



Singapore Healthcare Management 2016

Resident Quality Improvement Project:

The Antenatal Use of Magnesium Sulphate (MgSO4) for Fetal Neuroprotection in Preterm Births



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Introduction

Cerebral Palsy (CP):

- Limits functional ability and quality of life
- Premature birth is a major cause

Magnesium sulphate for women at risk of preterm birth for neuroprotection of the fetus (Review)

Dark UK, Crowther CA, Middleton P, Mann S, Ross D



The Cochrane review of trials in 2009 reported that the antenatal use of MgSO4 in mothers at risk of preterm birth:

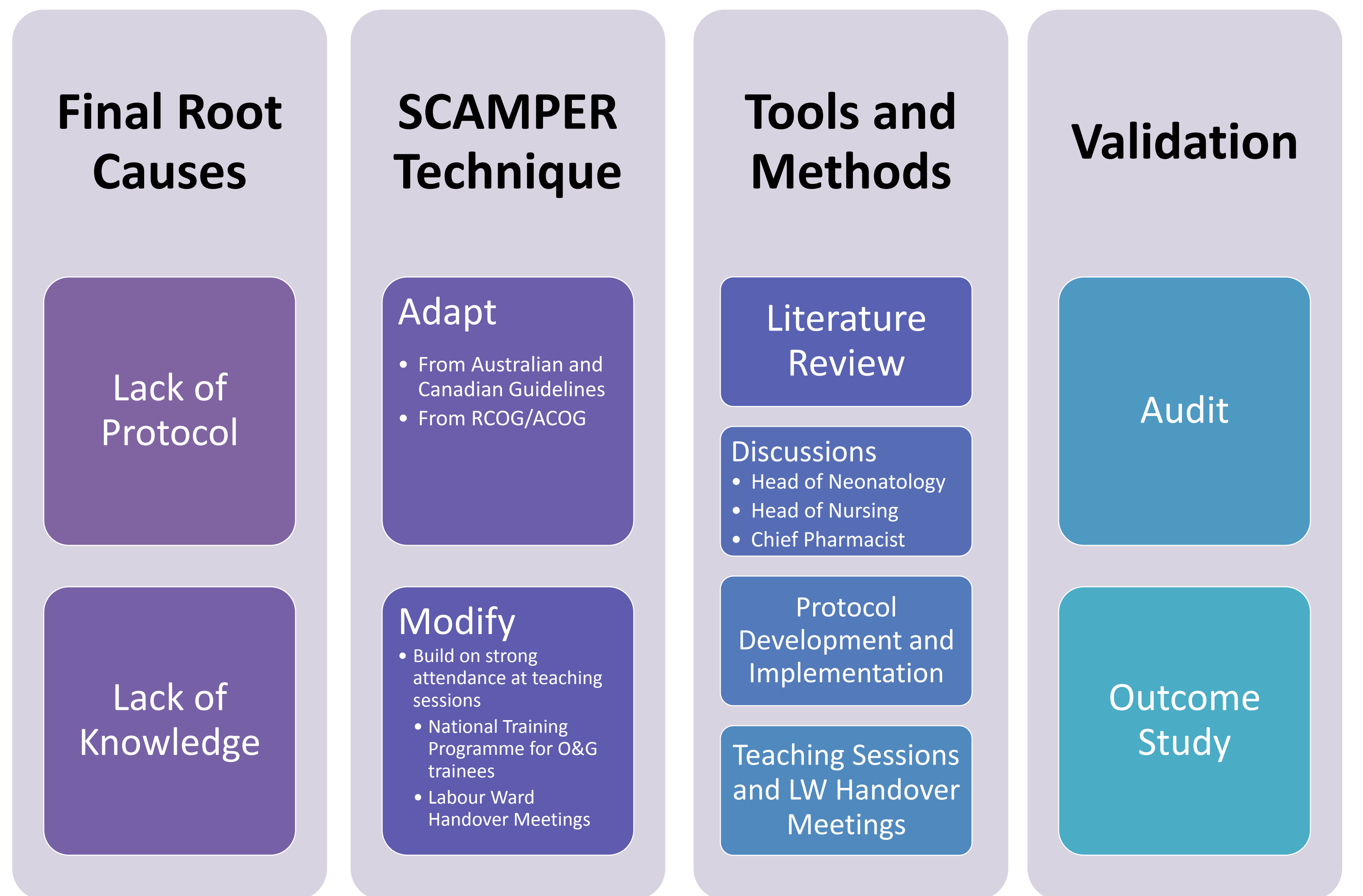
- Reduces the risk of CP in children by 32%
- Reduces the risk of substantial gross motor dysfunction by 39%

MgSO4 is safe and is already used in obstetric patients to treat severe pre-eclampsia.

