Additional file 1 – Logic model in optimizing CS use

Non-clinical interventions in optimising caesarean section targeted at women and health system

ASSUMPTION ⟷ ACTION ⟷ CHANGE

CONTEXTUAL & EXTERNAL FACTORS

HEALTH SYSTEM

Assumption

Intervening health providers decision making around caesarean by implementation of guidelines, mandatory second opion, audit and feedback, will ensure caesarean is only conducted when needed.

Additionally, health providers preference towards caesarean may be reduced by eliminating competing clinical tasks and changing financial indentive (equalising fee or insurance reform).

Example of interventions
- Providers education and training
- Mandatory second opinion
- Evidence-based guidelines
- Audit and feedback
- 24 hours in house labour coverage
- Equalising fee
- Financial incentive
- Payment method modification
- Regulation on medico legal liability
- Regulation of insurance provision
- Publication of health facility's caesarean section rates

Resources to interventions
- Theory and aim
- Funding
- Training for facilitators
- Materials for intervention
- Expert consultations

Modifiable characteristics on interventions
- Type of interventions
- Composition of interventions
- Theoretical framework or evidence-based use
- Type of delivery (techniques, materials, facilitators, etc)
- Engagement strategies (promotion methods, timing, frequency, duration)
- Involvement of partner, families, and other stakeholders
- Incentives
- Competing interests

Process level factors
- Acceptability
- Attrition
- Dose
- Intensity
- Relevance
- Quality of intervention
- Recruitment and representativeness

Outputs
- Increased knowledge and awareness of caesarean being an issue among providers
- Increased knowledge on guidelines and decision making of cesarean
- Increased provision of support and reassurance by peer
- Increased perception of being audited
- Reduced providers' workload
- Reduced providers' fears on medicolegal liability
- Equal fee across different mode of births

Proximal outcomes
- Continuous regular monitoring and review on caesarean distribution
- Improved providers' decision making
- Eliminated preference of caesarean due to financial incentive
- Eliminated fears of liability
- Eliminated competing clinical duties

Intermediate outcomes
- Continuous adherence to caesarean based on medical indication
- Improvement quality of care to women during labour

SOCIETAL FACTORS

Women and communities'

Fear of vaginal birth, previous history of caesarean section, previous negative birth experience, perceived pregnancy risks, cultural belief associated with caesarean section, socio-economic background, current clinical practice and advise by health providers, preference on discussion and dialogue type interventions.

Health Providers'

Cultural and social circumstances, fear of blame and liability, caesarean section perceived as a safer option, respect towards women's autonomy, perceived cost-effectiveness, higher financial incentive received for caesarean section, ability and readiness in negotiating with local culture and system.

Health organisations, facilities, financial, regulatory, and legislative systems'

Existing financial and payment structures, logistical needs and emphasis on profit making, differentials power relationship across different type of health providers, culture of medicalisation of birth, commitments to change.

Long-term outcomes
- Reduced overall caesarean section (elective and emergency caesarean)
- Increase overall vaginal birth (operative and non-operative vaginal birth)
- Improved maternal and newborn health outcomes
- Positive birth experience

WOMEN

Process level factors
- Acceptability
- Attrition
- Dose
- Intensity
- Relevance
- Quality of intervention
- Recruitment and representativeness

Assumption

Anternatal education to women and partner by health providers consisting of childbirth preparation and psychological education may reduce women's fear, anxiety and stress related to childbirth, which in turn reduce women's needs and preference to undertake caesarean section.

Example of interventions
- Childbirth workshop
- Psychoeducation
- Role play
- Relaxation and breathing technique training
- Pelvic floor muscle training
- Decision making aid tools
- Involvement of women and partner
- Mass media campaigns (not explored in this study)

Modifiable characteristics on interventions
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- Competing interests

Resources to interventions
- Theory and aim
- Funding
- Training for facilitators
- Materials for intervention
- Expert consultations

Outputs
- Improved knowledge on positive and negative aspects of different mode of birth
- Increased skill in coping with childbirth fear
- Increased skill in managing childbirth pain
- Better preparation for childbirth
- Increased involvement of partner during pregnancy and childbirth

Proximal outcomes
- Emotional stability during pregnancy and childbirth
- Reduced fear and anxiety relating to childbirth
- Increased confidence in undergoing labour

Intermediate outcomes
- Reduced adverse pregnancy outcomes (preterm and postterm birth, preeclampsia, fetal growth restriction, etc)
- Informed woman's decision on mode of childbirth

‹- - - › Potential interaction