

COIN, CAP.....  
Treat The Preemie  
with CPAP!!

*KKUH*

*Riyadh neonatology Club Meeting*

SPR 2007



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# CAP Study

## Caffeine for Apnea of Prematurity

*Schmidt et al*

*Multi-center study (32 centers all over the world)*

*Primary outcome data presented as a late breaker this year*

*Neonatal short outcomes are already published in NEJM in 2006*

<b>Population</b>	Preterm infants < 1250 gm Enrollment occurred in the 1 <sup>st</sup> 10 days of life
<b>Intervention</b>	Caffeine (20mg/kg loading followed by a maintenance dose of 5-10 mg/kg)
<b>Control</b>	Equivalent volume of normal saline
<b>Outcomes</b>	Primary outcome- Composite of death or Neurosensory impairment at 18 month corrected age Secondary- all important neonatal morbidities

# Baseline Characteristics

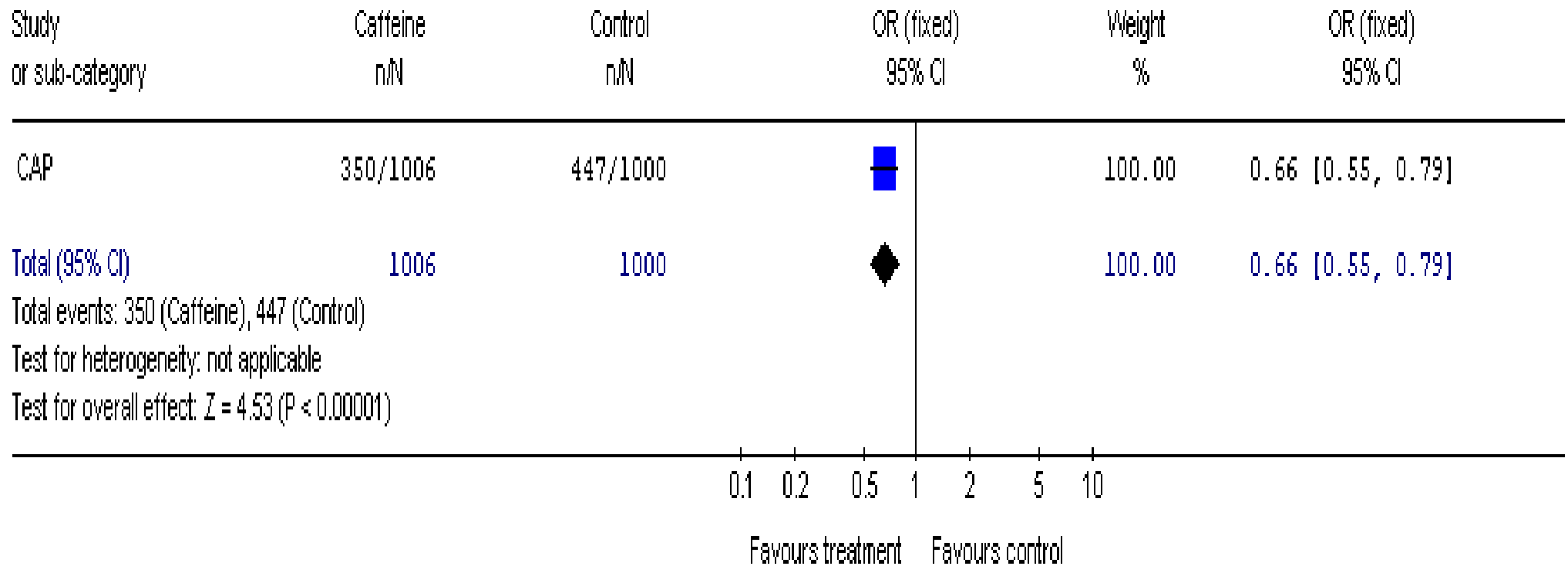
**Table 1. Baseline Characteristics and Status of the Infants at Randomization and Their Mothers.\***

