Puerperal Sepsis as a Quality marker:
Is our routine health data capturing it?

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Why Puerperal sepsis ?

Quality is a marker of health system performance and service delivery.

The effect of quality care is considered primarily in terms of maternal and neonatal mortality.

Puerperal and neonatal sepsis levels are also considered as marker outcomes in view of their association with poor hygiene at the time of birth and are indicators of poor quality facility births

Domains for Quality Facility Births

STRUCTURE	
1. Physical resources	The **infrastructure, equipment, drugs and supplies** required to enable the provision of quality care
2. Human resources	Care provided by appropriately **trained and supervised** providers; numbers of staff **adequate** to meet the demand for care
PROCESS	
3. Competent	Care consistent with scientific knowledge, internationally recognised **good practice**. **Care is safe (clean birth practices, avoidance of iatrogenic harm); timely** and **responsive** (respectful, promoting autonomy, equitable). Care documented adequately.
4. Efficient	Resources are used to yield maximum benefits.
OUTCOME	
5. Effective (clinical)	Good clinical **outcomes** achieved (e.g. Mortality**, Morbidity reduction**)
6. Effective (satisfaction)	Patient/Provider satisfaction high

based on Donabedian, Hulton et al. & Institute of Medicine

Structure of the Presentation

1. Systematic review: Interventions for improving quality of care with respect to clean delivery

2. Review of Indian health data sources : how much data on Puerperal sepsis is getting captured

3. Case Study : Evaluating an obstetric infection control intervention in India

Systematic review: Interventions for improving quality of care with respect to clean delivery

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The Study

Review aimed to assess the effects of interventions for achieving clean childbirth practices on :

- medical outcomes (mortality and sepsis),
- quality indicators (including behaviour / practice change) and
- perceived quality (satisfaction)

Methods

The types of documents considered in this review were :

- primary studies or syntheses published in scientific journals,
- reports published by relevant organizations such as the WHO, government reports and policy documents.

Systematic searches of a range of databases as well as the websites of relevant organizations and health ministries were carried out to identify relevant information.

Methods

INCLUSION CRITERIA

Types of studies

- Randomised controlled trials, controlled trials
- Observational studies with a comparison group (case-control, comparative cohort studies)
- Prospective longitudinal before-and-after studies

Types of participants

- Health care professionals / health services providing delivery care for pregnant women / mothers who are normal at onset of labour
- The setting could be facility-based or home based
- Health services could be public or private

Types of interventions

Interventions, set within the health service, leading to good practice for safe / clean delivery.

Results

Twenty-two relevant studies, mainly from African and Asian countries and aimed at poor rural populations with limited access to health services were summarised.

Most studies were before-and-after studies with or without a control group, six studies were cluster randomised controlled trials.

Most studies had durations of two to three years and more than 1000 participants in each comparison group.

Results

Most of the studies reported maternal and / or neonatal mortality, while evidence on other outcomes was limited.

There was also limited evidence on a reduction of puerperal and neonatal sepsis (only reported by few studies and partially with small numbers of cases)

Results

Puerperal sepsis.

Five studies reported on puerperal sepsis (or intrapartum fever).

Incidence of puerperal sepsis ranged from 0.2% to 4.7% at baseline or in control groups (case fatality not reported), and from 0.1% to 1.6% at the end of the studies (case fatalities not reported).

One study reported two deaths due to puerperal sepsis at baseline and none at follow-up.

India's Health Data: Are we capturing Puerperal Sepsis?

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Methods

- **Structured format with systematic searches**
- **Sources of information -**
  - **Official policy and programme documents .**
  - **Population based health data.**
  - **Reports of various health sector Committees and Commissions**
  - **Literature of non-governmental interventions**
  - **Literature of external agencies such as the United Nations and the World Bank**
  - **Published academic literature**
- **Data extracted using prospectively designed forms**

