a need for a more comprehensive notification system in general hospitals in the event of a maternal death. In the case of direct maternal deaths, the need for transfer to a general hospital with ICU facilities was required in some cases. This underscores the value of co-located hospitals as recommended elsewhere.

Measuring Maternal Mortality in Ireland

Similar to other high income countries, Irish maternal mortality statistics are captured by the civil registration system. The Central Statistics Office (CSO) collates statistics on deaths occurring in Ireland from death registration data gathered by the General Register Office (GRO). Death registration requires receipt of a medical Death Notification Form from a relative of the deceased, or a Coroner’s Certificate in the case of a Coroner’s case.

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The MDE has established a good working relationship with the CSO. Key issues identified by MDE Ireland in relation to measuring maternal mortality and ascertainment of maternal death cases are outlined below:

Case Ascertainment

Comparative available data for the years 2009 and 2010 showed that all but one maternal direct death was identified by the CSO. However, none of the thirteen indirect or six coincidental maternal deaths were identified by the CSO.

Timeliness of Reporting

In the event of a Coroner’s inquest, registration of a maternal death may not occur until more than 18 months after death. If the maternal death is not a Coroner’s case, the death is registered by a relative of the deceased. Although the Civil Registration Act 2004\(^{11}\) stipulates that registration of a death by a relative should occur no later than three months from the date of death, this does not always occur in practice.

Quality of Death Notification Forms

The World Health Organisation\(^{12}\) recommends inclusion of a question on pregnancy status at time of death on death certificates, as it contributes to the identification of indirect maternal deaths.

In Ireland, the Medical Death Notification Form completed by a medical practitioner contains a question “If the deceased was female, was she known to have been pregnant at the time of death, or within the previous 42 days?” (Answer “yes” or “no” in all cases)\(^{13}\). The Coroner’s certificate does not contain this question.

In the case of Death Notification Forms, a review of MDE cases to date has shown that the question on pregnancy status has been not being correctly completed in some cases. Review of death certificates issued by the GRO office, following receipt of a Coroner’s certificate, identified information on current or recent pregnancy was absent in many cases of indirect maternal deaths. These issues clearly impact on ascertainment of reliable maternal mortality data.

Coding of Maternal Deaths

All deaths occurring after January 2007 are coded at the CSO using the ICD-10 classification system\(^{14}\). The CSO have reported to the MDE that, prior to 2009, data received from the GRO regarding the pregnancy status of a woman at time of death was not analysed due to


\(^{13}\)Death Notification Form. Part 1: Medical Certification of Cause of Death.

incomplete and poor data entry. Since 2009, the CSO has investigated this data point, but it continues to be highly unreliable.

**Recommendations**

Based on the findings of this initial report, MDE Ireland makes the following recommendations:

- A question on pregnancy status at time of death, similar to that on the medical death certificate, should be added to the Coroner’s death certificate.

- Interpretative services should be developed to ensure that the care of any patient is not compromised by lack of communication and misunderstanding.

- In the absence of co-location, establishment of a more effective communication system between general hospitals and maternity units in the event of a maternal death is necessary.

- Pregnant patients with pre-existing medical and mental health disorders should undergo risk assessment at booking and they should be afforded high priority when referred for assessment by colleagues in other medical disciplines.

- Maternity Unit medical staff should review and audit current practice concerning the prevention and treatment of thromboembolic disease.

- Consideration should be given to provision of a perinatal psychiatry mother and baby unit in Ireland.