Characteristic	Caffeine Group (N=1006)	Placebo Group (N=1000)
<b>Mothers</b>		
Age — yr	30±6	30±6
Race or ethnic group — no. (%)†		
White	797 (79)	789 (79)
Black	67 (7)	71 (7)
Asian	84 (8)	82 (8)
Other or unknown	58 (6)	58 (6)
Antenatal corticosteroids — no. (%)	890 (88)	873 (87)
Clinical chorioamnionitis — no. (%)	138 (14)	133 (13)
Cesarean section — no. (%)	628 (62)	626 (63)
<b>Infants at birth</b>		
Birth weight — g	964±186	958±181
Gestational age — wk	27±2	27±2
Female sex — no. (%)	508 (50)	470 (47)
Birth weight <10th percentile for gestational age — no. (%)‡	161 (16)	158 (16)
Born at study hospital — no. (%)	903 (90)	890 (89)
Singleton birth — no. (%)	721 (72)	712 (71)
<b>Apgar score at 5 min</b>		
Median	8	8
Interquartile range	7–9	7–9

# Neonatal Outcomes

## BPD

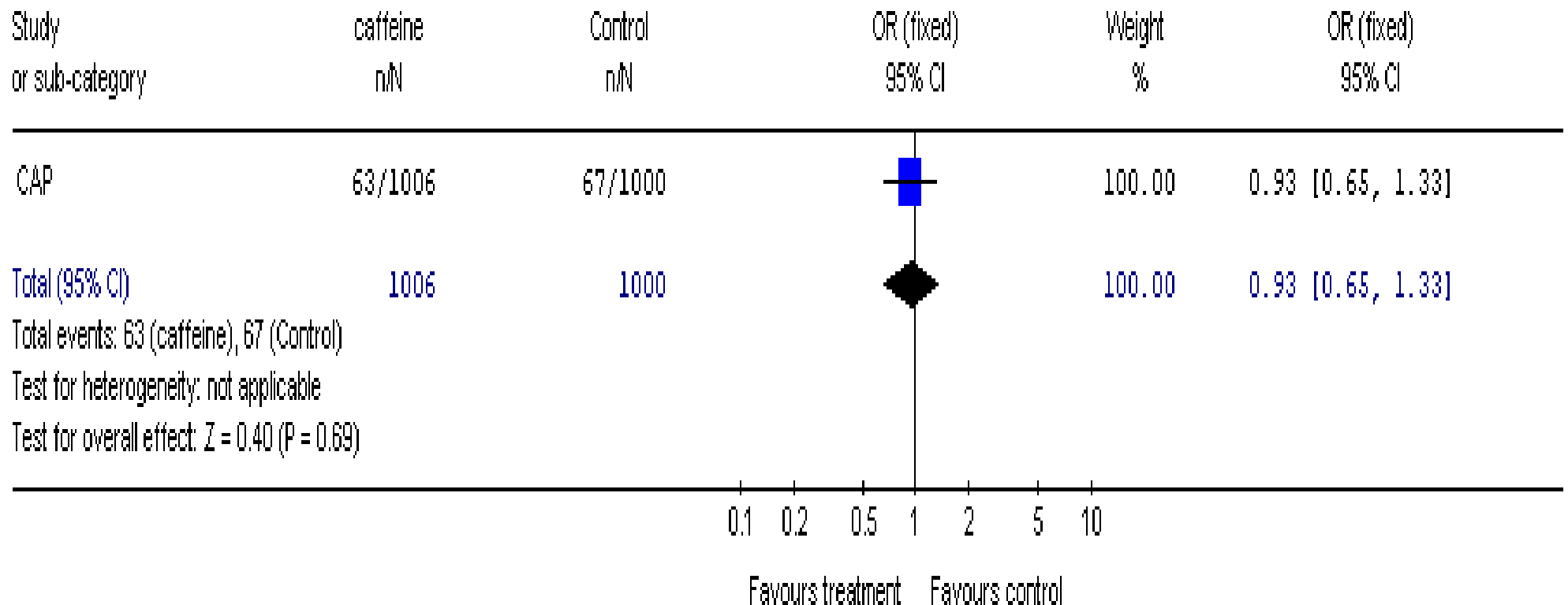
Review: CAP  
 Comparison: 01 Caffeine vs. Placebo  
 Outcome: 01 BPD



