Quality of Maternal and Newborn Health Care

Translating research into policy initiatives in the WHO European Region

The Italian maternal mortality surveillance system

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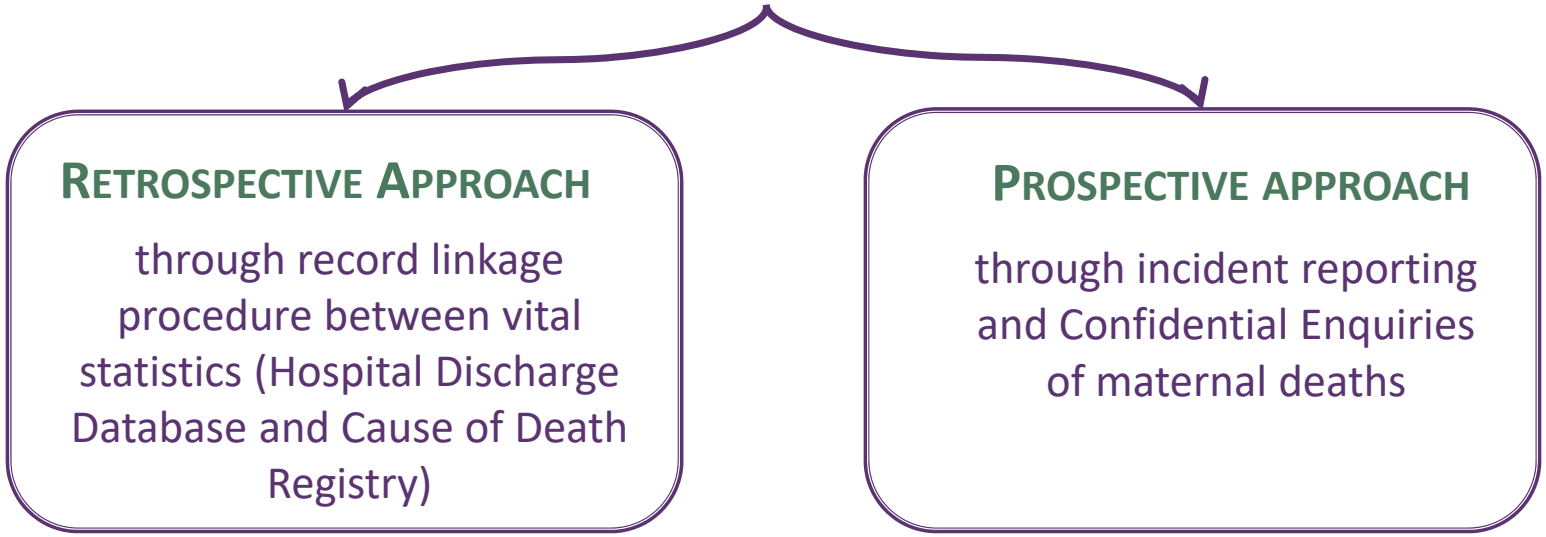
1.Maternal health

Translating a pilot research project on maternal mortality into a stable surveillance system of national interest, provided for by a Government Decree in Italy

Donati S, Maraschini A, Lega I, D'Aloja P, Buoncristiano M, Manno V, et al. Maternal mortality in Italy: Results and perspectives of record-linkage analysis. Acta Obstet Gynecol Scand 2018 Nov; 97(11):1317-1324.
Donati S, Maraschini A, Dell'Oro S, et al The way to move beyond the numbers: the lesson learnt from the Italian Obstetric Surveillance System. Ann Ist Super Sanita 2019 Oct-Dec; 55(4):363-370

2. Study design

Dual approach to identify maternal deaths



3. When & Where?

Year		National births
2008	Start of vital statistics record-linkage procedures	49%
2013	Start of incident reporting and Confidential Enquiries	49%
2015	Start of the ItOSS surveillance	73%
2017	Inclusion of the ItOSS surveillance in the Government Decree	77%
2018		85%
2019		91%
2021		95%