The initial rate of use of MgSO4 for fetal neuroprotection in KKH Labour Ward is 0%

Goal: To increase the rate of MgSO4 use for fetal neuroprotection from 0% to 100% in the KKH Labour Ward over 6 months.

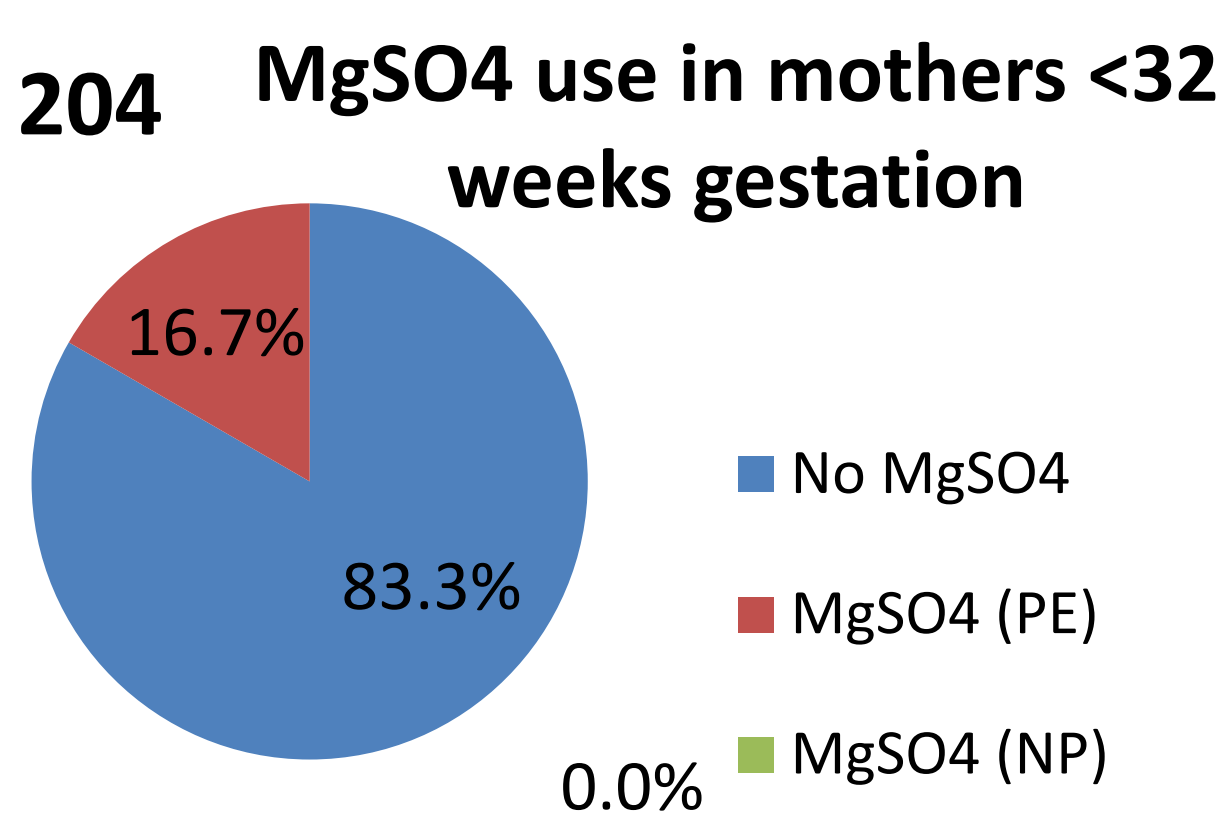
Solution Development



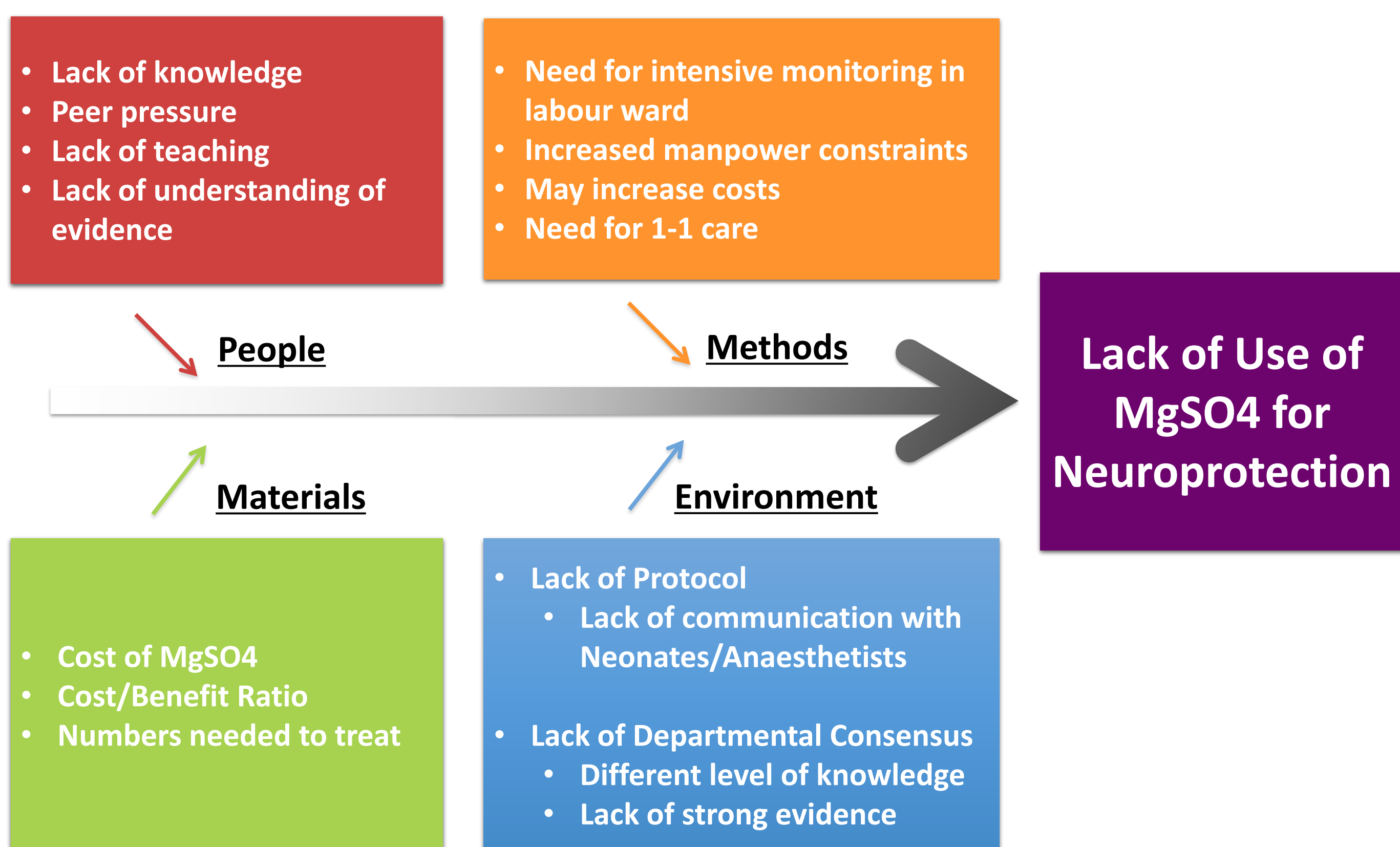
Methodology

Retrospective audit from Apr 2014-Apr 2015