# Neonatal Outcomes

## NEC

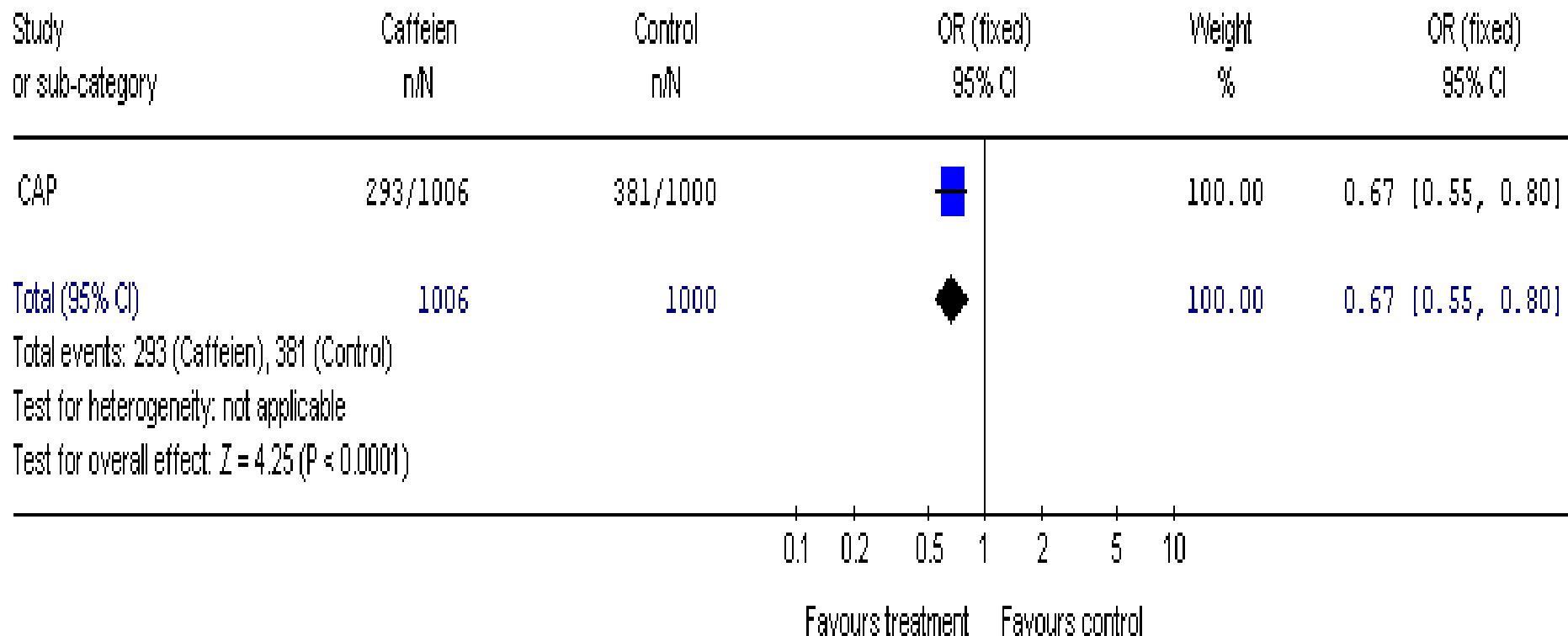
Review: CAP  
 Comparison: 01 Caffeine vs. Placebo  
 Outcome: 02 NEC



