# सुप्रजा निर्मिती

**Dr Gopalkrishna Gawade**

**MBBS, DGO, DNB(OB-GYN)**

# सुप्रजा निर्मिती

- स्वस्थ माता के उदर से स्वस्थ शिशू का जन्म.
- शिशुके स्वस्थ शरीर और स्वस्थ मन का विकास.
- माताका स्वास्थ्य खो कर स्वस्थ शिशू कि कल्पना नाही कि जा सकती.

# सुप्रजा निर्मिती

- क्यूँ करे?
- क्या करे?
- कैसे करे?

# सुप्रजा निर्मिती: क्यूँ करे?

अभी प्रजा निर्मिती में क्या कुछ समस्या है?

अगर समस्या है तो उसका प्रमाण कितना है?

राष्ट्र के भविष्यको हानी पहुचा सके इतनी यह समस्या गंभीर है क्या?

समस्या के कारण क्या है?

# सुप्रजा निर्मिती : क्या करे? उपाय कैसे हो?

- कारगर,
- सरल,
- कम लागतके,
- माता-बच्चे को कमसे कम तकलीफ देनेवाले,
- मातापिता को आसानीसे स्वीकार हो,
- व्यवहारी और,
- किसी विवाद का कारण ना बने.

# सुप्रजा

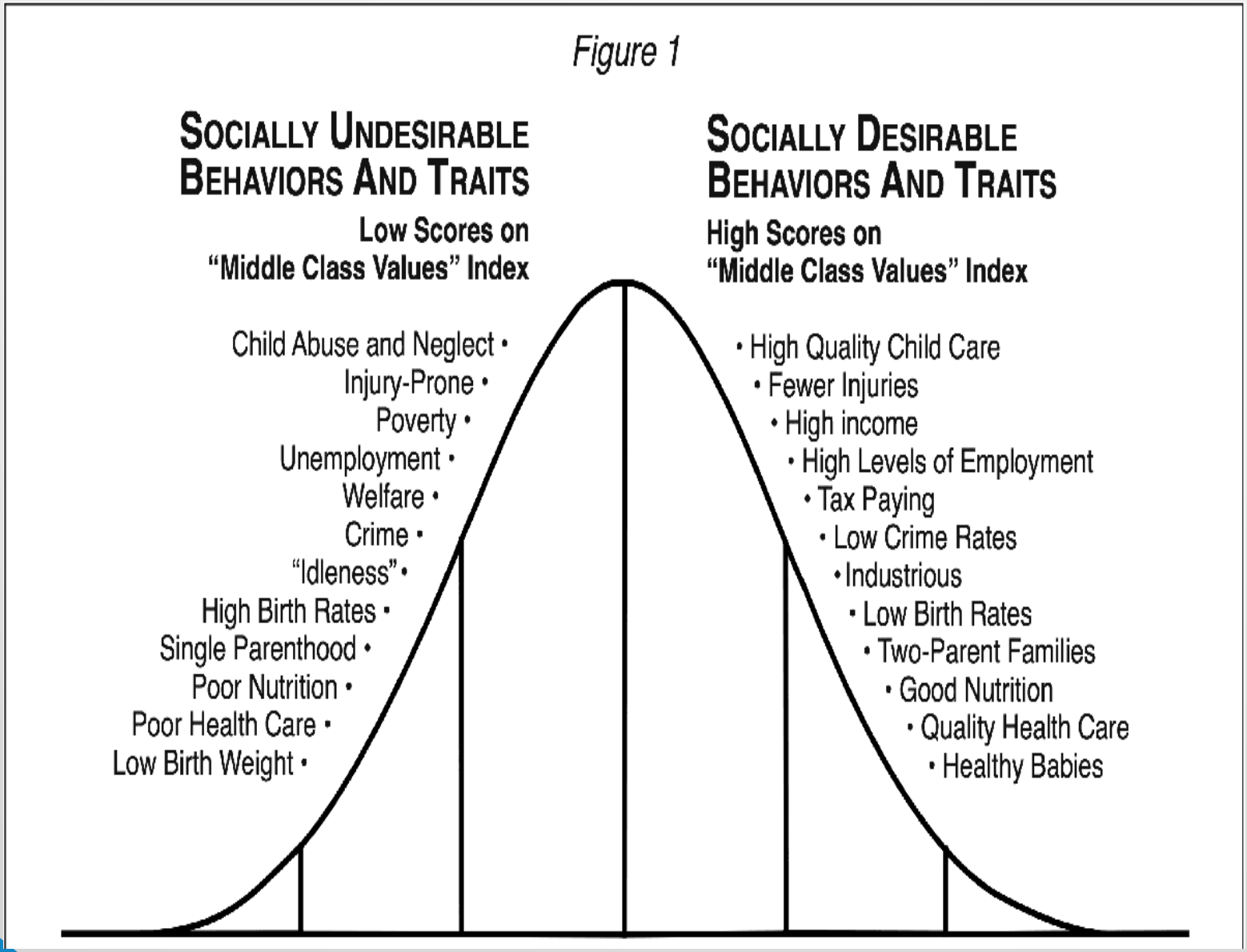
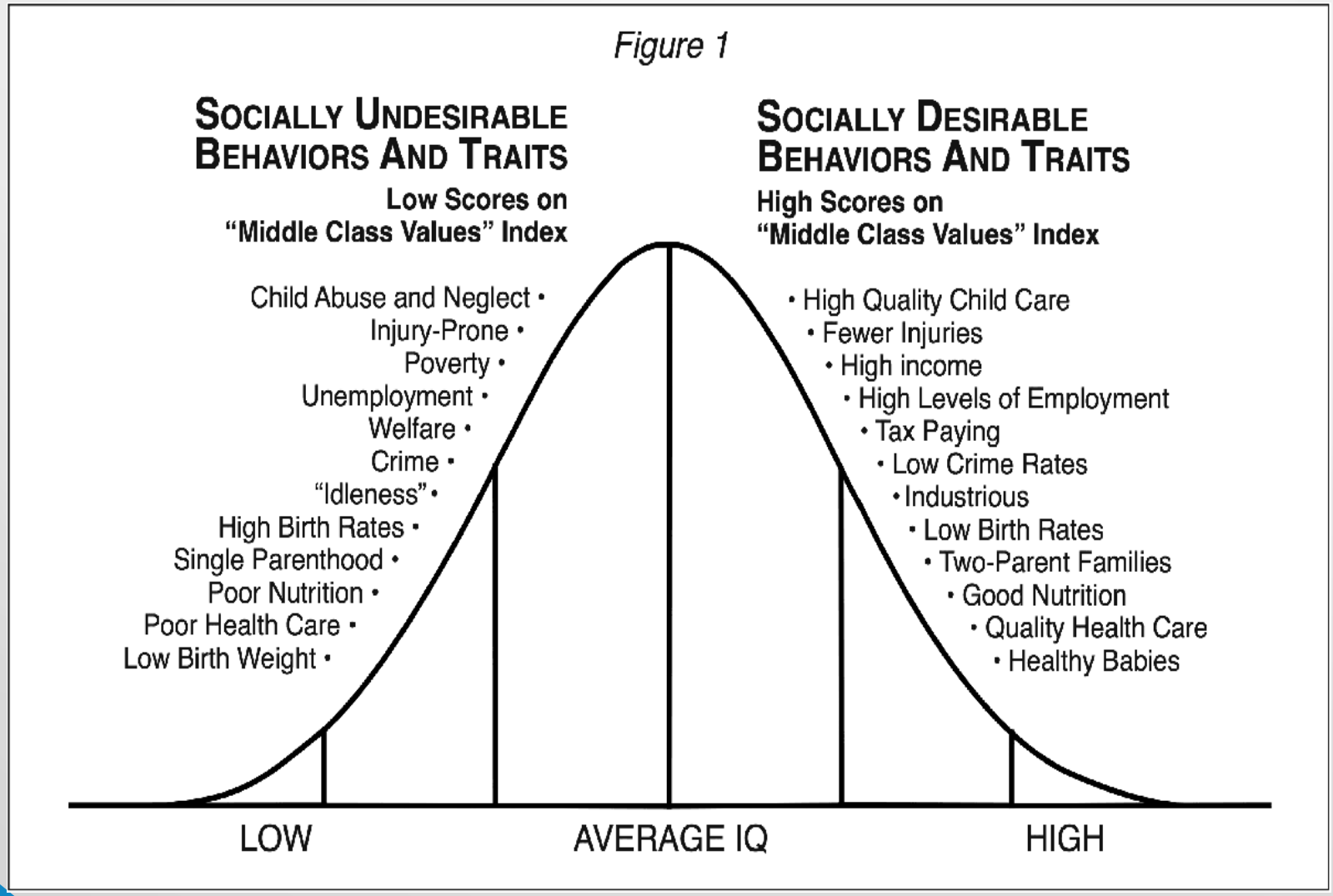


