

STUDY COMPARING OXYGEN LEVELS AND
RESPIRATORY RATES OF PATIENTS USING A
MASK OR THE PEDI-NEB™ FOR NEBULIZER
TREATMENTS

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ABSTRACT

Introduction: The purpose of this research was to determine whether or not the Pedi-Neb, a newly developed form of mouthpiece delivery system for nebulizers, is more than or as effective as a standard face mask mouthpiece when treating infants and toddlers with wheezing and asthma. The standard face mask appears to frighten and be uncomfortable for children who are receiving aerosolized medication. This results in significant crying by the child. Due to the crying, much of the medication escapes into the air, or is swallowed into the infant's stomach instead of reaching the lungs as desired. In some instances the crying is so disturbing that the parent/guardian will remove the mask thus ending the treatment prematurely. The Pedi-Neb is shaped like a standard pacifier and directs the medication into the child's nasal passages. Since infants are obligatory nose breathers, this facilitates the absorption of the medication. The shape of the Pedi-Neb is familiar to most infants and is thus not threatening. This should help decrease the crying and resulting swallowing of the medication. Therefore, the researcher believes that the Pedi-Neb will be as effective or more effective than the standard mask for delivering aerosol medications to infants and toddlers.

Method: Nineteen infants and toddlers were tested with either the Pedi-Neb or a mask, which was chosen at random. The experiment tested the oxygen saturation levels and respiration rate before and after each treatment on each child. The child was given a standard nebulizer treatment using a jet nebulizer and levalbuterol 0.63mg/2ml. The treatment was administered by the parent/caretaker who had brought the child into the office that day.

Results: The respiratory rate of the children receiving treatment with the mask dropped by 7.8 breaths per minute. Those treated using the Pedi-Neb had a decrease in respiratory rate of 13 breaths per minute. Oxygen saturation levels increased 17% on patients nebulized by mask, however, oxygen levels increased 39.1% for patients nebulized using the Pedi-Neb. There was noticeably less crying in the children using the Pedi-Neb. The majority of the parents whose children had been nebulized with a mask previously and used the Pedi-Neb for this treatment preferred the Pedi-Neb.

Discussion: This study confirms the researcher's observations, in her practice over the last five years, that the Pedi-Neb obtains superior results when used to nebulize infants and toddlers for wheezing and asthma.