4. Who

The ItOSS network created a shared research-clinical enterprise to coordinate public health research activities in the obstetric field, with the aim of improving data reporting and ensuring a national observatory that makes available to decision-makers, health professionals and citizens useful evidence for improving the quality of care

The key actors:

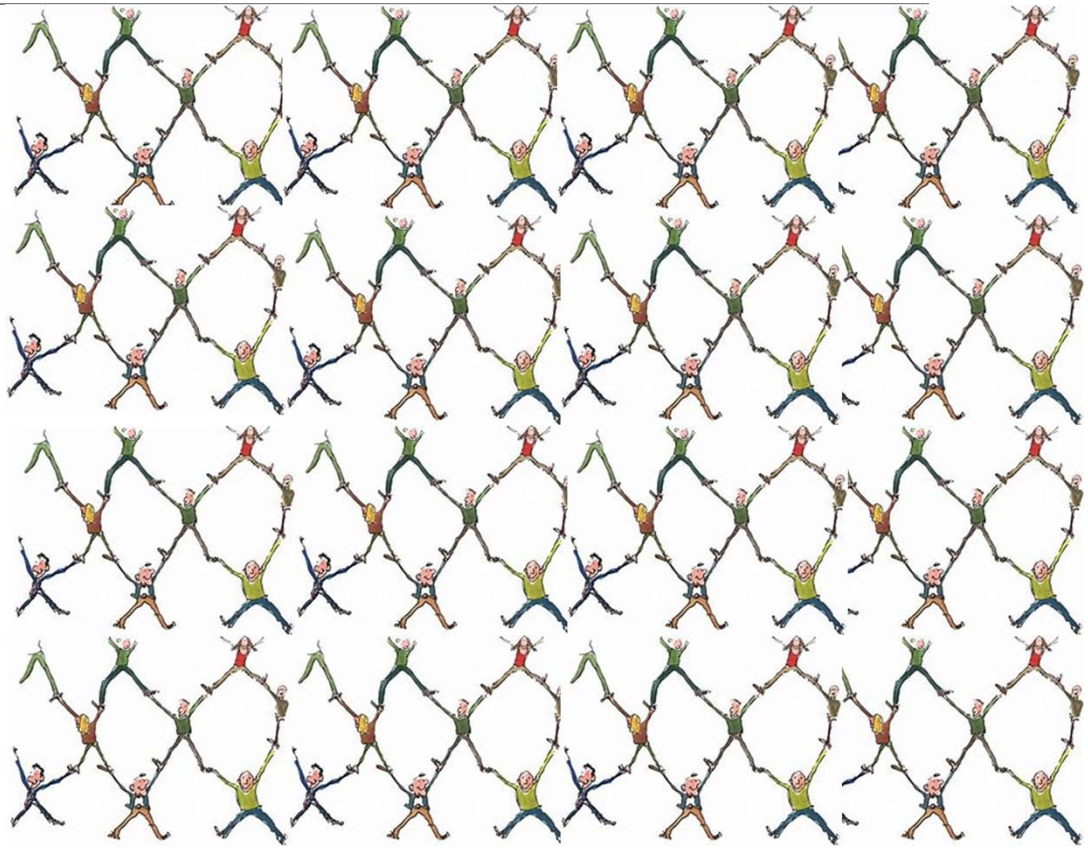
- The ItOSS group, responsible for the Italian enhanced maternal mortality surveillance system. It is composed by an undersized crew, fearless and constantly looking for a balance between speed and accuracy.

4. Who

The ItOSS network that has created a shared research-clinical enterprise to produce knowledge useful for action

The key actors:

- **The Regional Operative Units** responsible for regional vital statistics record-linkage procedures and for local coordination of the surveillance system initiatives
- **The maternity units and the health professionals** responsible for the notification of incident maternal deaths and participating in the ItOSS research and training activities
- **The regional clinical risk network** actively involved in the ItOSS surveillance system



4. Who

The ItOSS network that has created a shared research-clinical enterprise to produce knowledge useful for action

The external stakeholders:

