

Maternal death
in PERISTAT
and surveillance and response
(systems) in Europe

Sophie Alexander, with
acknowledgements to
Catherine Deneux-
Tharaux, Griet Van den
Berghe and many more

Outline

1. [How did it start?]
2. [Why do it / What is the content?]
3. What are the rates in PERISTAT countries?
 1. Consistency between data sources
 2. Who in Europe has a full system?
4. Conclusion and way forward

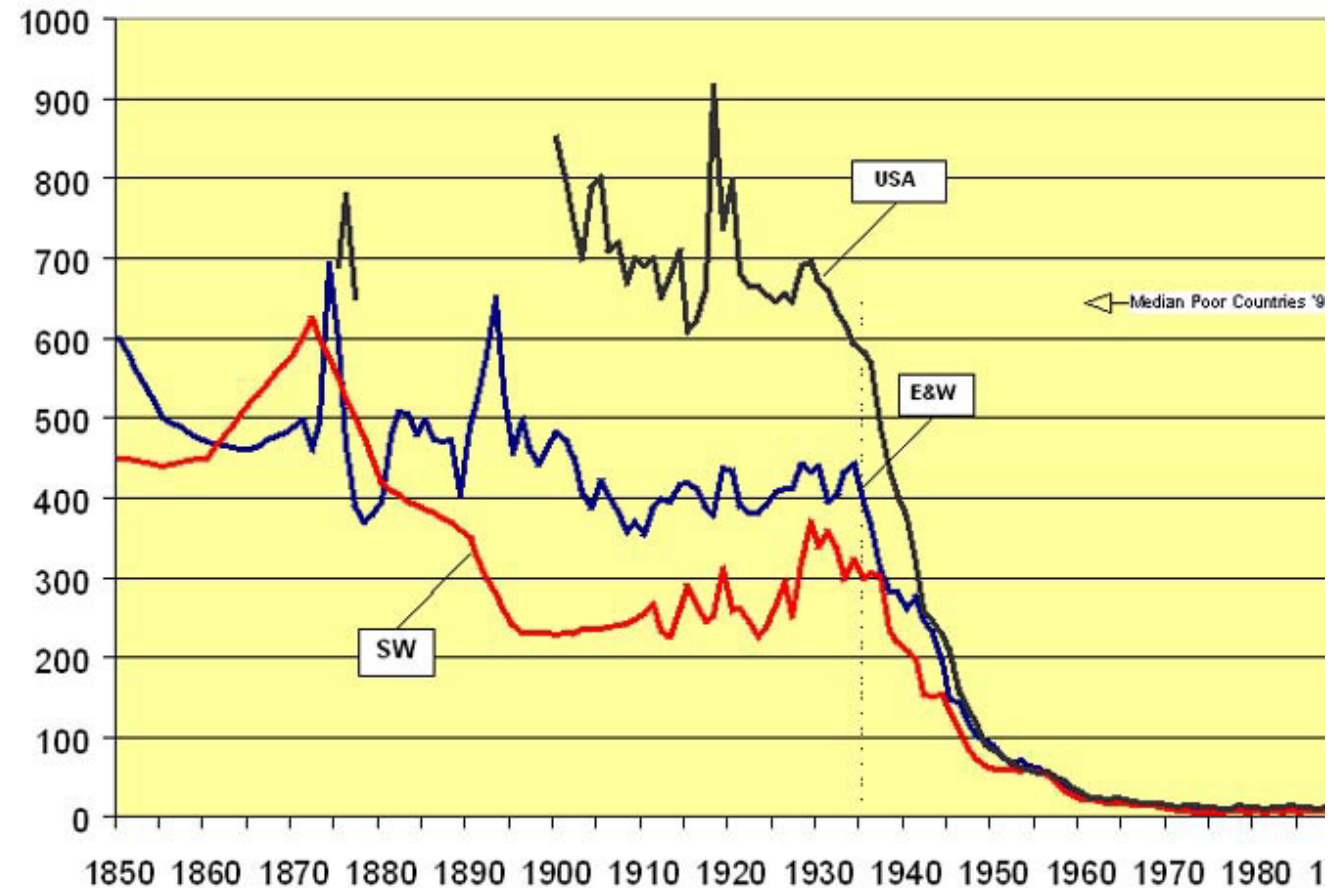
1 How did it start?



Eva Gonzales, selfportrait

Maternal mortality ratios (MMR) (n mothers dead /100 000 live births)

- In 1910, MMR was 820 for the US, 500 for UK-W and 300 for Sweden
- In 2013 MMR was 885 for Afghanistan, 496 for Nigeria and 293 for Ghana



WHY do it?
WHAT is the content?