Figure 1
SOCIALLY UNDESIRABLE BEHAVIORS AND TRAITS
Low Scores on "Middle Class Values" Index
Child Abuse and Neglect •
Injury-Prone •
Poverty •
Unemployment •
Welfare •
Crime •
"Idleness" •
High Birth Rates •
Single Parenthood •
Poor Nutrition •
Poor Health Care •
Low Birth Weight •
SOCIALLY DESIRABLE BEHAVIORS AND TRAITS
High Scores on "Middle Class Values" Index
• High Quality Child Care
• Fewer Injuries
• High income
• High Levels of Employment
• Tax Paying
• Low Crime Rates
• Industrious
• Low Birth Rates
• Two-Parent Families
• Good Nutrition
• Quality Health Care
• Healthy Babies

# सुप्रजा और IQ :

***The Bell Curve: Intelligence and Class Structure in Life*** is a 1994 book by psychologist Richard J. Herrnstein and political scientist Charles Murray.



# सुप्रजा निर्माण हेतू शिशू के I.Q को कैसे बढाया जाए?

- शिशूके I.Q बढानेवाले चिजे कियी जाए.

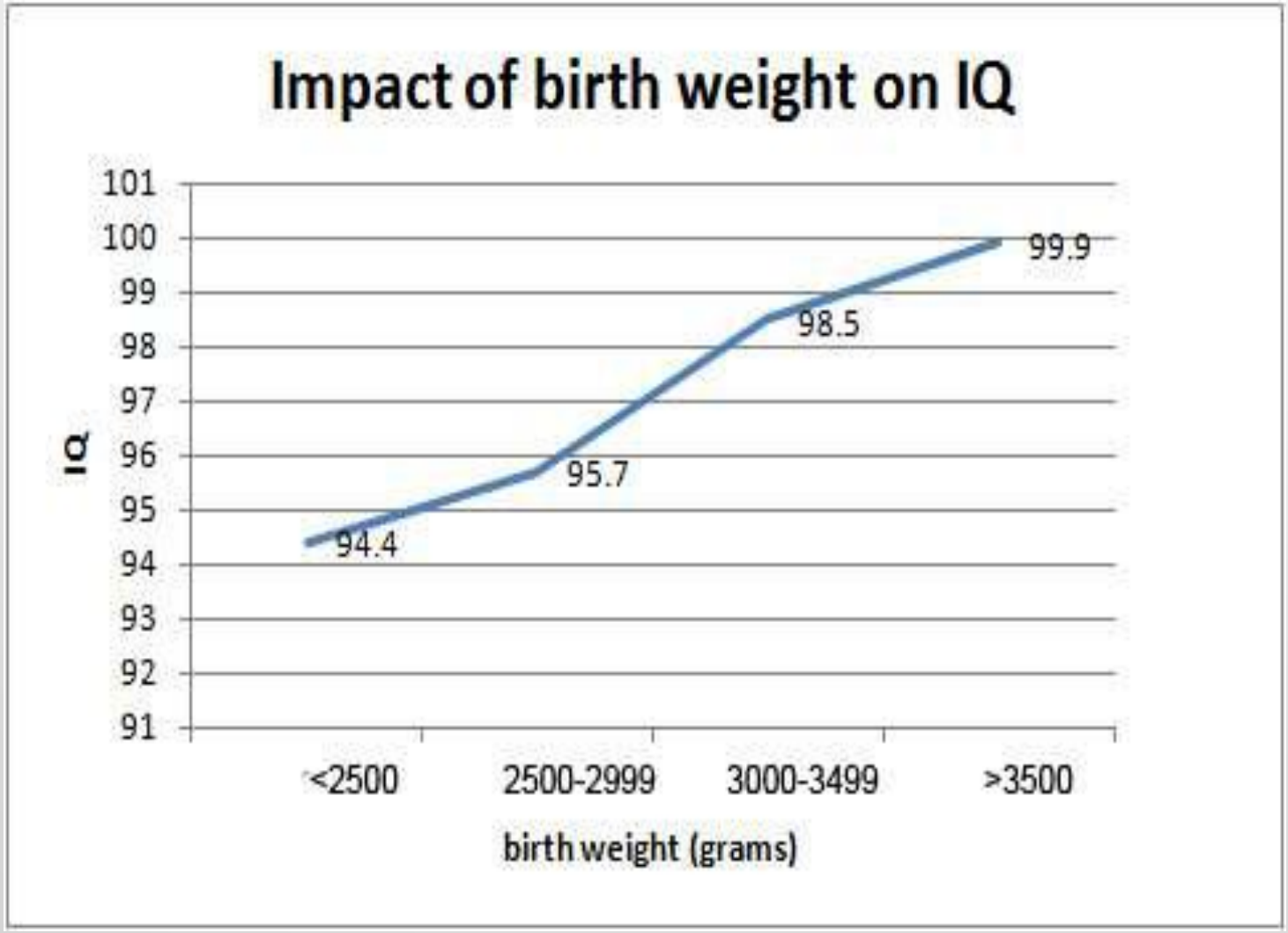
- शिशूके I.Q घटानेवाली चिजोंसे गर्भवतीको बचाया जाए.

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.

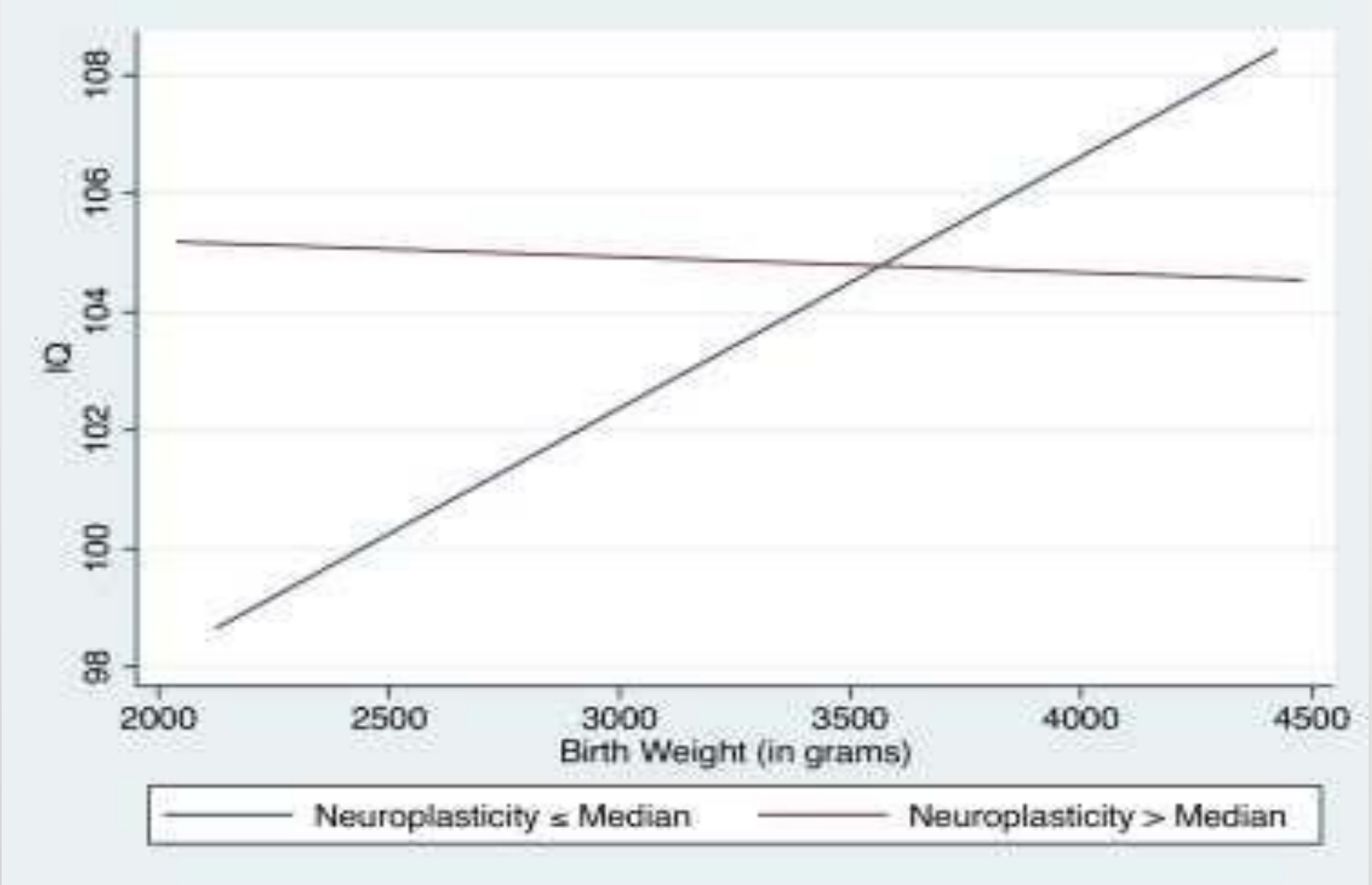
# IQ कैसे बढ़ाये?