# Neonatal Outcomes

## Drug Therapy for PDA

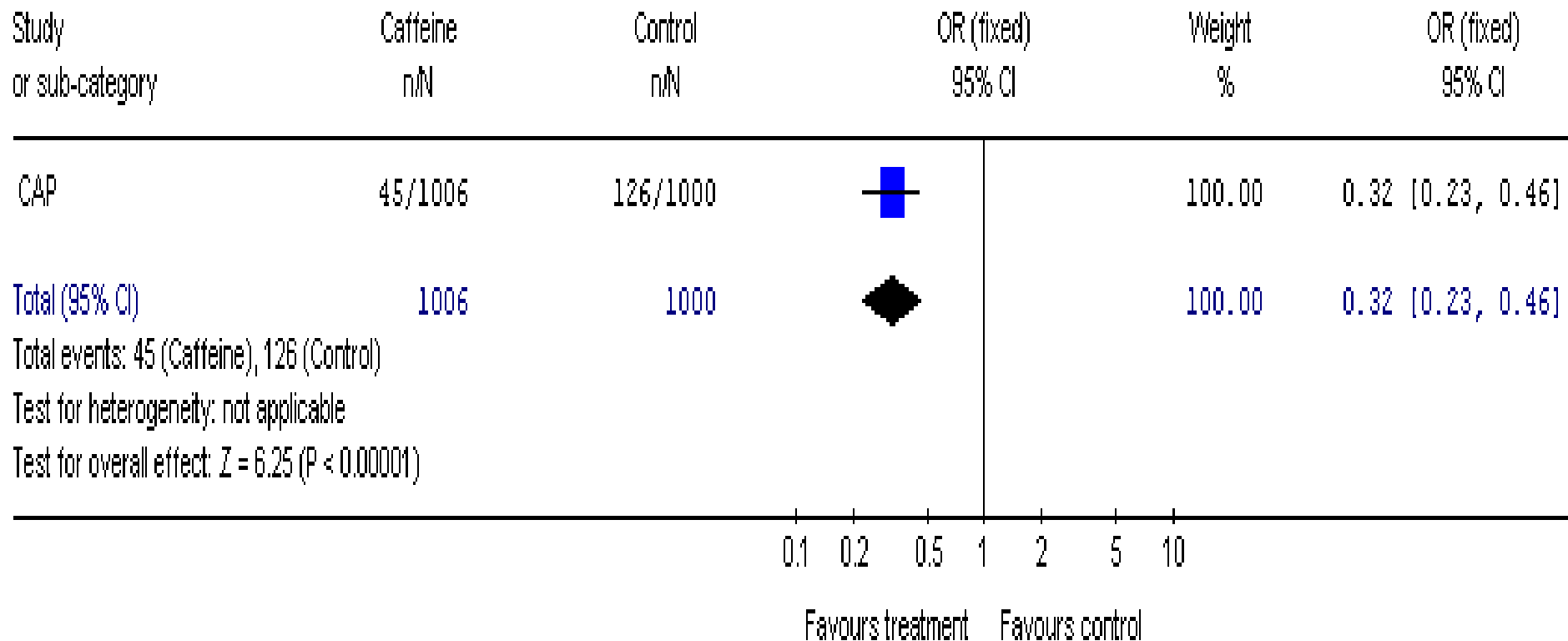
Review: CAP  
 Comparison: 01 Caffeine vs. Placebo  
 Outcome: 03 Drug therapy for PDA closure