Princess Charlotte



Maternal and child death New Zealand,
source <http://www.teara.govt.nz/en/photograph/26165/death-during-childbirth-1910s>



What is the content:
5 (6? 4?) steps to the procedure

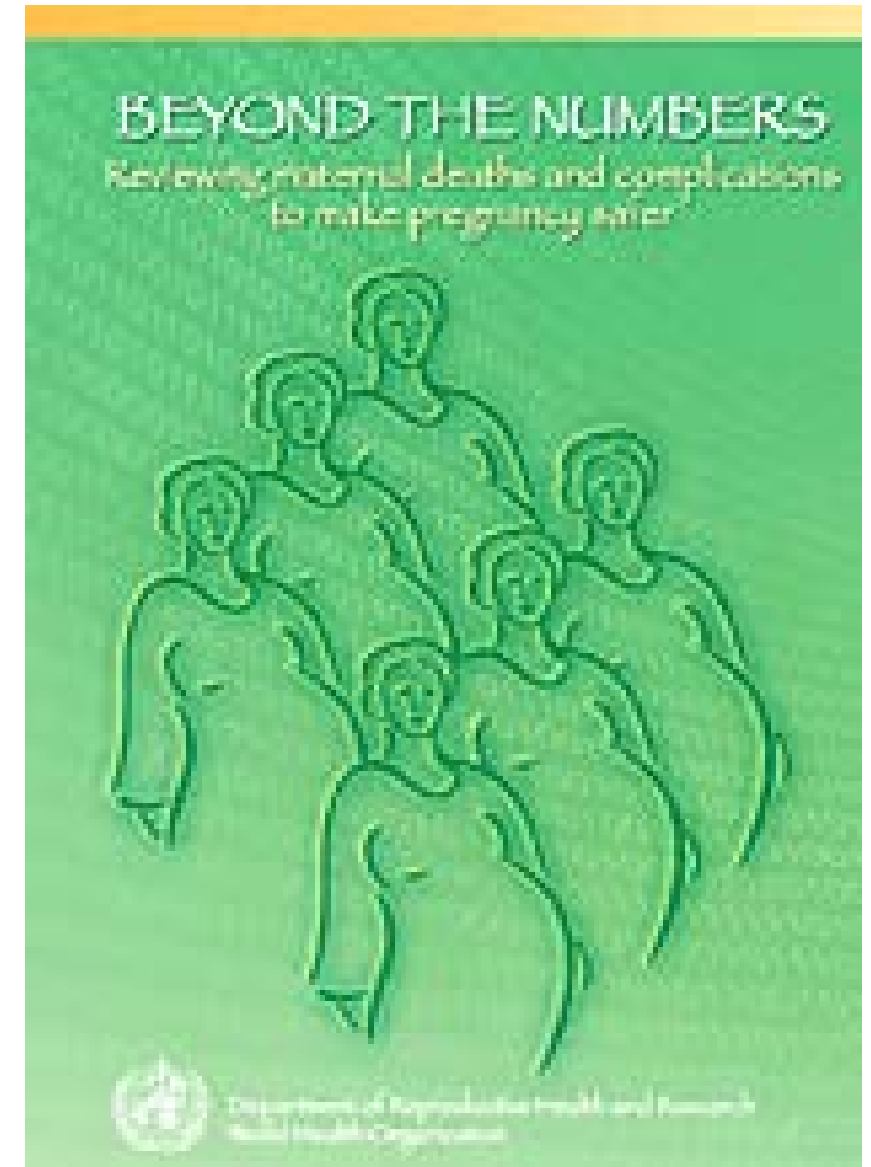
CEMD - 2

1. COUNT: PERISTAT indicator

- Routine count : all countries with death statistics = all HICs
- But need for an **ENHANCED IDENTIFICATION**
- But need to identify all who die between conception and day 365 post end of pregnancy including not pregnancy related

2. DOCUMENT EACH CASE

- Generally on the basis of a questionnaire
- Who fills it in?
 - France: « médecins enquêteurs » one anaesthesiologist and one Obgyn from another region during one day
 - UK: local actors including « risk management » team
- « No fault », or « no blame – no shame » culture
- **GET A STORY** (« beyond the numbers » concept)



3. CLASSIFY: PERISTAT YES

- Even among those who are doing « real » CEMDs, there isn't total superposition
 - Some examples
 - Haemorrhage
 - Fortuitous
 - Violent