http://www.thelancet.com/journals/langlo/article/PIIS2214-109X%2815%2970002-1/fulltext



# Impact of Birth weight on IQ

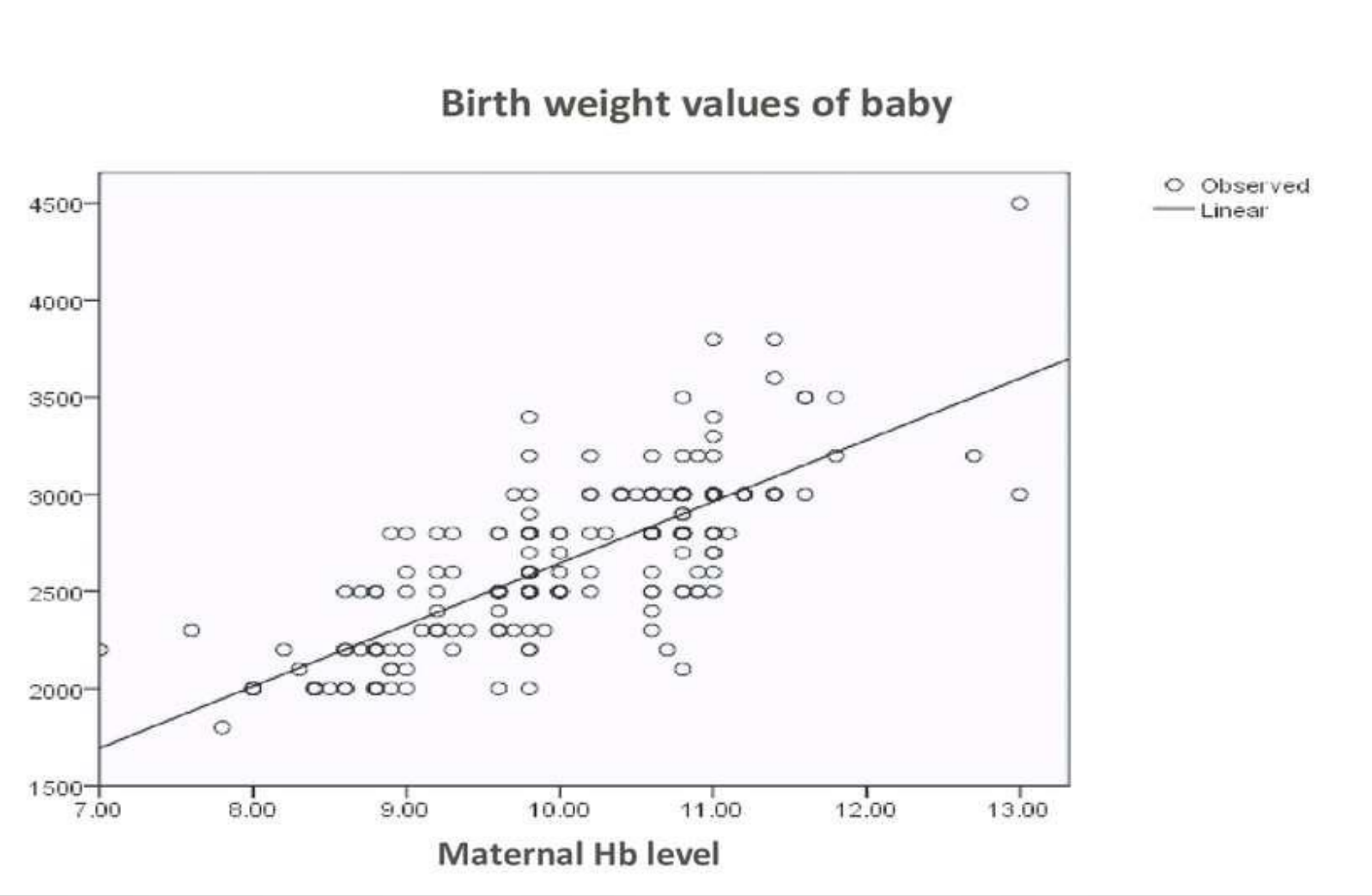
http://www.sciencedirect.com/science/article/pii/S0167629615000065



# शिशूका Birth Weight कैसे बढाया जाए?

# Achieving good Birth weight

https://www.researchgate.net/publication/308137547



# Achieving good Birth weight

- सुप्रजा = Good IQ
- Good IQ = Good birth weight
- Good birth weight = Good maternal haemoglobin in pregnancy
- Supraja = Good maternal hemoglobin in pregnancy

# regnant women's haemoglobin status in last 20 years

http://data.worldbank.org/indicator/SH.PRG.ANEM

| Country | Anaemia % in 1995 | Anaemia % in 2011 |
|---|---|---|
| USA | 16 | 17 |
| UK | 23 | 23 |
| China | 29 | 22 |
| Indonesia | 45 | 30 |
| Nepal | 59 | 44 |
| Shri Lanka | 37 | 26 |
| **India** | **54** | **54** |
| Pakistan | 48 | 51 |

# "The" cause of anaemia in Indian mothers

- Iron deficiency : already deficient (95% at the time of conception) superadded with increased demands in pregnancy.
- Need of iron in pregnancy= 60 mg per day.
- Balance diet provide = 20 mg
- Anaemia is inevitable if no iron supplementation.
- Minimum 10,000 mg (100 tablets) are required to maintain haemoglobin in non anaemic women.
- 20 tablets for rise of haemoglobin by 1 gm% in anaemic mother. So if her Hb is 8gm% and we want it 12gm%, then 80 more tablets needed. So she should take minimum 180 tablets. We can give iron for 196 days out of 280 days of pregnancy.

# Then what is the problem? Why are so many anaemic mothers in India?

- 35% are non compliant : they just don't want to eat iron tablets. They do not understand it's importance.
- (Afr Health Sci. 2013 Dec; 13(4): 880–885.doi: 10.4314/ahs.v13i4.3;PMCID: PMC4056486;Compliance with iron-folic acid (IFA) therapy among pregnant women in an urban area of south India; P Mithra, B Unnikrishnan, T Rekha, K Nithin, K Mohan, V Kulkarni, V Kulkarni, and D Agarwal)
- Seck BC, Jackson RT. Determinants of compliance with iron supplementation among pregnant women in Senegal. [1-2-2013];Public health nutrition [Internet] 2008 Jun;11(6):596–605. Available from: http://www.ncbi.nlm.nih.gov/pubmed/17764606. [PubMed]
- 10-15% develop intolerance (side effects) to oral iron.
- Average 40-50% women do not receive iron.

# Find them and infuse them with **adequate dose** of IV iron sucrose

- How to find them?
- Regular ANC visits.
- Serial monthly Hb- rising or dropping Hb.
- Stool colour should be asked at every visit- stool turns black if oral iron taken.
- Adequate dose :
- 1000 mg to maintain Hb + 200 mg for every gram of expected rise of haemoglobin (Target 12 gm%).