MASK**PEDI-NEB****RR Before****RR After****RR Before****RR After**

44

36

42

33

36

38

64

40

66

61

62

46

40

25

48

32

40

24

36

36

56

42

40

36

68

56

46

36

46

38

25

25

42

40

20

15

35

25

**RR Mask
Before****RR Mask
After****RR Pedi-Neb
Before****RR Pedi-Neb
After**

43.8

36

41.8

28.8

O₂ Sat Before**O₂ Sat After****O₂ Sat Before****O₂ Sat After**

100

100

92

98

100

100

94

96

100

100

94

95

97

100

96

100

98

98

93

98

96

99

93

99

93

96

93

98

94

95

90

93

92

97

94

97

93

97

94

98

O₂ Sat Before**O₂ Sat After****O₂ Sat Before****O₂ Sat After**

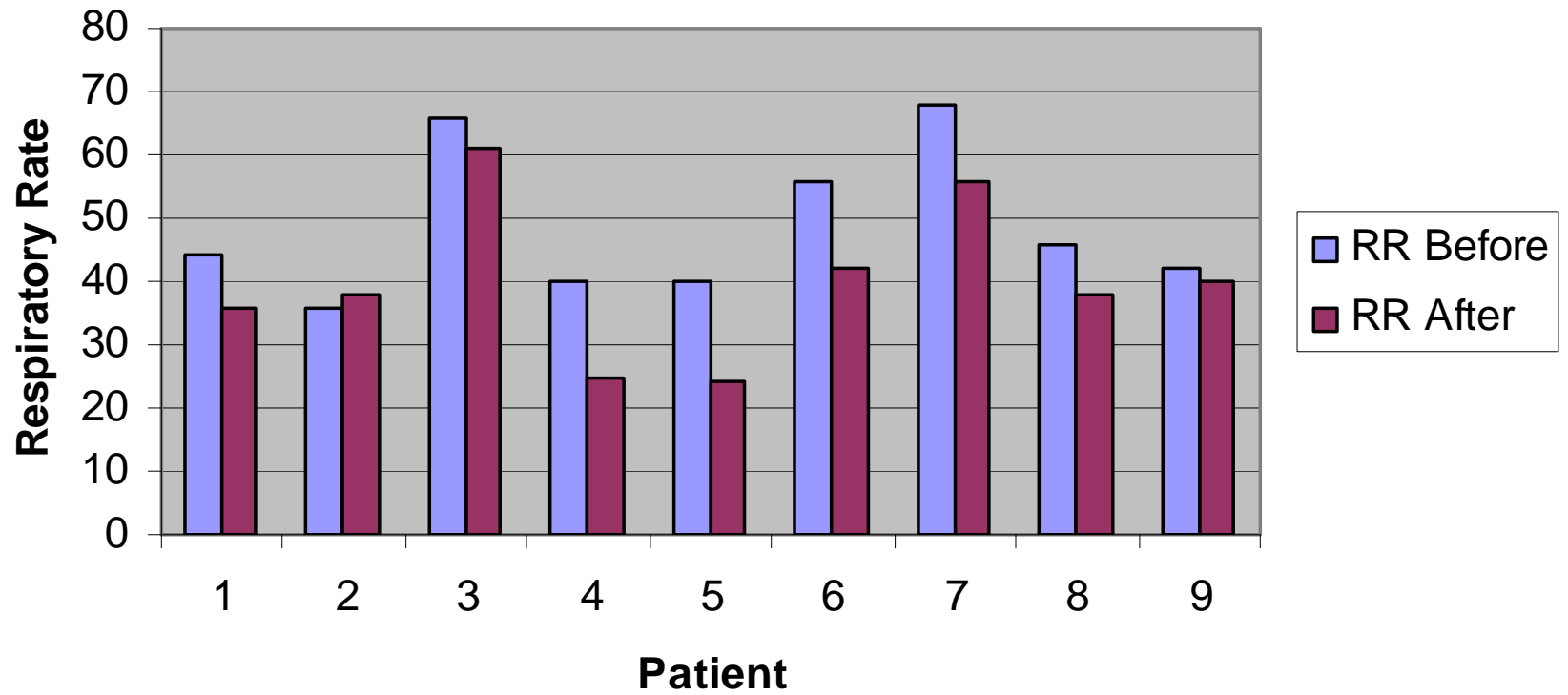
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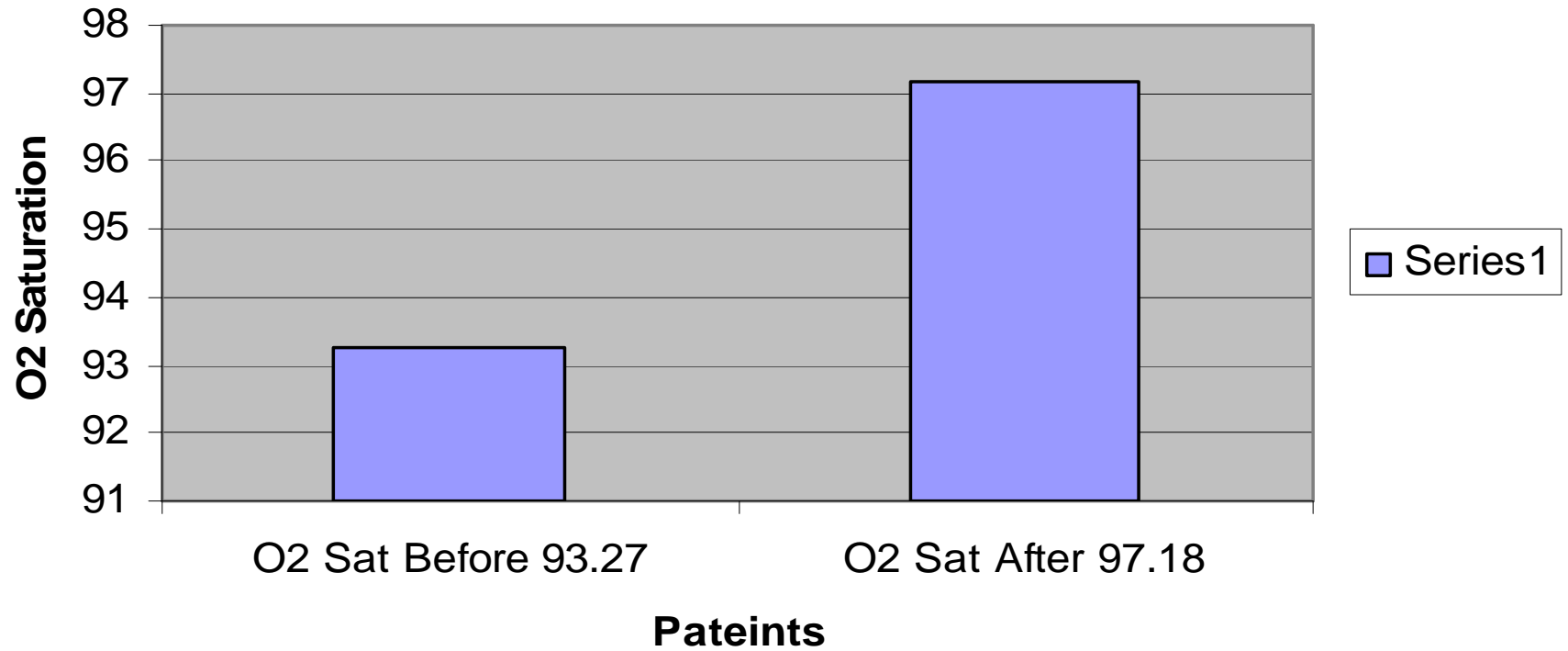
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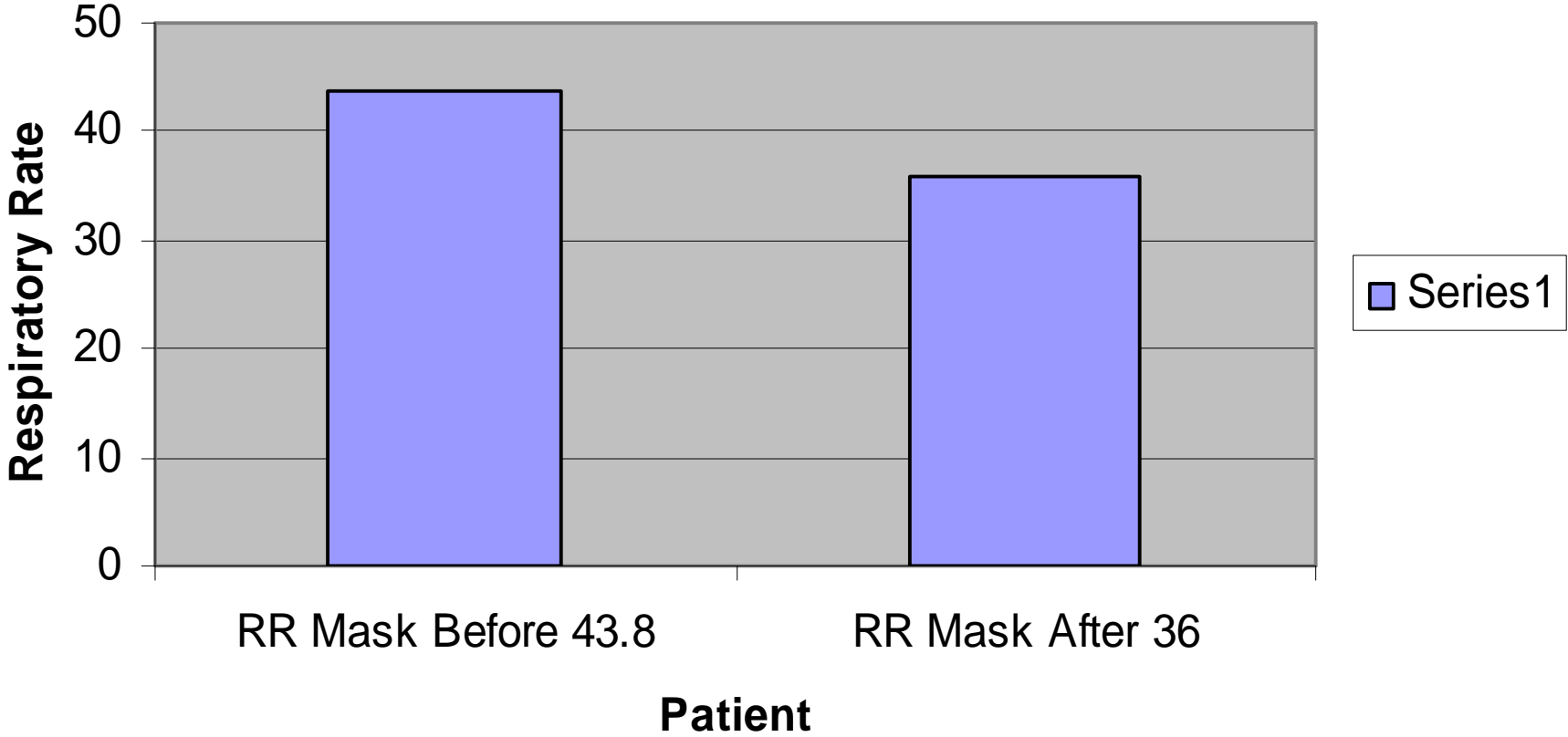
Respiratory Rate Mask



Oxygen Saturation Pedi-Neb Average



Respiratory Rate Mask Average



Respiratory Rates Pedi-Neb Average