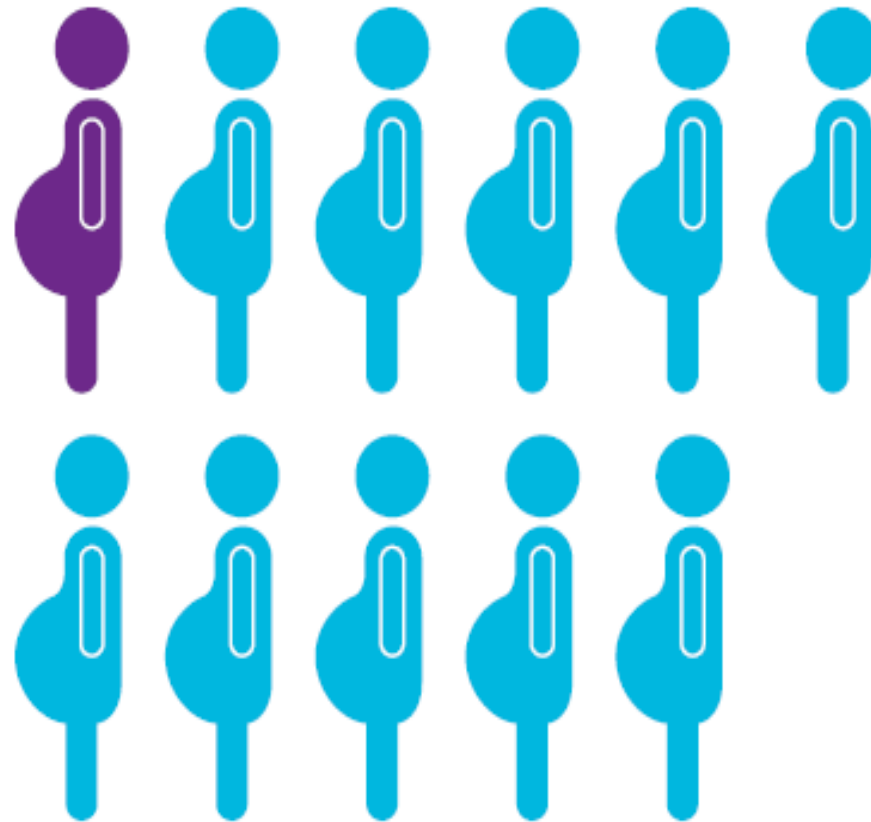
4. AUDIT / REVIEW

- « Avoidable »
- « Sub optimal »
- « Sub-standard»
- « improvement to care might have made a difference to outcome »
- Level of dysfunction
 - Care-givers
 - Infrastructure
 - Organisation of care
 - Patients and families
 - ...

5. MAKE RECOMMENDATIONS

- Not generic, based on results

Prevent Flu



1 in 11 of the women died from **Flu**

More than half of these women's deaths
could have been prevented by a flu jab

(6) DISSEMINATE

- Available to all and easy to find: UK
- Available to all and less easy to find : France
- Available to the « happy few » (members of the ob-gyn college: Netherlands)
- Only available as journal articles
- And more may be occurring are in the drawer of a ministry or a MM Committee archive



Jane Seymour

WHAT are the rates in PERISTAT countries? Do the results vary with the data source? Who in Europe has a full system?

In the present PERISTAT data collection

- We asked for MM individual cases for 5 years 2011-15
 - Routine data and/or
 - Enhanced data
 - Same by age (no real surprise so not presented)
- Countries will be presented as PERISTAT-R (for routine) and/or PERISTAT-E (for enhanced)
- Data from UNICEF WHO-World Bank data source ELGE <http://data.unicef.org/topic/maternal-health/maternal-mortality/> as well as data from the GBD 2015 Kassebaum correction (Lancet, 2015) will be presented
- Six countries out of 30 sent no data to PERISTAT (Denmark, Greece, Malta, Slovenia, Iceland and UK (data from Northern Ireland only)
- I also looked for recently published papers to see if you knew the people from your country
- Requested 2011-2015
 - 2008-2012 – Italy, France,
 - 2010-2014 - Spain, France, Poland, Sweden, Switzerland, Luxembourg, Belgium
 - 2012-2015 - Ireland



PERISTAT- R: 11.0

WHO WB : 4.0

Kassebaum: 4.2

Total = 4



[Wiener klinische Wochenschrift](#)

..... September 2017, Volume 129, [Issue 17-18](#), pp 605-611 | [Cite](#)

Outcomes and trends of perip to the intensive care unit

Authors

[Authors and affiliations](#)

Alex Farr , Agnes Lenz-Gebhart, Sabrina Einig, Clemens Ortner

Rainer Lehner

Belgium

- Has formal ministerial agreement to start within the framework of the B*OSS infrastructure (B*OSS being the Belgian equivalent to UKOSS)

PERISTAT-E: 4.1

WHO WB : 7.0

Kassebaum: 7.4



Bulgaria

PERISTAT-R: 6.9

WHO WB : 11.0

Kassbaum: 21.1

Akush Ginekol (Sofia), 2011;50(4):8-11.

[Some aspects of maternal mortality in Bulgaria].

[Article in Bulgarian]

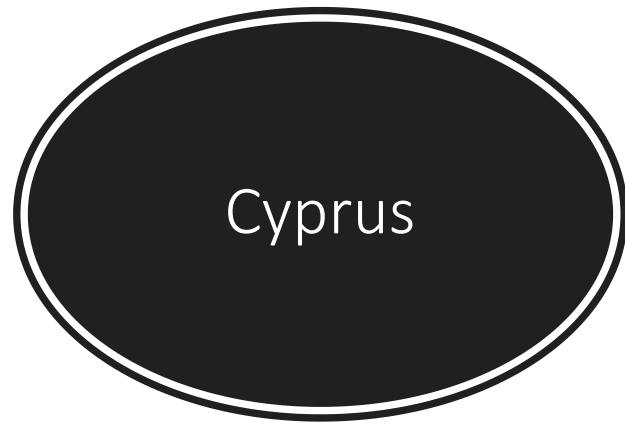
Yankova Y, Dimitrov A, Nikolov A, Nashar S, Vakrilova L, Maseva A, Garnozov T.

Abstract

The author discusses the world and bulgarian maternal mortality rates and suggests the creation of o guidelines in urgent obstetrical cases.