- **The Italian Ministry of Health** that funded and supported the pilot surveillance and included it in the Government Decree on Registers and Surveillance Systems of national interest

- **The Italian National Institute of Statistics** (ISTAT) that shares the ItOSS estimates and collaborates in the national vital statistics record linkage procedures to estimate a national maternal mortality ratio (MMR)

- **The National Scientific Societies** of Obstetrics and Gynaecology, Midwifery, Neonatology, Anaesthesiology, and Pathology that, after initial resistance, recognized the importance of the ItOSS

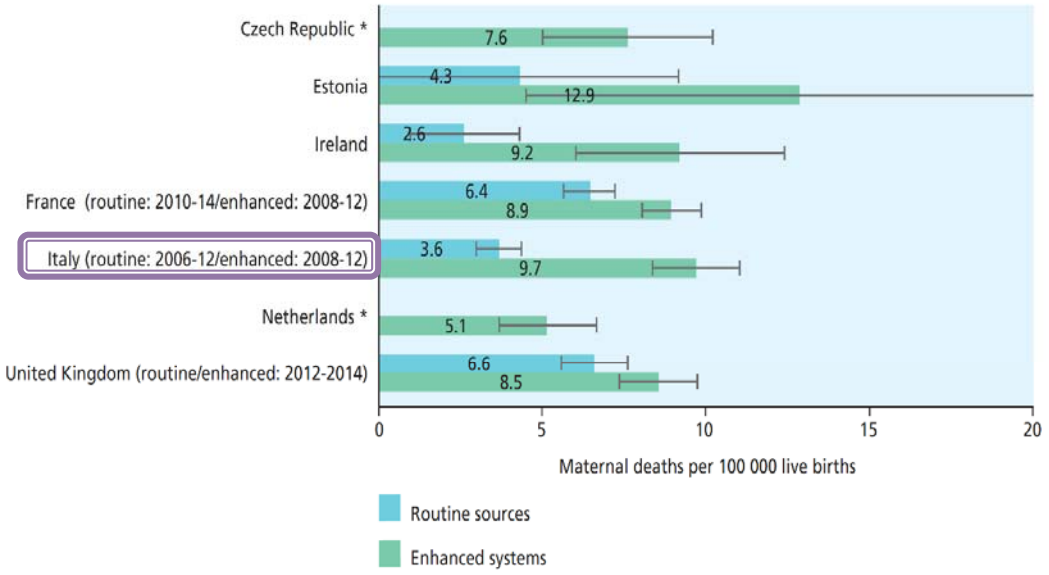
- **The citizens** that support ItOSS for its transparency and reliability

5. How?


Looking into the distance,
guided by the goal that no maternal death goes unnoticed

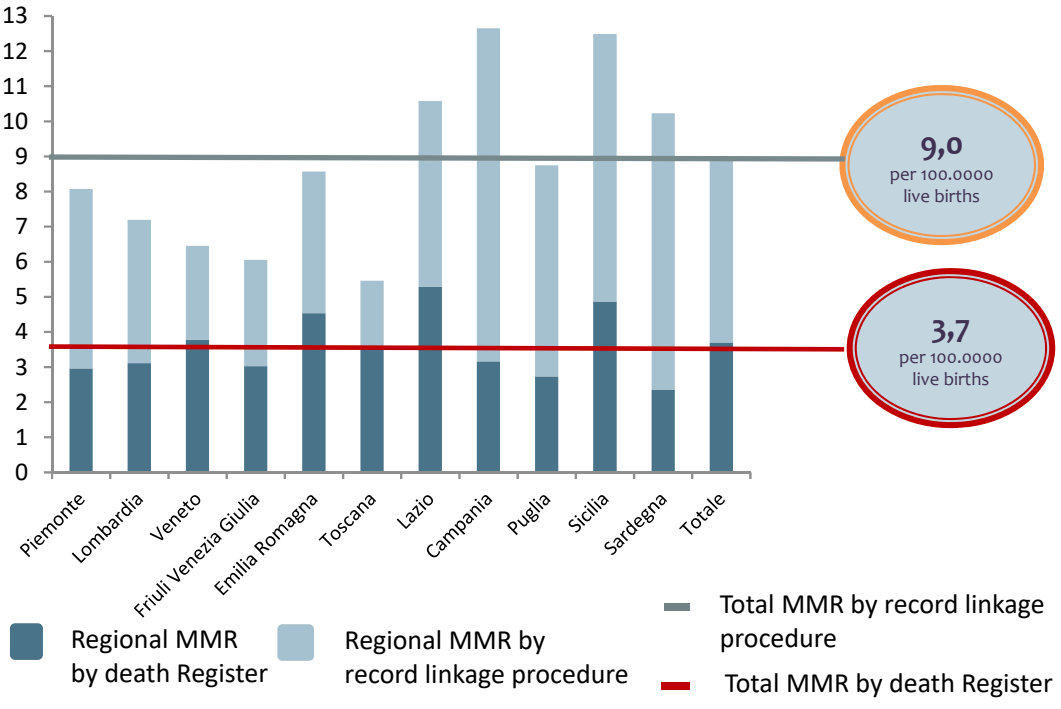
5. How?