**Continuing Professional Development**

A fundamental component of the UK MDE process is dissemination of recommendations from Enquiry reports in order to inform health professionals and to improve maternity services. Since its inception, MDE Ireland has promoted this element of the audit cycle through a series of organised educational events. Feedback from attending delegates has indicated a heightened awareness amongst health professionals of both the MDE process in Ireland and recommendations contained in previous UK Enquiry Reports. Events to date include the following:

- **Launch of the Maternal Death Enquiry in Ireland**

  MDE Ireland (formerly entitled CEMACH in 2009 and CMACE from 2010) was launched by Mary Harney, Minister for Health and Children, at the RCPI Dublin on 28th April, 2009. Attendance at the launch included delegates from the multidisciplinary team within the maternity services, the Health Information and Quality Authority, and the HSE. Guest speakers at the launch presented findings and recommendations from previous Enquiry reports. Speaking at the launch, Dr Michael O’Hare, Consultant Obstetrician &
Gynaecologist and Chairman of the CEMACH Ireland Working Group said "this is an important step forward for those involved in the delivery of maternity services in Ireland. The aim of this Enquiry process is to help ensure that all pregnant and recently delivered women receive high quality care delivered in appropriate settings."

- **Saving Mothers’ Lives Interactive Workshop December 2009**

Delegates from each of the twenty Irish maternity units were invited to a multidisciplinary interactive workshop in Limerick in December 2009. The day was facilitated by CMACE UK. The overarching aim of the interactive workshop was to disseminate the findings of the Saving Mothers’ Lives Report 2003-2005, and to encourage participants to consider and plan ways in which they could implement the recommendations within their own practice. The workshop also facilitated a forum for open discussion on the future delivery of maternity services in Ireland in the context of challenges identified in the Enquiry report. The workshop programme is included in Appendix 3.


The National Perinatal Epidemiology Centre (NPEC) in conjunction with CMACE hosted a launch of the Eighth Report of the Confidential Enquiries into Maternal Deaths in the UK, Saving Mothers’ Lives 2006 – 2008 in Dublin. Whilst Irish data were not included in this triennial report, the Dublin conference was very well attended, with 300 multidisciplinary delegates from both Ireland and Northern Ireland: the conference programme is included in Appendix 4. The high attendance rate reflected the impact recommendations from previous CMACE (formally CEMACH) reports have had on informing health professionals within the Irish maternity services. Speaking at the conference, the Chief Medical Officers from Ireland and Northern Ireland, Dr Tony Holohan and Dr Michael McBride respectively, both endorsed the importance and benefits of confidential maternal death enquiry reports in advancing quality and safety within the maternity services. Guest speakers at the launch included Prof Gwyneth Lewis (Director, Maternal Death Enquiry UK) and Prof Richard Greene, (Director, NPEC). Presentations were given by the report authors - Dr Ann Harper, Prof Colm O’Herlihy, Prof Michael de Swiet, Ms Val Beale, Dr David Hill, Dr Roch Cantwell and Dr Judy Shakespeare.

**Future of the MDE in the UK**

Until recently, CMACE was responsible for the confidential enquiries into maternal deaths in the UK. In 2011, a review of the programme in the UK was undertaken to determine the appropriate scope and plan for the future of the continuing Maternal Death Enquiry programme. On 13 June 2012, the Healthcare Quality Improvement Partnership (HQIP), on

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behalf of the funding stakeholders\textsuperscript{16} in the UK announced that the National Perinatal Epidemiology Unit (NPEU) at Oxford University had been commissioned to conduct the MDE. The MDE will continue as part of the Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK (MBRRACE-UK) programme and is expected to develop the recommendations of the Shribman report. This will result in a more streamlined Enquiry, with annual reports using a rolling average, with priority given to identification of common themes on a regular basis.

**Future Irish Collaboration with MBRRACE-UK**

Following the UK announcement in June 2012, MDE Ireland has established contact with the NPEU and anticipates discussions shortly with a view to continuing collaboration with the restructured Confidential Enquiry in the UK. Improvements in the maternity services in Ireland have been informed for decades by successive triennial reports from the UK, and Ireland has much to gain from continued participation in this internationally recognised and respected Enquiry.