	PERISTAT R	WHO WB 2015	Kassebaum 2015
Croatia	5,5	8,0	9,5
Slovenia	-	9,0	5,6



Cyprus

PERISTAT-R: 6.2

WHO WB : 7

Kassebaum: 5.6

All three countries
have less than 100 000
Births together



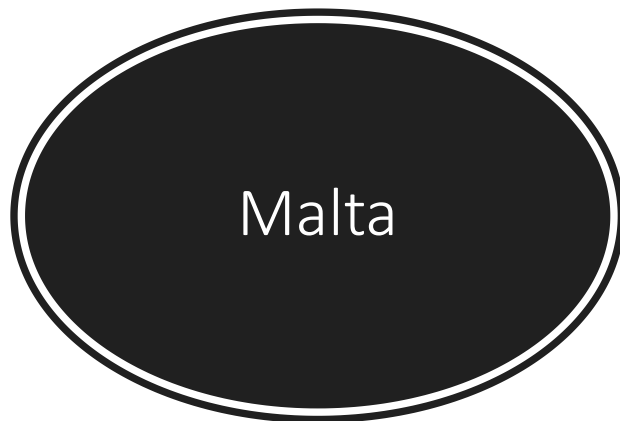
Luxemburg

Luxemburg

PERISTAT-R: 15.6

WHO WB : 10

Kassebaum: 11.0



Malta

Malta

PERISTAT-R: -

WHO WB : 9

Kassebaum: 5.9

Cyprus

- Cyprus: For the years 2011-2013 the data source for live births, is the Demographic Report 2015 of the Cyprus statistical Service. Their data concerns only live births from mothers with residence in the Cyprus Government Controlled Areas. Comparing our data for the years 2014 and 2015 with theirs, filtering the same criteria (live births and births only from mothers with residence in the Cyprus Government Controlled Areas), there is a small difference due to the different periods of data processing



Czech

PERISTAT-E: 6,9

WHO WB : 4.0

Kassebaum: 6.2

Slovakia

PERISTAT: 4.3

WHO WB : 6.0

Kassebaum: 6.6

Ceska Gynekol. 2005 Jan;70(1):16-21.

[Analysis of maternal mortality in the Czech Republic in 2001].

[Article in Czech]

Srp B¹, Velebil P.

Denmark,
Finland,
Iceland,
Norway
Sweden




PERISTAT-R 2011-15	UNICEF 2015	KASSEBAUM 2015
-	6.0	4.2
2,7	3.0	3.8
-	3.0	3.7
4,3	5.0	3.8
4,4	4.0	4.4

Nordic countries

- The « Nordic Maternal Mortality Collaboration » was initiated in 2009 (check) and ensures common methodology
- It is unclear how the documenting procedure is done?
- Do they « go beyond the numbers »?

MDSR +
Enhanced: yes
Documentation: how?
Evaluation of cases: yes
Recommendations: ?

Maternal deaths in the Nordic countries

SIRI VANGEN^{1,2} , BIRGIT BØDKER³, LIV ELLINGSEN⁴, SISSEL SALTVEDT⁵, MIKA GISSLER^{6,7} ,
REYNIR T. GEIRSSON⁸  & LILL T. NYFLØT^{1,4}

Les Morts Maternelles en France

Mieux comprendre pour mieux prévenir



Rapport du
Comité National d'experts sur la Mortalité Maternelle
2007-2009



ANRS
HIV-Hépatites

Inserm

Institut national
de la santé et de la recherche médicale

Unité 053

Recherche épidémiologique en santé périnatale,
santé des femmes et des enfants

Inserm
Institut national
de la santé et de la recherche médicale

**Santé
publique
France**

SANTÉ
PÉRINATALE
ET PETITE
ENFANCE

SEPTEMBRE 2017

ÉTUDES ET ENQUÊTES

LES MORTS MATERNELLES EN FRANCE : MIEUX COMPRENDRE POUR MIEUX PRÉVENIR

5^e rapport de l'Enquête nationale confidentielle
sur les morts maternelles (ENCMM) 2010-2012



France



PERISTAT-R : 6.4

PERISTAT-E: 8.9

WHO WB : 8

Kassebaum: 7.8

ECMM 2010-12: 9.5 [8.3-10.8]

MDSR+

Enhanced: yes

Documentation: external assessors

Evaluation of cases: yes

Recommendations: yes



Three countries together have 220 000 births
in 5 years

	PERISTAT-R	PERISTAT-E	UNICEF 2015	KASSEBAUM 2015
Estonia	4,3	12,9	9.0	4.6
Latvia	24,7	-	18,0	12,6
Lithuania	6,6	-	10,0	10,0

Estonia

- Maternal deaths for the birth cohort (all born and delivered in each calendar year). Deaths are linked to mothers who have delivered in the calendar year with deaths occurring to them in the same or next year within 42 days from the date of delivery. Maternal age for deaths is at the time of their death. Any cause except accidental or incidental causes (although suicides could be included if within 42 days)
- Maternal deaths after the delivery. Health care institutions report the data on maternal death. It is verified with Registry of Causes of Death. Only those deaths are included which have identified that the primary cause is related to pregnancy or birth (ICD 0 -codes) and are direct maternal deaths.