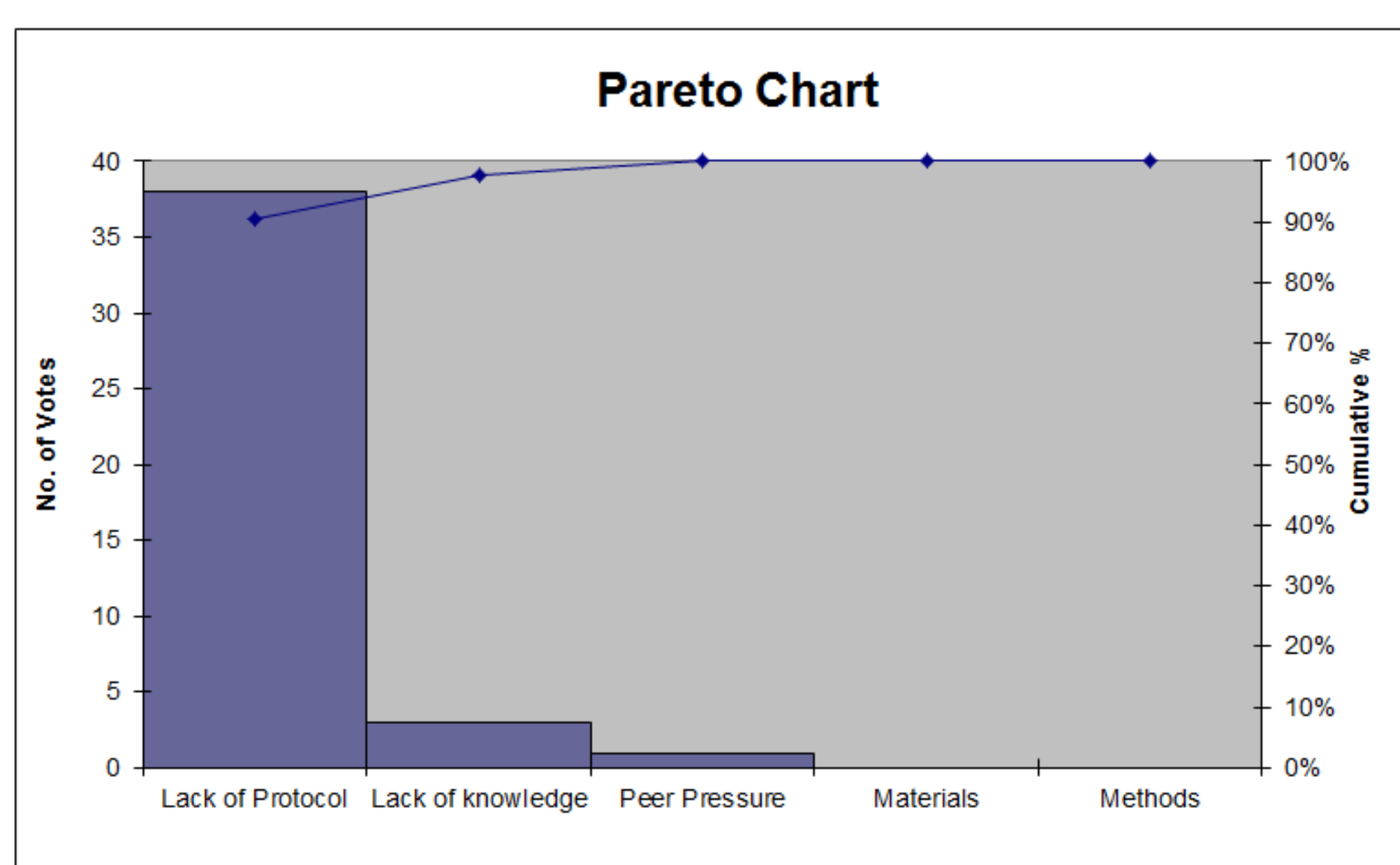
- Total preterm births <32 weeks: 230
- Total number of mothers (<32 weeks): 204
- 34 (16.7%) had antenatal MgSO4
- 100% for pre-eclampsia
- 0% for fetal neuroprotection