# Mother's Hemoglobin

- Iron supplementation
- Folic acid supplementation
- Vit B12 supplementation: deficiency in 70-80%

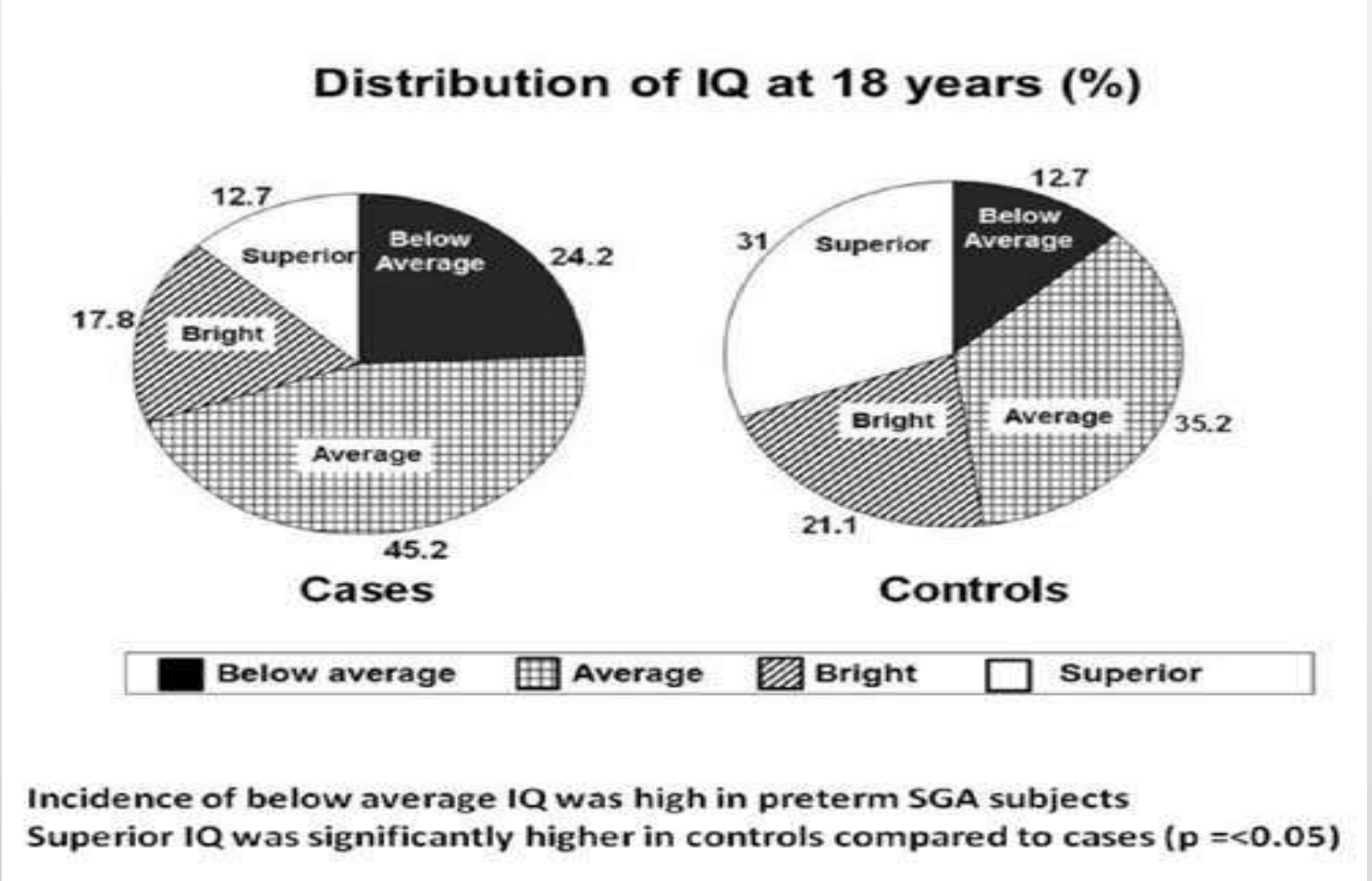
# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth

# Impact of prematurity on IQ

http://indianpediatrics.net/sep2013/sep-853-857.htm

From Department of Pediatrics, KEM Hospital, Pune, Maharashtra, India.



# Indian women's literacy status suggest : either educate women or prevent preterm labour

http://censusindia.gov.in/Census_And_You/literacy_and_level_of_education.aspx

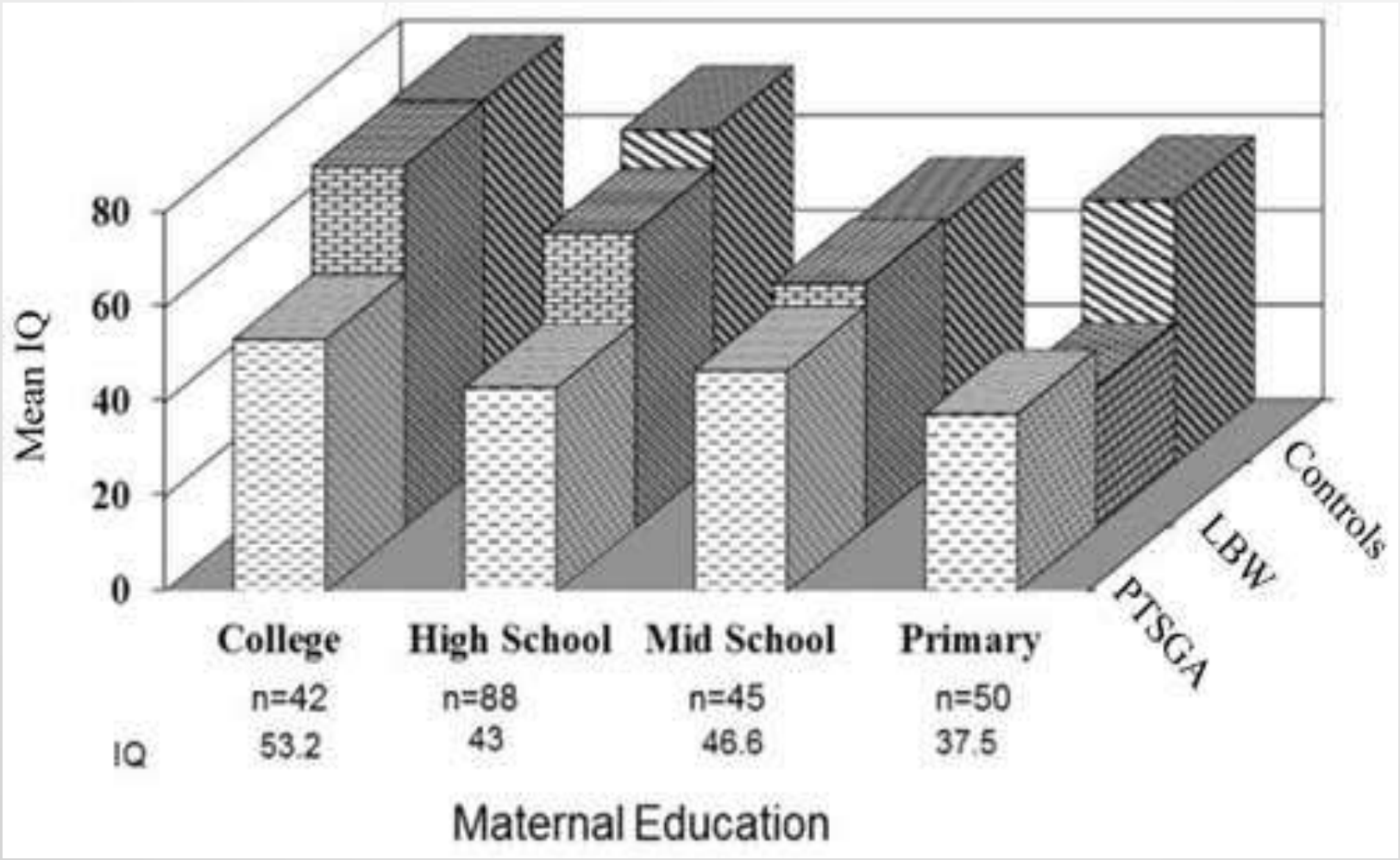
| Level of education | Absolute Numbers ( Total population 100 crore) | | |
|---|---|---|---|
| | Persons | Males | Females |
| Literate | 56.06 crore | 33.65 crore | 22.41 crore |
| Literate without educational level $ | 2.00 crore | 1.14 crore | 0.8 crore |
| Below Primary | 14.48 crore | 8.11 crore | 6.37 crore |
| Primary | 14.67 crore | 8.35 crore | 6.32 crore |
| Middle | 9.02 crore | 5.59 crore | 3.43 crore |
| Matriculation/Secondary | 7.92 crore | 5.12 crore | 2.80 crore |
| High secondary/ Intermediate/PreUnivercity/ Senior Secondary | 3.78 crore | 2.46 crore | 1.32 crore |