Germany & Austria & Hungary

- Tradition such as the **Kommission "Mütterliche Mortalität"** of Bavaria
- Also in **Austria and Hungary** there was a **legal requirement for autopsy in maternal death**, presumably going back to Frans Josef

Non
enhanced
count &
classify

26. Deutscher Kongress für Perinatale Medizin vom 05. - 07.12.2013 in Berlin
Workshop „Mütterliche Sterbefälle“, 06.12.2013



Brauchen wir auch in Deutschland bundesweit
Confidential Enquiries into Maternal Deaths ? (P1)

H. WELSCH, München

Es wurde heute bereits darauf hingewiesen, dass die 2008 von der BQS auf unsere Anregung zum allerersten Mal bundesweit durchgeführten Einzelfalluntersuchungen bei mütterlichen Sterbefällen im stationären Bereich der

European Journal of Obstetrics & Gynecology and Reproductive Biology 173 (2014) 29–33



Contents lists available at ScienceDirect

European Journal of Obstetrics & Gynecology and
Reproductive Biology

journal homepage: www.elsevier.com/locate/ejogrb



Trends in maternal mortality in Hungary between 1978 and 2010

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Germany, Hungary



	Peristat 2011-15	WHO WB	Kassbaum
Germany	4,2	6,0	9,0
Hungary	13,1	17,0	10,0

ejog European Journal of
Obstetrics & Gynecology
and Reproductive Biology



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Trends in maternal mortality in Hungary between 1978 and 2010

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PERISTAT 2011-15: -
WHO WB : 3.0
Kassebaum: 10.0

Applications Accueil Homepage Hulda Stumpf - Wikip Découverte du Bridge Connexion

Maternal mortality estimates

Nikolaos Vrachnis, Nikolaos Vlachadis

Published: 20 December 2014

PlumX Metrics

DOI: [https://doi.org/10.1016/S0140-6736\(14\)62423-5](https://doi.org/10.1016/S0140-6736(14)62423-5)



Article Info

Summary

Full Text

References

We believe that maternal mortality in Greece was considerably overestimated in Nicholas Kassebaum and colleagues' Article.¹ In Greece, the official data for maternal mortality are provided exclusively by the [Hellenic Statistical Authority](#), who have followed the International Classification of Diseases (ICD)-9 (codes 630-676) classification since 1979. Therefore, despite the official data for 1990 reporting only one maternal death in Greece that was attributable to direct causes, we were surprised that Kassebaum and colleagues reported ten maternal deaths for that year. We cannot



PERISTAT 2011-15: 9,1
WHO WB : 5
Kassebaum: 4,2

DOI: 10.1111/j.1471-0528.2011.02916.x
www.bjog.org

Maternal medicine

Maternal mortality in Italy: a record-linkage study

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National Centre for Epidemiology, Surveillance, and Health Promotion, Istituto Superiore di Sanità-Italian National Institute of Health, Rome, Italy

Correspondence: Dr S Donati, National Centre for Epidemiology, Surveillance, and Health Promotion, Istituto Superiore di Sanità-Italian National Institute of Health, via Giano della Bella 34, 00161 Rome, Italy. Email serena.donati@iss.it

Accepted 7 January 2011. Published Online 10 March 2011.

Related A

The system is starting with all components, and there is strong will and leadership to have a complete MDSR
At present not all regions participate

- Since 2013 in 8 Regions covering 73% of total birth an active maternal mortality surveillance systems is running, with notification of maternal deaths and confidential enquiries on all incident cases to identify the information needed to prevent avoidable maternal deaths. So far, n.63 cases of maternal deaths have been collected.
- The data reported in the “routine data section” (previous sheet) are estimated through record-linkage procedures between the death registry and the hospital discharge database and refer to years 2008-2012. Due to the different time interval of the record linkage procedure (2008-2012) compared to the active surveillance (started in 2013) we cannot compare the MMR estimated through the two detection systems

MDSR +

Enhanced: yes

Documentation: standardised

Evaluation of cases: yes

Recommendations: ?

Netherlands

PERISTAT-R: 5,1

WHO WB : 7,0

Kassebaum: 6,7

DOI: 10.1111/j.1471-0528.2009.02382.x
www.bjog.org

Maternal medicine

Rise in maternal mortality in the Netherlands

JM Schutte,^a EAP Steegers,^b NWE Schuitemaker,^c JG Santema,^{d*} K de Boer,^e M Pel,^f G Vermeulen,^g
W Visser,^b J van Roosmalen,^{h,i} the Netherlands Maternal Mortality Committee

^a Department of Obstetrics and Gynaecology, Isala Klinieken Zwolle, Zwolle, the Netherlands ^b Department of Obstetrics and Gynaecology, Division of Obstetrics and Prenatal Medicine, Erasmus University Medical Center Rotterdam, Rotterdam, the Netherlands ^c Diaconessenhuis Utrecht, Utrecht, the Netherlands ^d Department of Obstetrics and Gynaecology, Medical Center Leeuwarden, Leeuwarden, the Netherlands ^e Department of Obstetrics and Gynaecology, Rijnstate Hospital Arnhem, Arnhem, the Netherlands ^f Department of Obstetrics and



PERISTAT-R: 5,9

PERISTAT-E: 4,8

WHO WB : 10.0

Kassebaum: 9.0

[Views](#) | [CrossRef citations](#) | [Altmetric](#) |


Original Article

How many maternal deaths are there in Portugal?