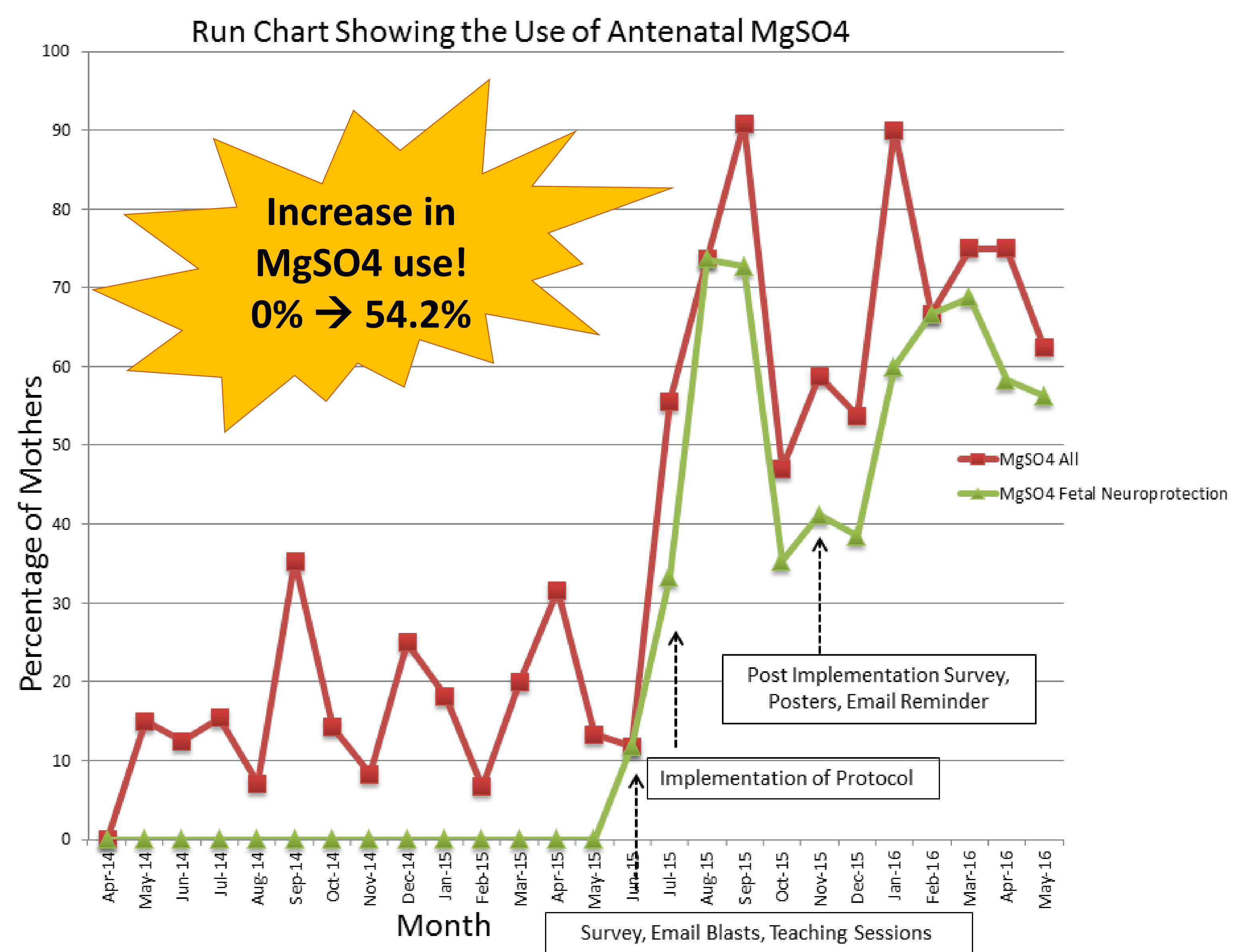
Ishikawa Chart (Cause and Effect Diagram)