Total 16.12 crore

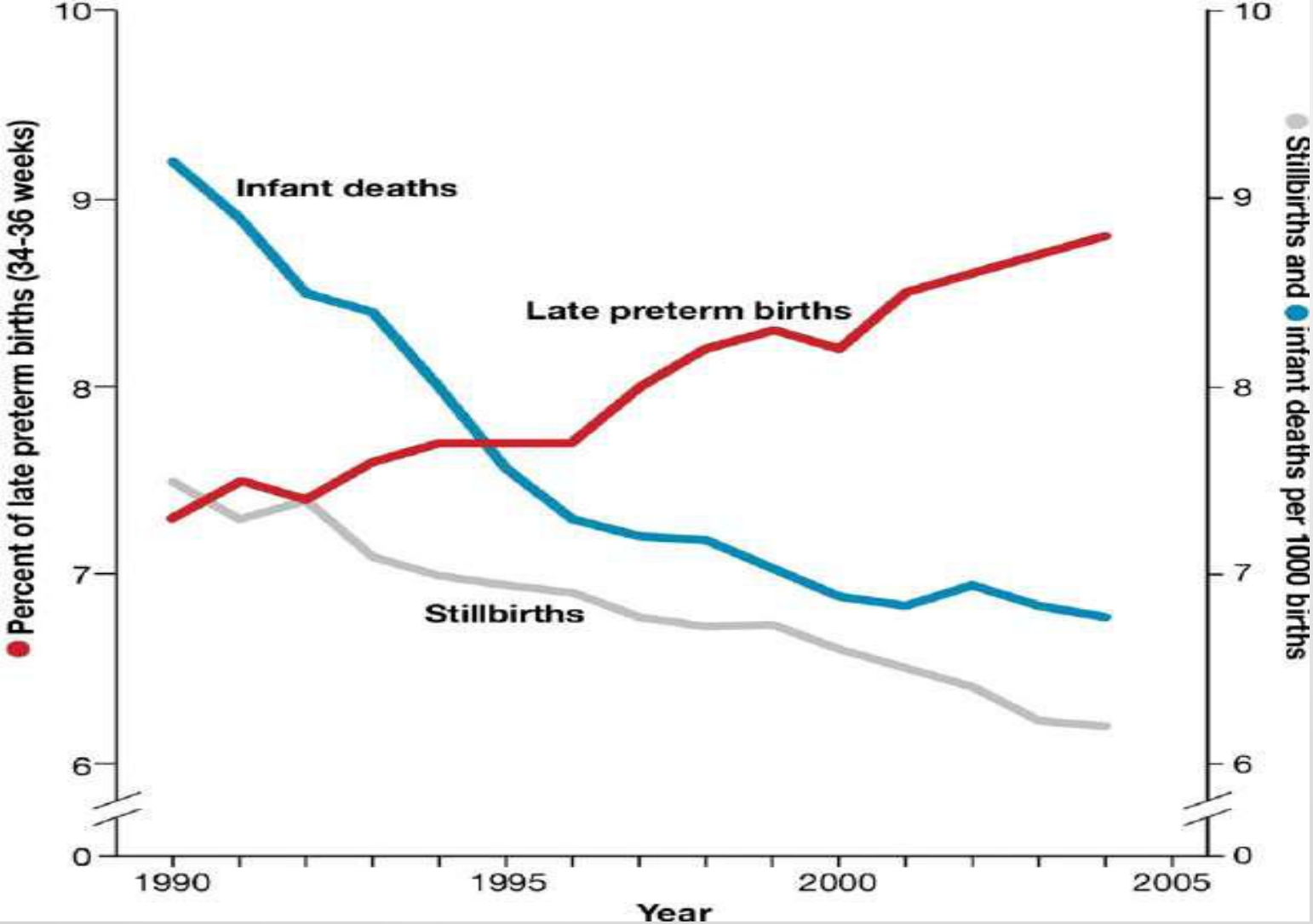
# Prematurity prevention:

http://indianpediatrics.net/sep2013/sep-853-857.htm

From Department of Pediatrics, KEM Hospital, Pune, Maharashtra, India.

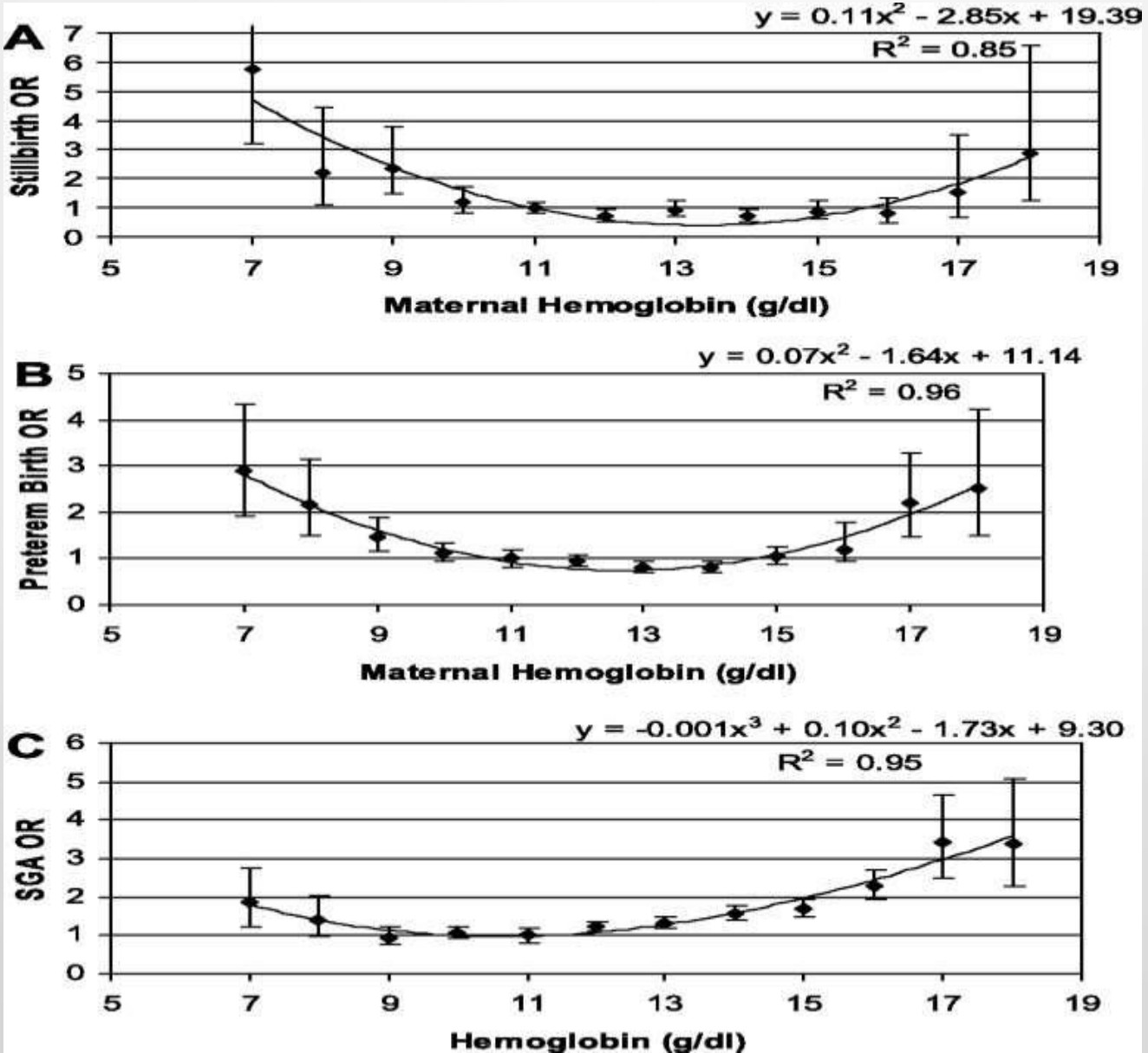


# Prematurity trends in India



# How to prevent prematurity: 1) prevent anaemia

Gustavo F. Gonzales, Kyle Steenland, Vilma Tapia
American Journal of Physiology - Regulatory, Integrative and Comparative Physiology Published 1 November 2009 Vol. 297 no. 5, R1477-R1485 DOI: 10.1152/ajpregu.00275.2009



# How to prevent prematurity?

## Reduce incidence of anaemia in mother

- Preterm labour is very common in anaemic mothers.
- Severity of anaemia decides average gestational age of delivery.
- www.emro.who.int/emhj/0403/emhj_1998_4_3_480_486.pdf

# How to prevent prematurity?

## 2) Reduce incidence of pregnancy induced hypertension

- Prevent BP rise in pregnancy
- 10% pregnant women develop BP rise in pregnancy. First, weight gain is rapid. Then swelling appears. Finally BP is found to be raised.
- Disease starts after 20 wks of pregnancy.
- Only way to save the mother is to deliver her as early as possible.
- So, to save mother, baby has to be delivered prematurely.