Manuel C. Gomes, Maria T. Ventura  & Rui S. Nunes

Pages 1975-1979 | Received 18 Jan 2012, Accepted 17 Feb 2012, Accepted author version posted online: 28 Feb 2012, Published online: 26 Mar 2012

 Download citation  <https://doi.org/10.3109/14767058.2012.668587>

 Full Article

 Figures & data

 References

 Citations

 Metrics

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Abstract

Introduction: Maternal mortality is a public health issue, internationally considered an indicator of women's status in society, indirectly translating access to health facilities. However, it is difficult to measure and is usually

Capture-recapture: 26% underestimate

Author contacted, no present plans


Spain


Increased risk of maternal deaths associated with foreign origin in S population based case–control study ^{FREE}


Miguel Ángel Luque Fernández, Ignacio Gutiérrez Garitano, Aurora Bueno Cavanillas


European Journal of Public Health, Volume 21, Issue 3, 1 June 2011, Pages 292–294, <https://doi.org/10.1093/eurpub/>


Published: 21 June 2010 **Article history** ▼

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In Spain, it would be desirable to implement a maternal mortality active surveillance system and the use of confidential qualitative surveys to allow for the analysis of socio-economic and healthcare circumstances surrounding these deaths.

PERISTAT-R: 3,1

WHO WB : 5,0

Kassebaum: 5,6



Romania

Romania

All three countries

PERISTAT-R: 15,0

have less than 100 000

WHO WB : 31

births

Kassebaum: 18,9

Poland

Poland

PERISTAT-R: 1,9

WHO WB : 3,0

Kassebaum: 4,4

Switzerland

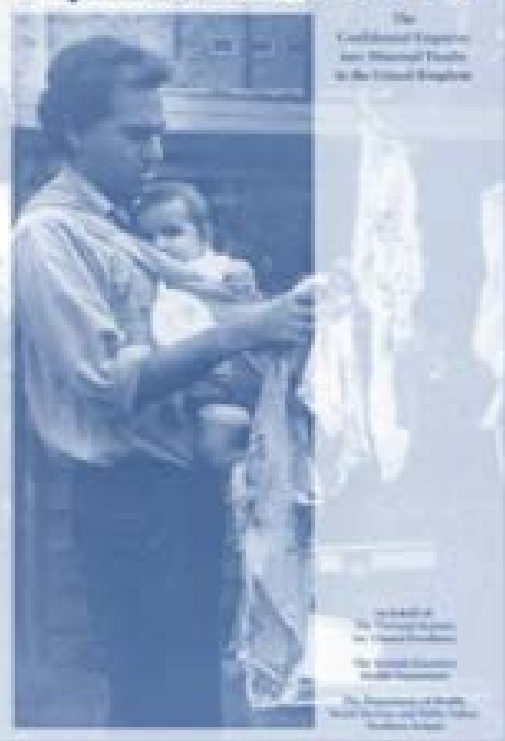
Switzerland

PERISTAT-R: 4,9

WHO WB : 5,0

Kassebaum: 5.8

Why Mothers Die 1997-1999



UK

PERISTAT-E: 8.1 (Ulster only)

WHO WB : 9.0

Kassebaum: 9.2

J. S. Tomkinson



MINISTRY OF HEALTH

Reports on Public Health and Medical Subjects
No. 97

Report on Confidential Enquiries into Maternal Deaths in England and Wales 1952-1954

UK & Ireland

Saving Lives, Improving Mothers' Care

Lessons learned to inform maternity care from the
UK and Ireland Confidential Enquiries into Maternal
Deaths and Morbidity 2013-15