Showing trough retrospective vital statistics record-linkage procedures that maternal deaths were underestimated by official Italian statistics



Core indicators of the health and care of pregnant women and babies in Europe in 2015. ***Euro-Peristat Project****. European Perinatal Health Report, November 2018.*

In the years 2006-2015, ItOSS detected 59% underestimation of the maternal mortality ratio (MMR)



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5. How?

Struggling to understand “how” things work as well as “if” they work

The ItOSS implemented an **enhanced maternal mortality surveillance system** involving health professionals with the aim to reduce avoidable maternal deaths.
The **surveillance audit cycle** starts by identifying cases and collecting data systematically, employing critical analysis to generate recommendations, implementing action for improvement and assess the impact.

Case study:
The ItOSS activities to **reduce the haemorrhagic maternal deaths**

Donati S, Buoncristiano M, Lega I et al (2021) The Italian Obstetric Surveillance System: Implementation of a bundle of population-based initiatives to reduce haemorrhagic maternal deaths. PLoS ONE 16(4): e0250373. https://doi.org/10.1371/journal.pone.0250373

5. How?

Step 4 - linking the results of the surveillance to actions able to enhance clinical practice

The “bundle” of activities on prevention and management of obstetric hemorrhage coordinated by the ItOSS in the years 2013-2019 to enhance clinical practice, include:

1. Research activities:
   - prospective population-based study on maternal hemorrhagic near misses to define priorities and identify improvable aspect of care
     - severe post partum haemorrhage
     - uterine rupture
     - abnormally invasive placenta
     - post partum hysterectomy

Ornaghi S, Maraschini A, Donati S. Characteristics and outcomes of pregnant women with placenta accreta spectrum in Italy: A prospective population-based cohort study. PLoS One. 2021 Jun 4;16(6)
Maraschini A, Lega I, D'Aloja P, Buoncristiano M, Dell'Oro S, Donati S. Regional Obstetric Surveillance System Working Group. Women undergoing peripartum hysterectomy due to obstetric hemorrhage: A prospective population-based study. Acta Obstet Gynecol Scand 2020 Feb;99(2):274-282
Donati S, Fano V, Maraschini A and the Regional Obstetric Surveillance System Working Group. Uterine rupture : results from a prospective population-based study in Italy. European Journal of Obstetrics & Gynecology and Reproductive Biology 2021, in press

5. How?

Step 4 - linking the results of the surveillance to actions able to enhance clinical practice

The “bundle” of activities on prevention and management of obstetric hemorrhage coordinated by the ItOSS in the years 2013-2019 to enhance clinical practice, include:

2. Health professional training:

- three distance learning courses on PPH prevention and management to strengthen effective delivery of high impact EB interventions

15.000 physicians and midwives partecipated in three editions of the distance learning course «Prevention, diagnosis and management of PPH» and 84% of them acquired the credits

D'Aloja P, Maraschini A, Lega I, Andreozzi S, Sampaolo L, Valetto MR, Dri P, Donati S. Acceptance of e-learning programs for maternity healthcare professionals implemented by the Italian Obstetric Surveillance System (ItOSS). J Contin Educ Health Prof 2020; 40(4):289-292.