# How to prevent prematurity?
# 2) Reduce incidence of pregnancy induced hypertension

- Screening high risk mothers at first visit and immediately starting them on daily Aspirin 150 mg reduces risk of BP rise by 60%.
- (ASPRO multicentric Ramdomised Controlled Trial)

- Other promising way to prevent BP rise is restriction of physical activity. Close watch on weight gain can detect excess weight gain. If lady is asked to take bed rest in left lateral position BP rise can be prevented.
- (Cochrane Database Syst Rev. 2006 Apr 19;(2):CD005939. Rest during pregnancy for preventing pre-eclampsia and its complications in women with normal blood pressure.)

# How to prevent prematurity? 3) Maternal infection prevention

- Pregnancy is immunocompromised state.
- Infections are common in pregnancy.
- Infections can cause preterm labour & so prematurity.
- Common three infection : 1) Respiratory infections 2) Gastrointestinal infections 3) Urinary infections.
- Prevent infections / treat them early to prevent preterm labour & prematurity.

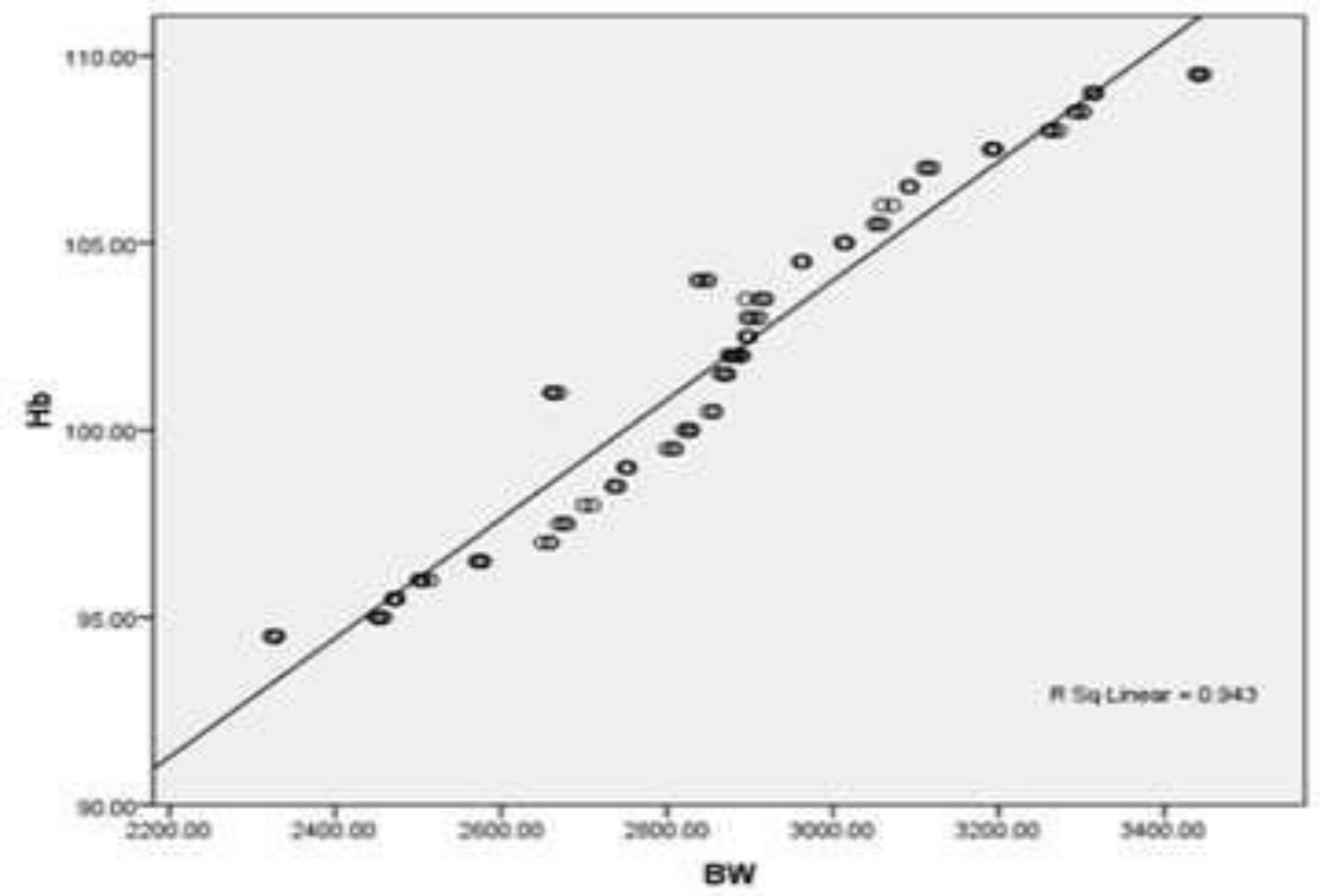
# How to prevent prematurity? 3) Maternal infection prevention

- 1) To prevent respiratory infections – avoid crowded places where they can encounter people with cough & cold.
- 2) To prevent gastrointestinal infections – Avoid eating/drinking outside home. Prefer home made fresh food & filtered/ boiled water only.
- 3) Both the above infections can be greatly reduced by frequent hand washing or use of hand sanitiser (2 hrly).
- 4) To avoid urinary infections drink 200 ml water every two hours and pass urine every two hours (By Clock).

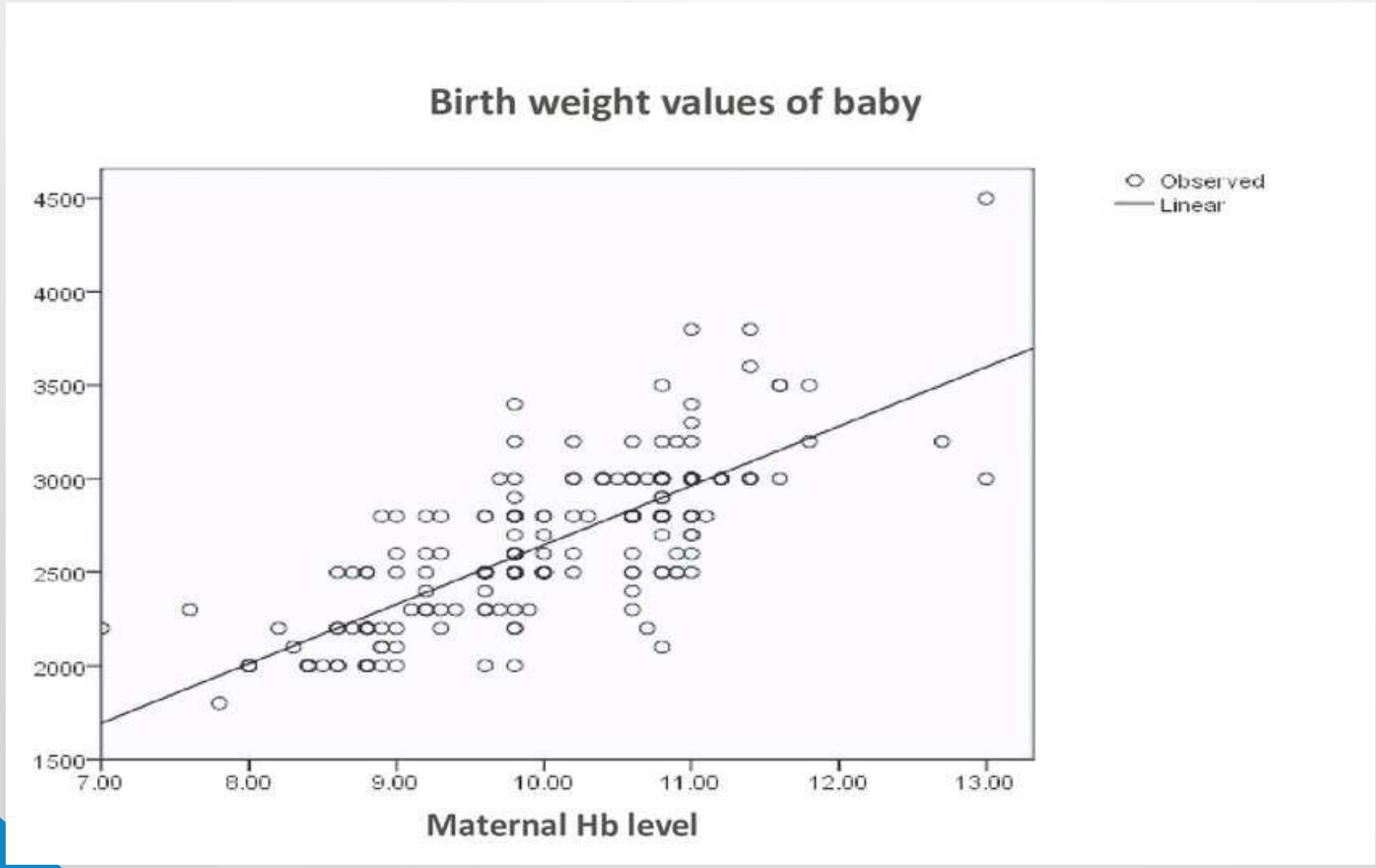
# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth
- 3) Prevent growth restriction