# Neonatal Outcomes

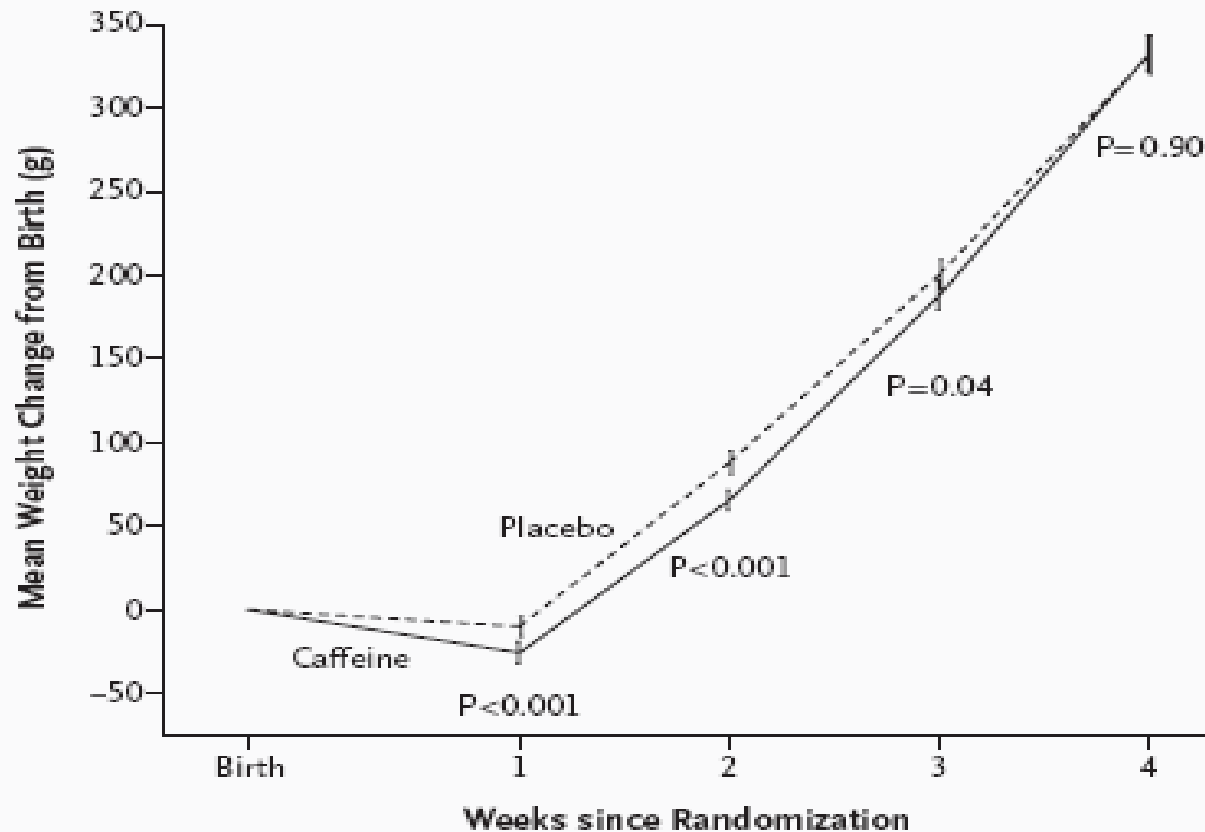
## PDA Surgical Closure

Review: CAP  
 Comparison: 01 Caffeine vs. Placebo  
 Outcome: 04 PDA Ligation





# Body Weight Difference



**Figure 2.** Mean Change in Body Weight during the First Four Weeks after Random Assignment to Caffeine or Placebo.

The mean difference in weight gain was -16 g after one week (95 percent confidence interval, -25 to -7), -23 g after two weeks (95 percent confidence interval, -32 to -13), and -13 g after three weeks (95 percent confidence interval, -25 to -0.4).

# Long term Outcomes

*93% follow-up rate at 18-21 months corrected age*

Outcome	Caffeine	Placebo	OR (95% CI)
Death or Neurosensory impairment	40%	46%	0.77 (0.63,0.93) P=0.006
Cerebral palsy	4.4%	7.3%	0.58 (0.39,0.87) P= 0.009
Cognitive delay	34%	38%	0.8 (0.65, 0.98) P=0.03
Deafness	No Difference		
Blindness	No Difference		

# COIN Study

Nasal CPAP or Ventilation for Very Preterm Infants at Birth. A Randomised Controlled Trial