\textsuperscript{16} Funding stakeholders include: The Department of Health for England; NHSSPS Northern Ireland; NHS Scotland and NHS Wales.
Appendix 1: Membership of the Working Group on Maternal Mortality in Ireland

Membership of the Institute of Obstetricians and Gynaecologists / Health Service Executive Joint Working Group on Maternal Mortality

Dr Michael F O’Hare, Consultant Obstetrician & Gynaecologist (Chairman).
Prof Richard Greene, Director of the National Perinatal Epidemiology Centre, Cork University Maternity Hospital.
Prof Colm O’Herlihy, Professor of Obstetrics and Gynaecology in the UCD School of Medicine and Medical Science. Consultant Obstetrician & Gynaecologist at the National Maternity Hospital Dublin.
Dr John Loughrey, Director of Obstetric Anaesthesia services at The Rotunda Hospital, Dublin.
Dr Karen Robinson, Clinical Risk Advisor, Clinical Indemnity Scheme.
Ms Deirdre Daly, Midwifery Lecturer, Trinity College Dublin.
Ms Ursula Byrne, Education Officer, An Bord Altranais.
Ms Elizabeth Adams, Deputy Nursing Services Director, Health Service Executive (until June 2009).
Dr Margaret Fitzgerald, Specialist in Public Health Medicine, Department of Public Health, Health Service Executive.
Dr Davida De La Harpe, Assistant National Director of Population Health, Health Service Executive.
Ms Sheila Sugrue, National Lead Midwife, Office of Nursing and Midwifery Services Directorate.
Ms Edel Manning, Coordinator, Maternal Death Enquiry, Ireland.
Dr Philip Crowley, Deputy Chief Medical Officer, Department of Health and Children (until April 2009)
Dr Ian O Callaghan, National Lead for Clinical Audit, Health Services Executive (HSE) (until December 2011).
Dr Freda O’Neill, Specialist in Public Health Medicine (until April 2009).
Appendix 2: Case Assessors for the Maternal Death Enquiry in Ireland

**Obstetric Assessor:** Prof. Colm O’Herlihy, Professor of Obstetrics and Gynaecology in UCD School of Medicine and Medical Science. Consultant Obstetrician & Gynaecologist at the National Maternity Hospital Dublin.

**Pathology Assessor:** Dr Peter Kelehan, Consultant Pathologist.

**Anaesthetic Assessor:** Dr John Loughrey, Consultant Anaesthetist and Director of Obstetric Anaesthesia services at the Rotunda Hospital, Dublin.

**Psychiatric Assessor:** Dr Anthony McCarthy, Consultant Psychiatrist in the National Maternity Hospital and St Vincent’s University Hospital, Dublin.

**Midwifery Assessors:**

Ms Fiona Hanrahan, Assistant Director of Midwifery and Nursing, the Rotunda Hospital, Dublin.

Ms Mary Doyle, Midwifery Practice Development Coordinator, Mid-Western Regional Maternity Hospital, Limerick.

Ms Siobhan Canny, Clinical Midwife Manager 3, Galway University Hospital, Galway.
### Appendix 3: Saving Mothers’ Lives Interactive Workshop, December 2009