Estimates of Puerperal Sepsis in various studies in India

Year/s	Study	Region	Findings related to sepsis
1957-66 & 1967-76	Rao et al. 1983	Nagpur Municipal Corporation	Maternal deaths due to sepsis: 14.1/10,000 6.3/10,000
1979-81 & 1989-91	Juneja et al. 1994	Teaching hospital, Delhi	Maternal deaths due to sepsis: 28.48% 21.47%
1981-84	Shrotri et al. 1987	Rural area of Pune	Maternal deaths by septicemia: 3 out of total 15 maternal deaths
1981-86	Rajaram et al. 1995	Teaching hospital, Pondicherry	Sepsis deaths: 41.9%; septic abortion: 30.2%; intrapartum sepsis 1.2% & puerperal sepsis 10.5%
1986	Kumar et al. 1989	5 Rural Blocks, Ambala	Maternal deaths due to sepsis: 16.4%
1978-91	Sarin et al. 1992	Teaching hospital, Patiala	Maternal deaths due to sepsis: 37.1%
1982-87 & 1997-2002	Chhabra & Sirohi 2004	Rural hospital, Wardha	Maternal deaths due to peripartum sepsis: 13.7% 7.3%
1990	Prakash et al. 1991	India	Maternal deaths due to infection: 17.3%
1992-93	IIPS (NFHS-I)	All India	Maternal deaths by puerperal sepsis: 13.0%
1995-97	Majhi et al. 2002	Teaching hospital, Kolkata	Maternal deaths due to sepsis: 12.3%
1999-2002	Chhabra et al. 2006	Rural hospital, Wardha	Maternal deaths due to sepsis: 51%
1999-2007	Jain et al. 2009	Teaching hospital, Agra, Uttar Pradesh	Maternal deaths by septicemia: 9.4%
2000-05	Purandare et al. 2007	Maternity home, Mumbai	Maternal deaths by septicemia: 1 out of total 30 maternal deaths

Data on Sepsis

Sample Registration System (SRS) has reported on deaths due to puerperal sepsis in its cause of death enquiry for rural population.

Year	Causes of death due to Sepsis (%)
1985	13.6
1995	8.5
1998	16.1
2001-03 (special survey)	11

Data on Sepsis

No systematic data is available for puerperal sepsis incidence or mortality in India.

There are considerable variations in estimates of the contribution of sepsis to maternal death through few hospital based studies.

The figure varies form 51 % (Rural hospital in Wardha, Maharashtra) to 10% (Teaching hospital in Agra, UP)

Case Study : **Evaluating an obstetric infection control intervention in India**

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Case Study : Evaluating an obstetric infection control intervention in India

Phase – I Need Assessment

- Twenty health facilities participated in the study in Gujarat
- All the facilities conducted deliveries.
- Obstetricians, doctors, nurses or midwives were responsible for conducting deliveries in the facilities
- Mixed methods was used to collect information for the baseline.

Case Study : Evaluating an obstetric infection control intervention in India

Phase – I Need Assessment - Management system (health information data and protocol)

Type of Information available	% (N= 20)
Book and chart showing infection rate	5
Chart only	15
Written procedure available	5
Verbal procedure reported	45
Management/procedural activities conducted	
Infection control committee (monthly meetings held)	15
Case(s) of hospital acquired infection recorded	5
Audit or maternal death review	10

Case Study : Evaluating an obstetric infection control intervention in India

Phase – I Need Assessment

Management system (health information data and protocol)

- Most facilities did not keep systematic data on infection rates in the maternity units.
- Delivery registers contained information about delivery date and time, sex and birth weight of newborn and type of delivery, although details pertaining to indicators of infection and other crucial information for data analysis of clinical conditions was lacking.
- Where data was available, infection rates were found to be between 3% and 5%.

Case Study : Evaluating an obstetric infection control intervention in India

Phase – I Need Assessment

Monitoring mechanism:

Activities that identified problems with, or created awareness of infection control during childbirth were :

- meetings of infection control committees,
- maternal death reviews, audits,
- training and feedback on infection rates.

These activities were conducted only in a minority of health facilities.