Pareto Chart

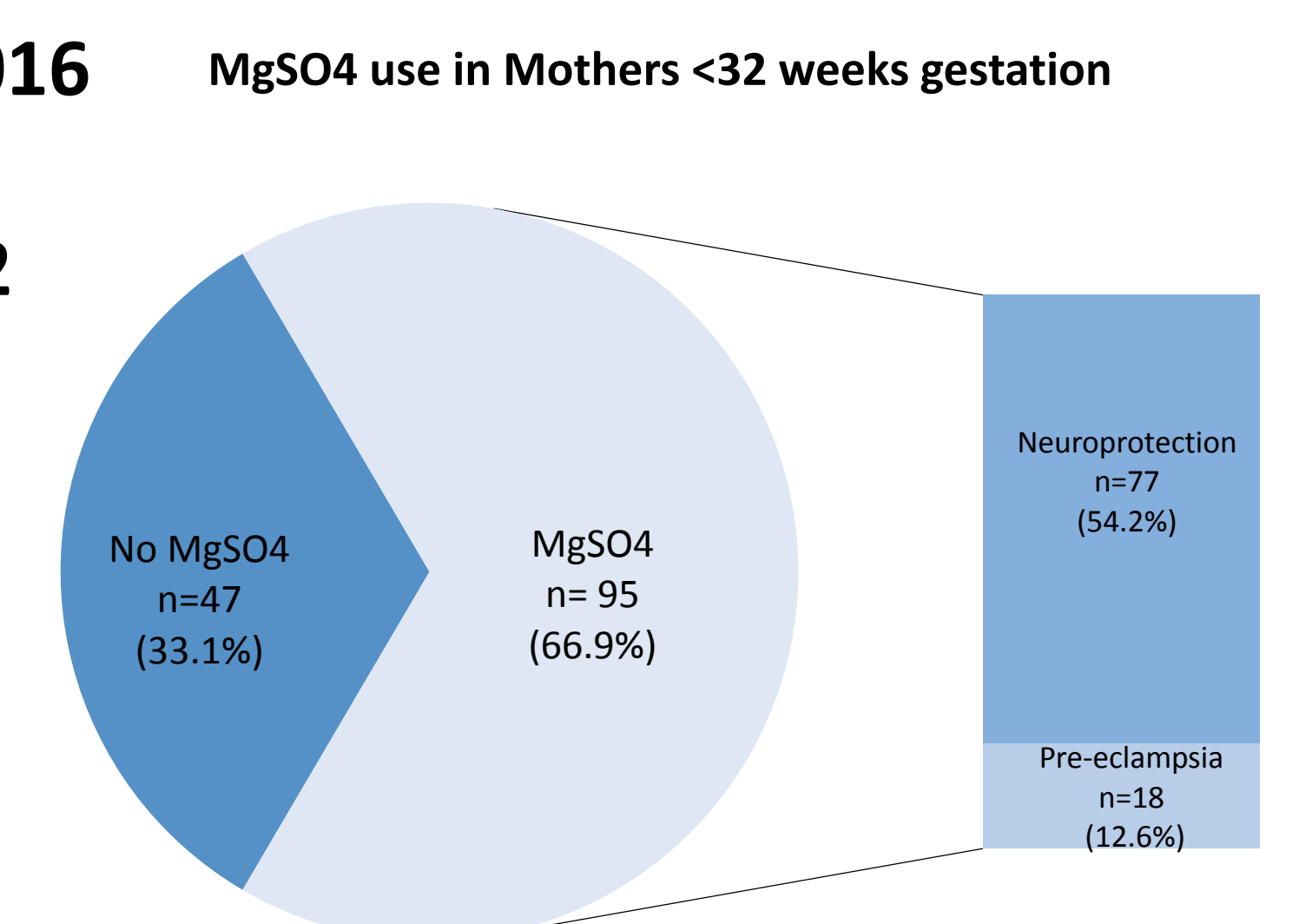


Results



Retrospective audit from Jul 2015 – May 2016

- Total preterm births <32 weeks: 161
- Total number of mothers (<32 weeks): 142
- 95 (66.9%) had antenatal MgSO4
- 18 (12.6%) for pre-eclampsia
- 77 (54.2%) for fetal neuroprotection
- No cases of severe adverse reactions



Conclusion

A resident-led quality improvement project to increase rate of MgSO4 use is feasible and effective. The are socioeconomic benefits in every case of cerebral palsy prevented. Long term studies need to be done to assess changes to the rate of cerebral palsy after implementation of protocol.

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