December 2017

Ireland

PERISTAT-E: 13,5

WHO WB : 8,0

Kassebaum: 4,0

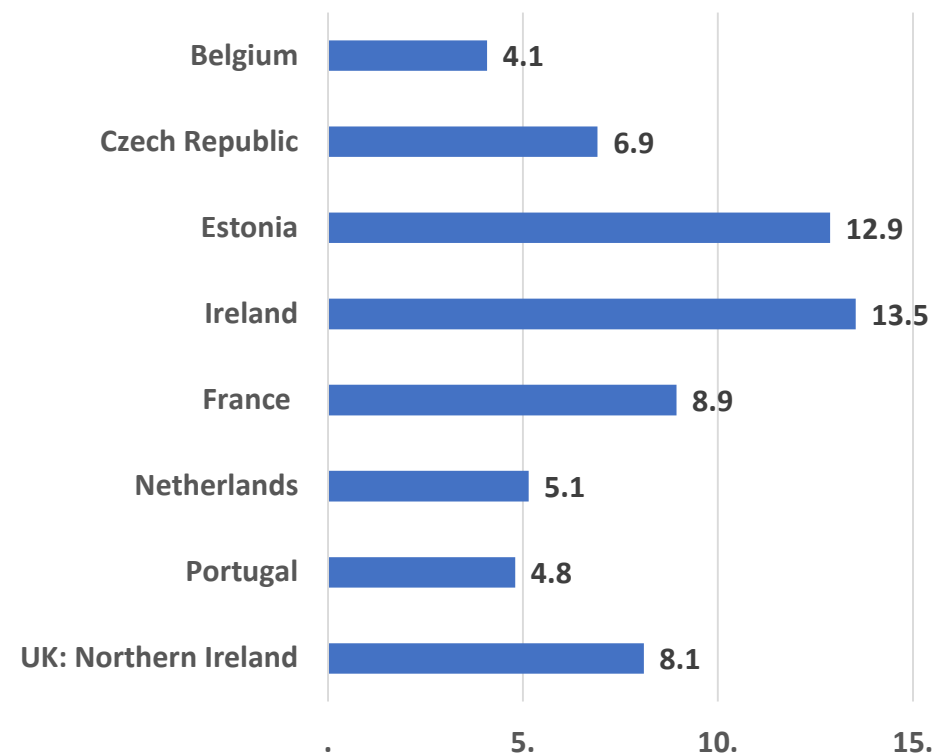
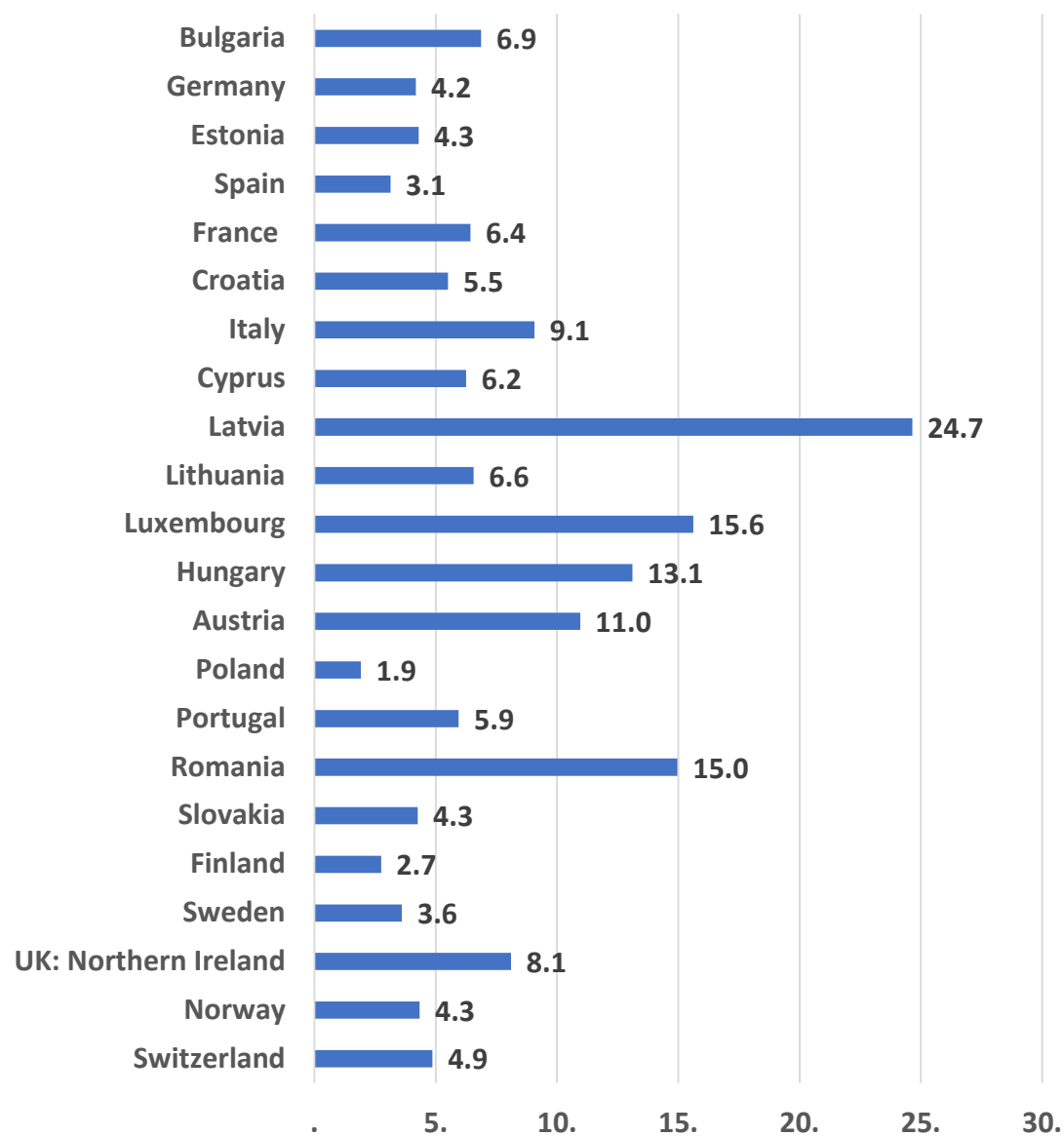
From England and Wales, to UK, to UK and Ireland = 2 separate countries