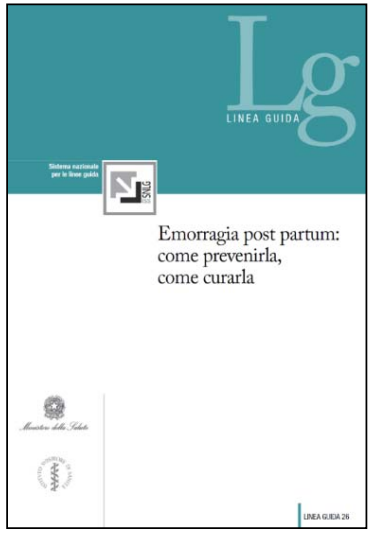
5. How?

Step 4 - linking the results of the surveillance to actions able to enhance clinical practice

The “bundle” of activities on prevention and management of obstetric hemorrhage coordinated by the ItOSS in the years 2013-2019 to enhance clinical practice, include:

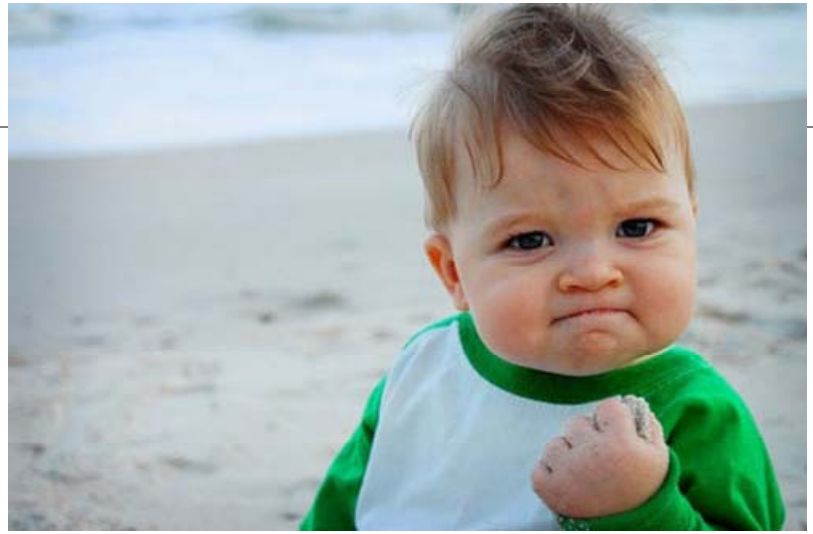
3. Guidelines development:

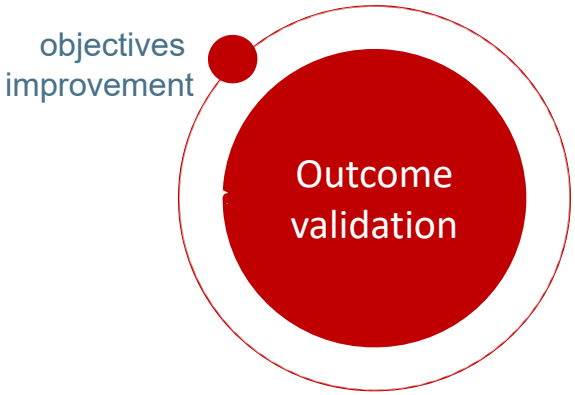
- development of the national guideline “*Post-partum haemorrage: how to prevent it, how to cure it*” for health professionals and for citizens, to disseminate evidence