*Morley et al*

*Multicenter international study- 17 centers*

*Recruitment 1999-2006*

<b>Population</b>	Preterm infants 25- 28 <sup>+6</sup> Enrollment occurred immediately after delivery if breathing at 5 minutes and needing respiratory support
<b>Intervention</b>	Immediate nasal CPAP at 8 cm H <sub>2</sub> O Given initially with nasopharyngeal tube via NeoPuff Then transferred into bi-nasal cannula in the NICU No Surfactant
<b>Control</b>	Mechanical Ventilation with Surfactant
<b>Outcomes</b>	Primary outcome: Death or oxygen requirement at 36 wks CGA

# COIN Study

*Criteria for intubation in the CPAP group:*

Pco2 >60

Fio2 >60%

Apnea

610 infants enrolled

33% between 25-26 weeks

Mean bwt 940 g (215)

94% received antenatal steroids

67% delivered by CS

# COIN Study

Outcome	CPAP	Ventilation	OR (95% CI)
Death or O2 treatment (28 days)	0.63 (0.46 to 0.87) p=0.006		
Death or O2 treatment (36 weeks)	0.80 (0.58 to 1.12) p=0.21		
Surfactant use was halved			
50% of the CPAP group managed with no need for endotracheal intubation			
Pneumothorax	9%	3%	p<0.003
Mortality	No Difference		
No Difference in other neonatal morbidities (trends to better outcomes in the CPAP group)			



the 1990s, the number of people in the UK who are employed in the public sector has increased from 10.5 million to 12.5 million (12.5% of the population).

There are a number of reasons for this increase. One is that the public sector has become a more important part of the economy. Another is that the public sector has become more efficient. A third is that the public sector has become more attractive to workers. A fourth is that the public sector has become more diverse.

The public sector has become a more important part of the economy. In the 1990s, the public sector accounted for 12.5% of the UK's GDP, up from 10.5% in 1980.

The public sector has become more efficient. In the 1990s, the public sector's productivity grew at an average rate of 2.5% per year, up from 1.5% in the 1980s.

The public sector has become more attractive to workers. In the 1990s, the public sector's share of the UK's workforce grew from 10.5% to 12.5%.

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the first two years of life. The first year of life is the most important period for the development of the immune system.

It is important to note that the immune system is not fully developed at birth. The immune system is still developing and is not fully functional until the first year of life. This is why infants are more susceptible to infections than older children and adults.

The immune system is also affected by stress. Stress can suppress the immune system, making it less effective at fighting off infections. This is why people who are stressed are more likely to get sick.

The immune system is also affected by diet. A diet rich in fruits and vegetables can help boost the immune system, while a diet high in fat and sugar can weaken it.

The immune system is also affected by exercise. Regular exercise can help boost the immune system, while a sedentary lifestyle can weaken it.

The immune system is also affected by sleep. Getting enough sleep is important for a healthy immune system. Lack of sleep can suppress the immune system.

The immune system is also affected by hygiene. Good hygiene practices, such as washing hands and avoiding contact with sick people, can help prevent infections.

The immune system is also affected by vaccinations. Vaccinations help the immune system learn to fight off specific pathogens, preventing disease.

The immune system is also affected by aging. The immune system naturally weakens as we age, making older people more susceptible to infections.

The immune system is also affected by chronic diseases. Chronic diseases, such as diabetes and heart disease, can weaken the immune system.

The immune system is also affected by medications. Some medications, such as corticosteroids, can suppress the immune system.



the 1990s, the number of people in the UK who are employed in the public sector has increased from 10.5 million to 12.5 million. The public sector has become a major employer in the UK, and this has implications for the way in which the public sector is managed and the way in which it is funded.

The public sector is a complex and diverse organisation, and it is difficult to define what it is. The public sector is often defined as the part of the economy that is owned and controlled by the state. This includes the government, local authorities, and public corporations. The public sector is also often defined as the part of the economy that provides public services. This includes the health service, the education system, and the social security system.

The public sector is a major employer in the UK, and it has a significant impact on the economy. The public sector is a major source of government revenue, and it is also a major source of government expenditure. The public sector is also a major source of public services, and it is a major source of public goods.

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