PERISTAT data come from the CEMD

In Summary

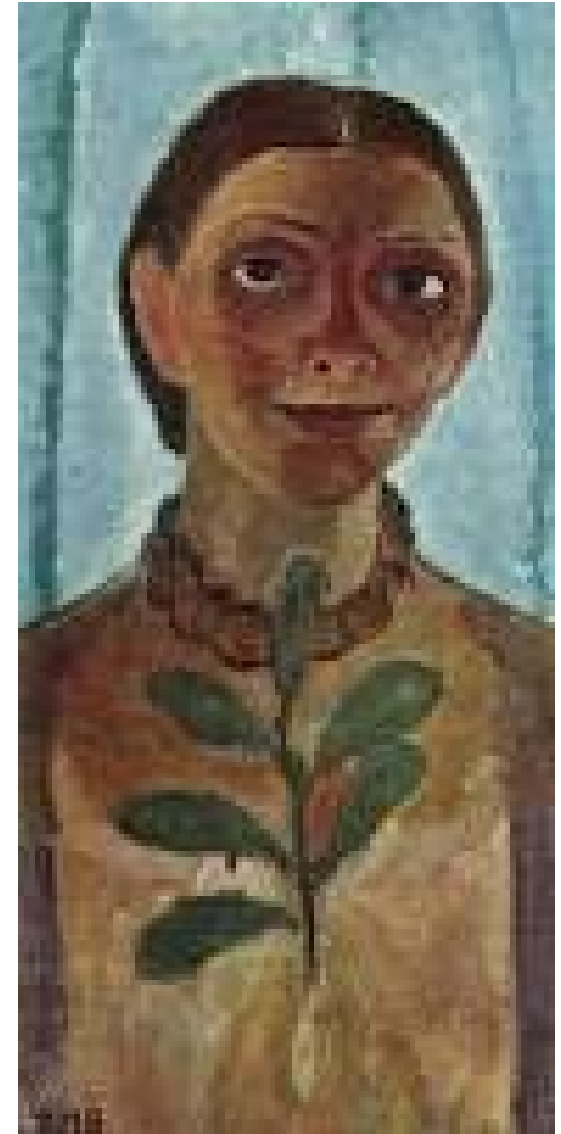
- UK, Ireland, France have full and disseminated MDSR System
 - Netherlands and Nordic countries same except dissemination and possibly documentation ?
 - Italy quasi running, Belgium should start
 - Germany and Spain voicing a need
-
- Without such systems results are very confusing and frustrating
 - Out of range values should be questioned
 - Too small number of births? (Luxemburg, Latvia)
 - Underascertainment?
 - Are illegal residents who die counted?

Maternal mortality ratio (deaths per 100.000 live births)



Enhanced

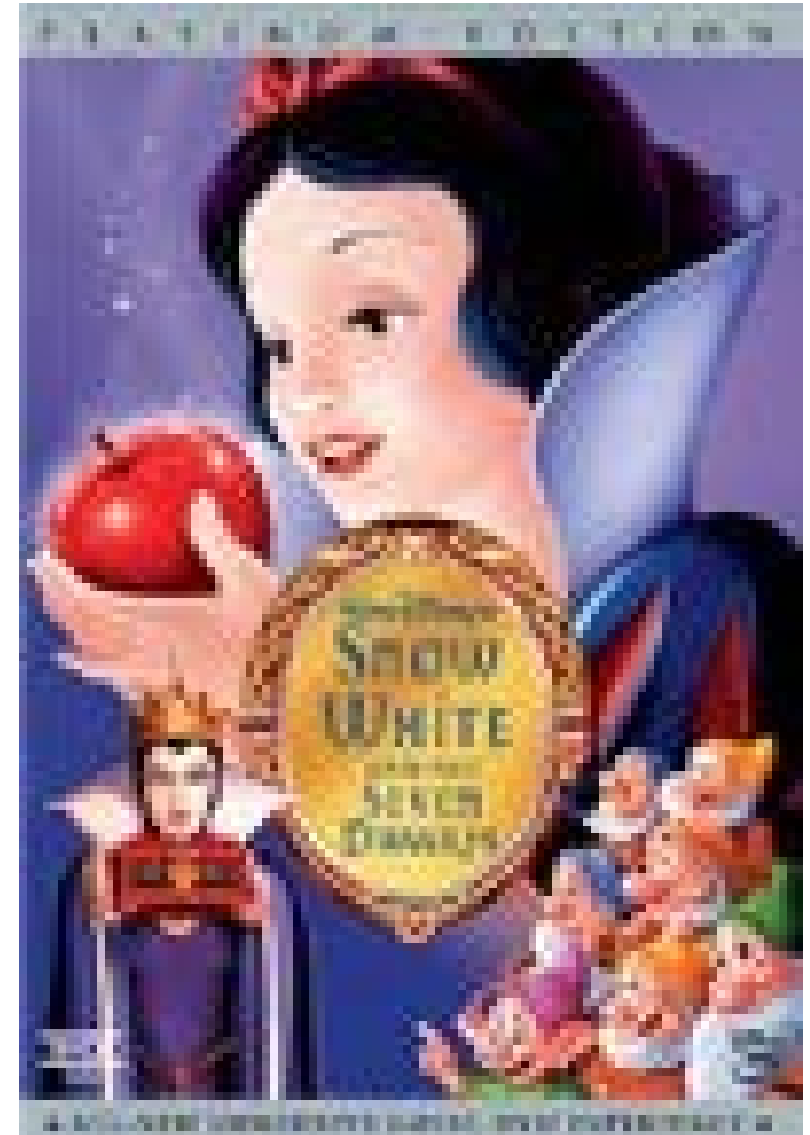
Conclusion & Way forward



Paula Modersohn Becker

Conclusion and way forward

- Reviewing maternal death is part of audit
- And therefore it should be performed and supported
- It is a rare event, so it may be desirable to couple it with
 - reviewing severe maternal morbidity / near miss
 - Perinatal death review



Eva Gonzalez died in childbirth

Jane Seymour and Katherine Parr died in childbirth

Princess Charlotte died in childbirth possibly preeclampsia (Triple catastrophe obstétricale)

Paula Modersohn Becker died in childbirth (pulmonary embolism)

Snow White's mother died in childbirth