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Presenter/Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>09.00</td>
<td>Coffee and registration</td>
<td></td>
</tr>
</tbody>
</table>
| 09.20 | Welcome                                       | Chair Dr Michael O’Hare  
Consultant obstetrician &  
Gynaecologist  
Clara Haken CMACE Project  
Midwife |
| 09.30 | Overview of findings: CEMACH Saving Mothers  
Lives’ report 2003-05                     | Professor Richard Green  
Consultant Obstetrician |
| 10.00 | Putting Saving Mother Lives in to context in  
Eire                                        | Edel Manning  
CMACE Ireland Coordinator |
| 10.30 | Top ten recommendations                      | Marcus Setchell  
UK Enquiry Obstetric Assessor |
| 11.00 | Coffee                                       |                                                       |
| 11.15 | Pathology and maternal death                 | Peter Kelehan  
Consultant Pathologist |
| 11.35 | Overview of topic areas                     | Clara Haken  
Deidre Daly Midwifery Lecturer  
Rachel Thomas London & South East  
England Regional Manager |
| 12.05 | Becoming Mummy                               | Claire Keys  
Service user |
| 12.25 | (Panel) discussion                           |                                                       |
| 12.45 | Lunch                                        |                                                       |
| 13.30 | Parallel breakout sessions to include:       | Facilitated by  
Prof Richard Green  
Deidre Daly  
Marcus Setchell  
Clara Haken  
Dr Michael O’Hare  
Mary Doyle |
|       | CMACE case studies                           |                                                       |
|       | Review of top 10 recommendations             |                                                       |
|       | Response to recommendations                 |                                                       |
| 15.00 | Coffee                                       |                                                       |
| 15.15 | Feedback from breakout sessions             | Clara Haken |
| 16.45 | Summary of day and next steps               | Dr Michael O’Hare |
| 17.00 | End of workshop                             |                                                       |
## Appendix 4: Saving Mothers’ Lives Conference Programme, March 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.45</td>
<td>Registration, refreshments</td>
<td></td>
</tr>
<tr>
<td>09:30</td>
<td>Welcome address from chair of session</td>
<td>Dr Michael O’Hare, Chair Irish Maternal Mortality Group and past Chairman Institute of Obstetricians and Gynaecologists, Dublin</td>
</tr>
<tr>
<td>09:40</td>
<td>Key note speech</td>
<td>Dr Tony Holohan, CMO, Department of Health and Children</td>
</tr>
<tr>
<td>09:50</td>
<td>Overview and Chapter 1</td>
<td>Professor Gwyneth Lewis, OBE, CMACE Director UK Maternal Death Enquiry and International Clinical Lead for Maternal Health and Maternity Services</td>
</tr>
<tr>
<td>10:20</td>
<td>Direct Maternal Deaths in the UK 2006-2008 – causes and avoidable factors</td>
<td>Professor Colm O’Herlihy, CMACE Central Assessor, Professor of Obstetrics and Gynaecology, University College Dublin School of Medicine and Medical Science</td>
</tr>
<tr>
<td>11:00</td>
<td>Panel discussion</td>
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<tr>
<td>11:10</td>
<td>Morning refreshments</td>
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<td>11:40</td>
<td>Sepsis</td>
<td>Dr Ann Harper, CMACE Central Assessor, Consultant in Obstetrics and Gynaecology, Belfast</td>
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<td>12:10</td>
<td>Indirect deaths</td>
<td>Emeritus Professor Michael de Swiet, Obstetric Medicine, Imperial College, London</td>
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<td>12:50</td>
<td>Anaesthesia &amp; critical care</td>
<td>Dr David Hill, CMACE NI Assessor, Consultant Anaesthetist and Associate Medical Director, South Eastern Trust Ulster Hospital, Belfast</td>
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<tr>
<td>13:10</td>
<td>Panel discussion</td>
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<td>13:20</td>
<td>Lunch -</td>
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<tr>
<td>14:20</td>
<td>Opening comments from afternoon chair</td>
<td>Chair: Deirdre Daly, Lecturer in Midwifery, Trinity College, Dublin</td>
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<td>14:25</td>
<td>Lessons for midwifery practice/midwives</td>
<td>Val Beale, CMACE Central Assessor, Local Supervising Authority Midwifery Officer, SW NHS</td>
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<td>14:55</td>
<td>Psychiatric causes of maternal death</td>
<td>Dr Roch Cantwell, CMACE Central Perinatal Psychiatry Assessor, Director, Perinatal Mental Health Service, Glasgow</td>
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<td>15:15</td>
<td>The GP perspective</td>
<td>Dr Judy Shakespeare, CMACE Central Assessor, General Practitioner, Oxford</td>
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<td>15:35</td>
<td>Top 10 recommendations</td>
<td>Prof. Richard Greene, Director of National Perinatal Epidemiology Centre and Professor of Clinical Obstetrics, University College Cork</td>
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<tr>
<td>16.05</td>
<td>Panel discussion</td>
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<tr>
<td>16.15</td>
<td>Conclusions, next steps and closing remarks</td>
<td>Dr Michael McBride, Chief Medical Officer, Northern Ireland</td>
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<td>16.30</td>
<td>Close of conference</td>
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