# Prevention of growth restriction



# Prevention of growth restriction (birth weight <2.5kg)



# Prevention of growth restriction

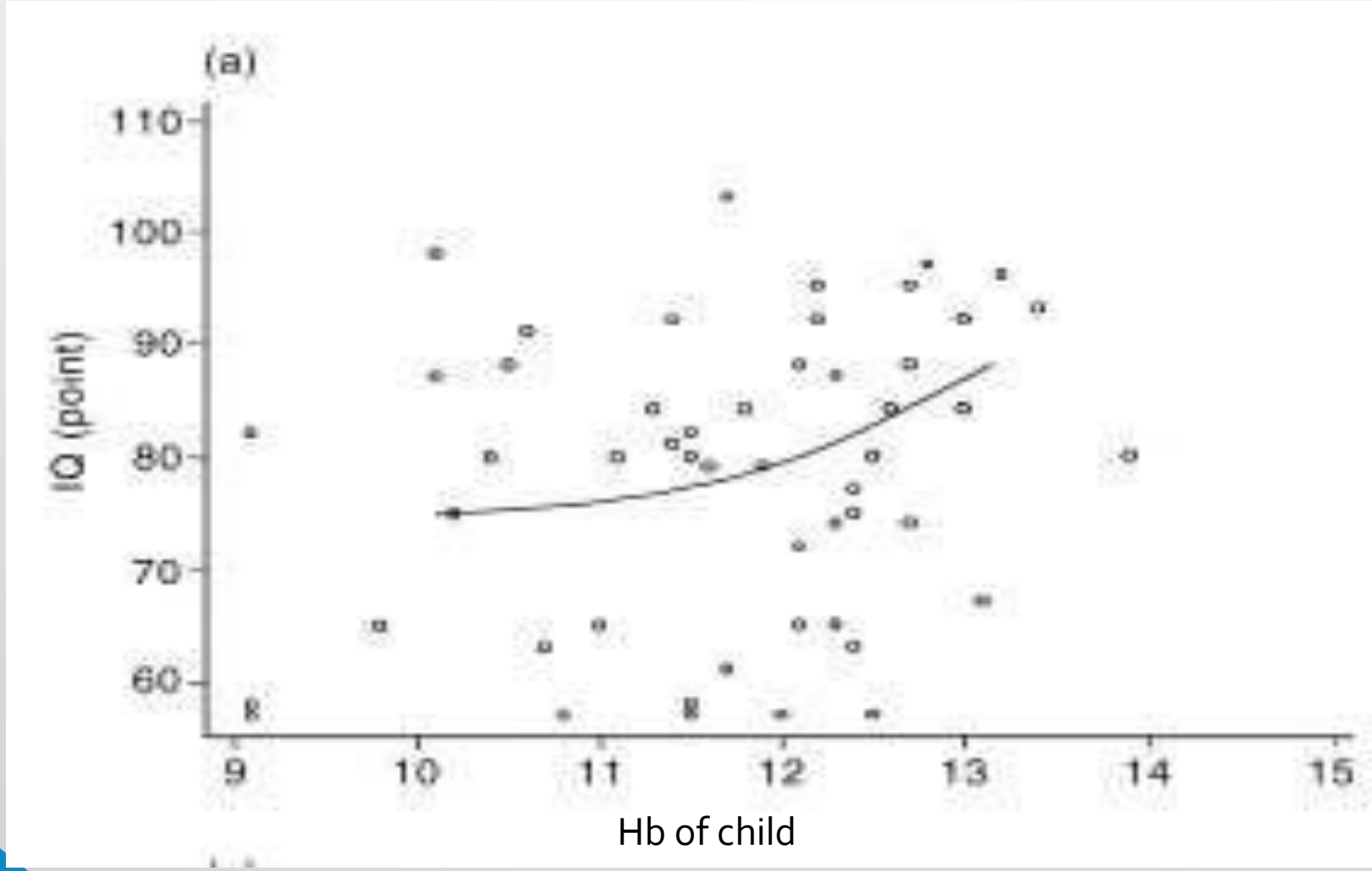
- Prevention of BP rise.
- Adequate rest in left lateral position.
- Prevention of tobacco addiction
- *Am Fam Physician.* 1998 Oct 15;58(6):1384-1390.

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth
- 3) Prevent growth restriction
- 4) Prevention of childhood anaemia

# Impact of Childhood anaemia on IQ

Asia pasific J clin Nutr (2002)11(2);177-122



# Childhood anaemia & Brain

- Iron deficiency anemia in early life is related to altered behavioral and neural development.

- Studies in human infants suggest that this is an irreversible effect that may be related to changes in chemistry of neurotransmitters, organization and morphology of neuronal networks, and neurobiology of myelination.

- Reference : J Nutr. 2003 May;133(5 Suppl 1):1468S-72S.;Iron deficiency alters brain development and functioning.

  https://www.ncbi.nlm.nih.gov/pubmed/12730445

# Childhood iron deficiency & Brain

- Scholastic Performance, IQ and Scores of Mental balance, Attention & Concentration, Verbal Memory and Recognition were decreased in iron deficient girls, both anaemic and non anaemic as compared to the non iron deficient girls.
- Reference :Effects of Iron Deficiency on Cognitive Function in School Going Adolescent Females in Rural Area of Central India ; Sarika More,1 V. B. Shivkumar,2 Nitin Gangane,2 and Sumeet Shende3
- https://www.hindawi.com/journals/anemia/2013/819136/

# Childhood iron deficiency & Brain

- Results of recent studies indicate **long-term negative consequences are caused by early-life iron deficiency** that may be **irreversible**.

- Negative consequences may be encountered even before anaemia. So it is not simply hypoxia but iron deficiency itself is causing the observed cognitive and behavioural alterations.