6. How?

Step 5 – validating outcome improvement





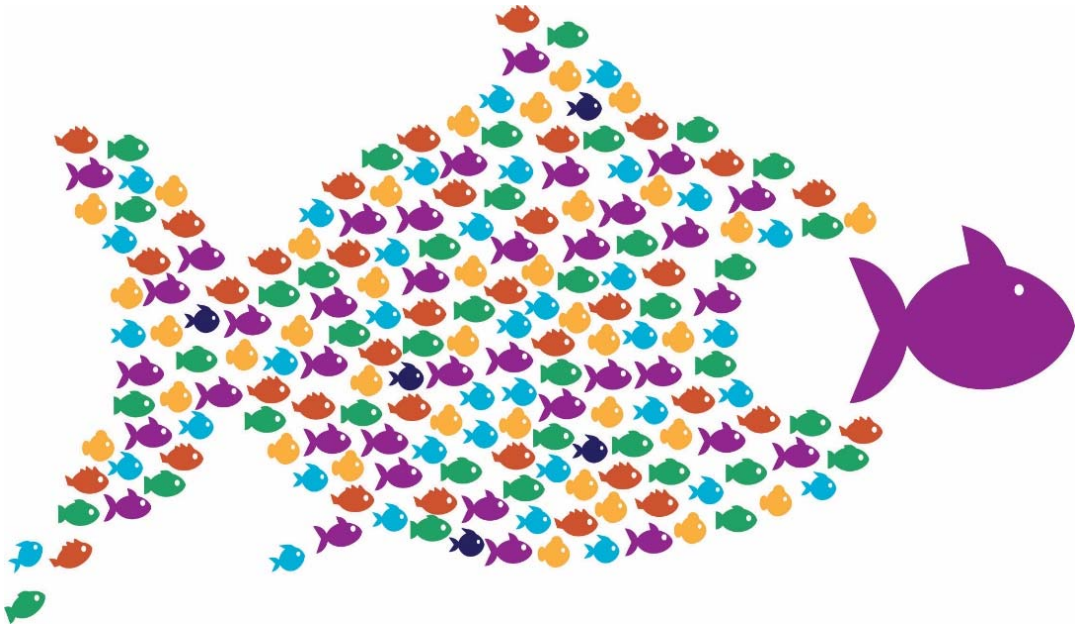
Pre-post haemorrhagic MMR due to obstetric haemorrhage, 2007-2018

Haemorrhagic MMR 2007-2013 → **2,49** (IC95% 1,75-3,43)

Haemorrhagic MMR 2014-2018 → **0,77** (IC95% 0,33-1,58)

Donati S, Buoncristiano M, Lega I et al (2021) The Italian Obstetric Surveillance System: Implementation of a bundle of population-based initiatives to reduce haemorrhagic maternal deaths. PLoS ONE 16(4): e0250373. https://doi.org/10.1371/journal.pone.0250373

7. Why the initiative was successful



Thanks to:

- the national authoritativeness of the Istituto Superiore di Sanità
- the institutional involvement of the principal national stakeholders from the start of the surveillance
- the inclusion of the surveillance in the Government Decree
- the availability of stable funding
- the robustness of the adopted methodology and the population-based data collection
- the active involvement of health professionals in the ItOSS research and training activities
- the organized and timely restitution and dissemination of the knowledge produced
- the “passion” and “persistence” of the ItOSS group

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8. Lesson learned

- An **enhanced maternal mortality surveillance system**, including the prospective surveillance on incident maternal deaths through Confidential Enquiries along with a retrospective analysis of administrative data sources, emerged as the **best option for case ascertainment and for directing avoidable maternal deaths prevention in Italy**
- **Research activities** on maternal morbidity, **continuous training** of health professionals in the critical areas that arise from the surveillance and the **provision of recommendations for clinical practice** are vital for the surveillance growth and survival
- Belonging to a solid institution, involving national stakeholders from the start of the activities, involving health professionals actively in the data production process and providing permanent feedback, having access to stable funding are **essential requirements** to ensures the surveillance success
- **Exercising tolerance** to accept and manage difficulties comes along the way ...

My warmest thanks to

- ISS working group
- Ministry of Health
- Regional Operating Units
- Reference clinicians of the maternity units
- Regional and national Committees for Confidential Enquiries
- National Steering Committee
- External reviewers
- Health professionals who assist the women in the participating regions
- Women adhering to ItOSS research projects