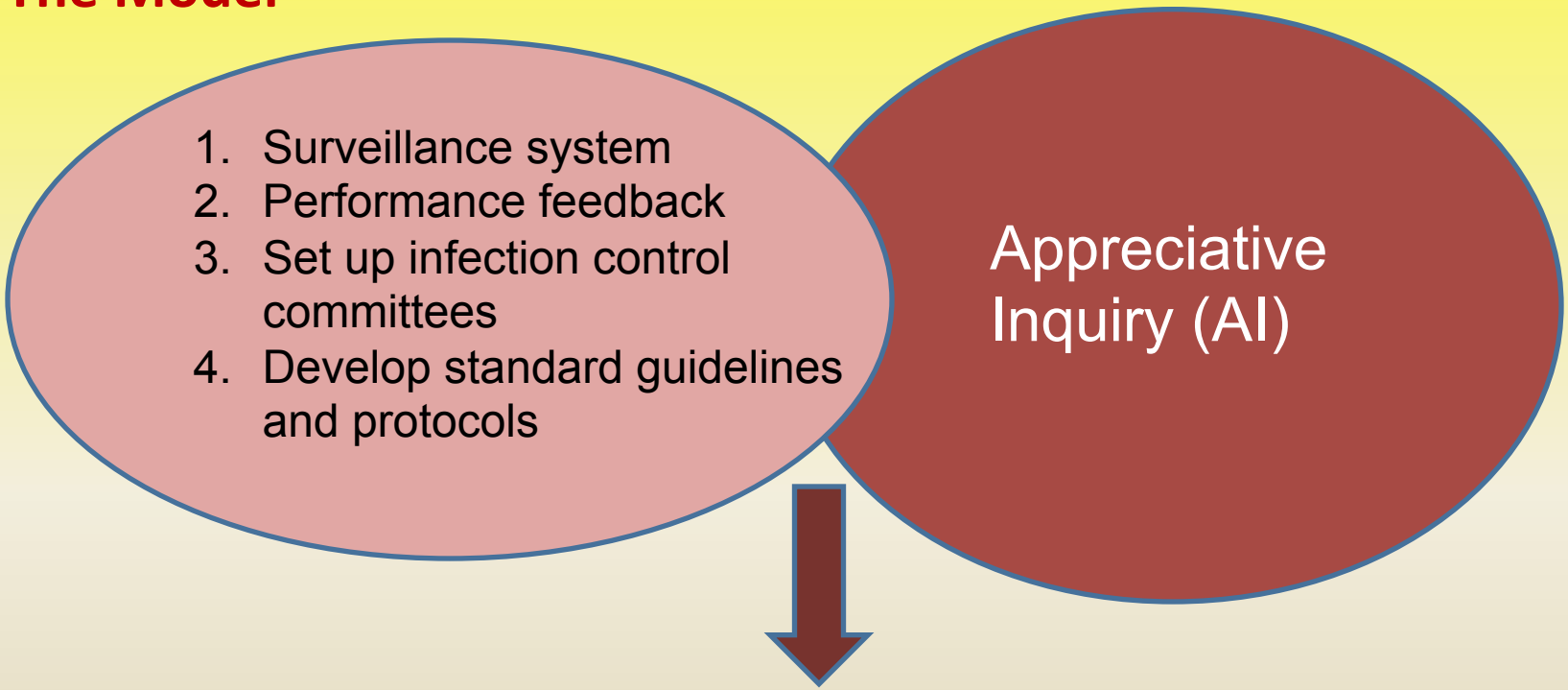
Why difficult to record sepsis in Settings like India?

- Under reporting - poor follow up, recall bias.
- Early discharge from facilities after delivery
- Definitional problem.
- Indiscriminate antibiotics usage.
- Difficulty in getting micro- biological confirmation particularly in resource poor settings.

Case Study : Evaluating an obstetric infection control intervention in India

Intervention : Currently implemented (Results mid next year)

The Model



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Summary

- Due to lack of information, underreporting of puerperal sepsis and other infectious complications relating to childbirth is high.
- So there is a need for record keeping, analysis and feedback of data.
- Criteria for diagnosis of puerperal sepsis should be uniformly laid down and communicated.
- Information regarding sepsis needs to be part of quality assessment process.

Conclusion

With substantial increase in institutional delivery in India in recent years a focus on infection control can go a long way in reduction of maternal mortality and morbidity and is an important marker for overall quality of maternity care.