- Reference :

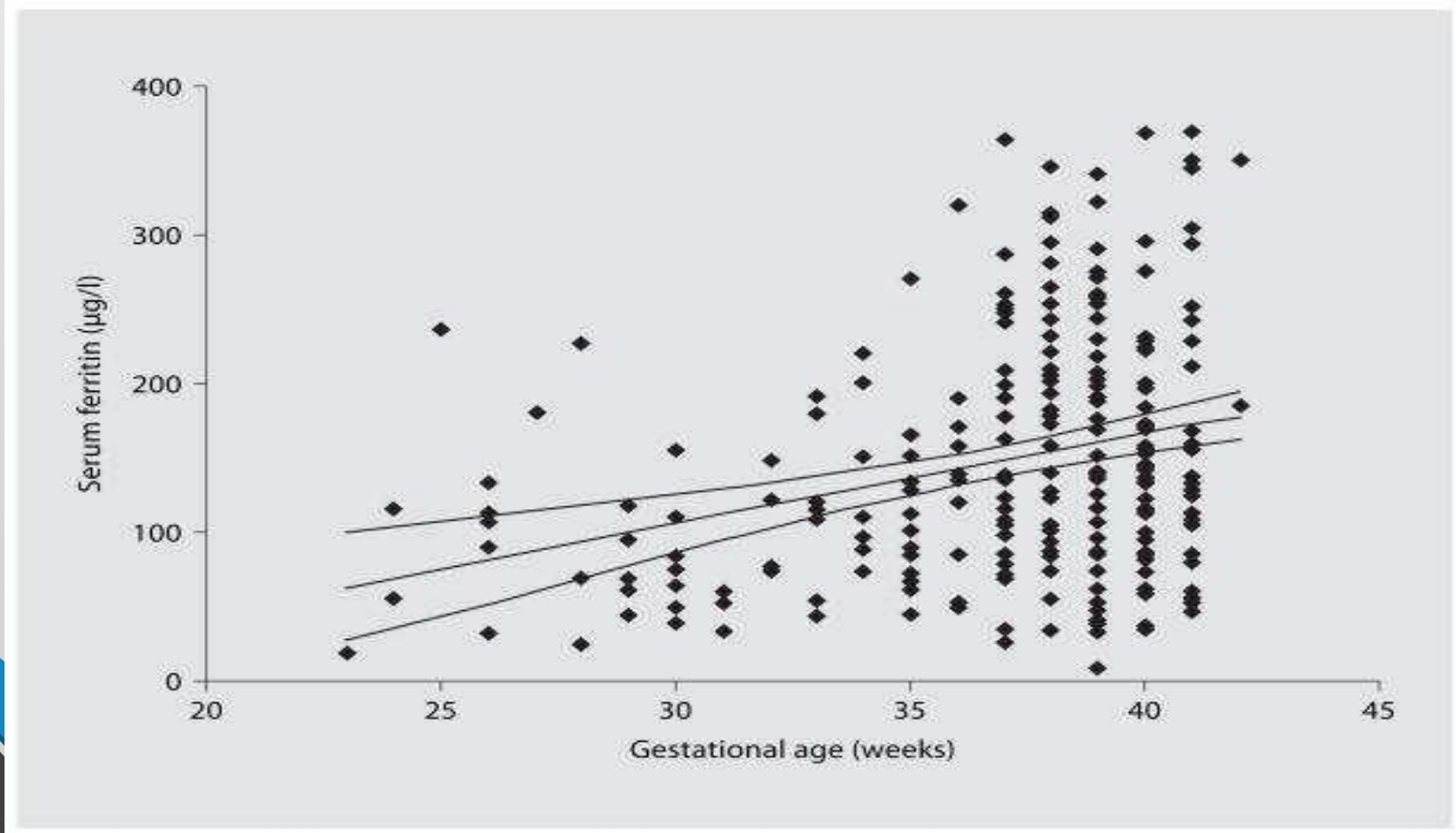

- Curr Opin Clin Nutr Metab Care. 2013 Nov;16(6):703-7. doi: 10.1097/MCO.0b013e3283653ef8.

# Indian children : anemia status

- National Family Health Survey (NFHS) III in 2005-06, **79%** of the children in India were found to be anemic.
- Anemia incidence was found more in rural areas, in comparison to urban areas (84% and 71% respectively) (2).
- The anemia prevalence in children under three years of age was increased by five percent (74% to 79%) in the NFHS III survey, in comparison with the NFHS II survey

**Relation of prematurity, iron stores & childhood anaemia:**
Umbilical cord serum ferritin concentrations increased with advancing gestational age, from a mean of 63 µg/l at 23 weeks to 171 µg/l at 41 weeks gestation.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2863301/
Neonatology. 2007; 92(2): 73–82.



# Prevent anaemia = prevent low IQ

- School health programme should look into the matter.
  - Dump ample amount of iron & B12 when baby is still in womb.
  - Regular screening of Hb in school health programme to detect anaemic kids as early as possible (damage is irreversible).
  - Treat with DOT by teacher. (compliance is always poor)
  - Iron , Vit B12, Folic acid & D3 fortification of mid day meal programme. (to prevent deficiency)

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth
- 3) Prevent growth restriction
- 4) Prevention of childhood anaemia
- 5) Ensuring adequately prolonged breast feeding

# Impact of Breast feeding on IQ

- A long-term study has pointed to a link between breastfeeding and intelligence.
- The research in Brazil traced nearly 3,500 babies, from all walks of life, and found ***those who had been breastfed for longer went on to score higher on IQ tests as adults.***
- ***Raising awareness & active participation in prolonged breast feeding campaign.***

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth
- 3) Prevent growth restriction
- 4) Prevention of childhood anaemia
- 5) Insuring adequately prolonged breast feeding
- 6) Avoid childhood infections

# IQ scores and infectious diseases

- Since about 2010, researchers such as Eppig, Hassel, and MacKenzie have found **a very close and consistent link between IQ scores and infectious diseases**, especially in the infant and preschool populations and the mothers of these children.

- They have postulated that fighting infectious diseases strains the child's metabolism and prevents full brain development.

- Hassel postulated that it is by far the most important factor in determining population IQ.

- Referance : Eppig. Christopher. Scientific American."Why is average IQ higher in some places?" 2011.

# Childhood anaemia & infections

- Research has shown iron deficiency anaemia  affects your immune system – the body's natural defence system. This increases your vulnerability to infection.

- Reference http://www.nhs.uk/Conditions/Anaemia-iron-deficiency-/Pages/Complications.aspx

# How to prevent childhood infections

1) Load babies with iron when they are still in their mother's womb.
2) Find anaemia in early childhood & treat it adequately.
3) Prophylactic measures to prevent anaemia in childhood : mid day meal fortification by Iron, B12, Folic Acid, Vit D3.
4) Vaccination to avoid infections
5) Good hygiene habits - as described for pregnant women.
6) Participation in "Swacha Bharat Abhiyan".

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth
- 3) Prevent growth restriction
- 4) Prevention of childhood anaemia
- 5) Insuring adequately prolonged breast feeding
- 6) Avoid childhood infections
- 7) Correct mother & baby's vit B12 levels

# Impact of maternal Vit B12 deficiency on IQ of baby.

- Symptoms of Vitamin B (12) deficiency in infancy include growth retardation, regression of psychomotor development, muscular hypotonia and brain atrophy.

- The neurological symptoms of the infant with manifest vitamin B (12) deficiency are only partially reversible.

- Z Geburtshilfe Neonatol. 2007 Aug;211(4):157-61.**[Maternal vitamin B12 deficiency: cause for neurological symptoms in infancy].**

# Status of maternal Vit B12 deficiency

- Two-thirds of mothers had low vitamin $B_{12}$ (<150 pmol/l).
- Vit B12 is not present in plant food.
- Reference :
- Vitamin B12 and folate concentrations during pregnancy and insulin resistance in the offspring: The Pune Maternal Nutrition Study (C. S. Yajnik,corresponding author1,7 S. S. Deshpande,1 A. A. Jackson,3 H. Refsum,4,5 S. Rao,6 D. J. Fisher,2 D. S. Bhat,1 S. S. Naik,1 K. J. Coyaji,1 C. V. Joglekar,1 N. Joshi,1 H. G. Lubree,1 V. U. Deshpande,1 S. S. Rege,1 and C. H. D. Fall2)

# Maternal Vit B12 deficiency & brain development

- During pregnancy, vitamin $B_{12}$ is concentrated in the foetus and stored in the liver .

- Infants born to vitamin $B_{12}$-replete mothers have stores of vitamin $B_{12}$ that are adequate to sustain them for the first several months postpartum.

- References :


- Hellegers A, Okuda K, Nesbitt RE, Jr, Smith DW, Chow BF. Vitamin $B_{12}$ absorption in pregnancy and in the newborn. Am J Clin Nutr. 1957;5:327–331. [PubMed]
- Graber SE, Scheffel U, Hodkinson B, McIntyre PA. Placental transport of vitamin $B_{12}$ in the pregnant rat. J Clin Invest. 1971;50:1000–1004. [PMC free article] [PubMed]

# Maternal Vit B12 deficiency

- High folate intakes in vitamin B12-deficient mothers could increase the risk of type 2 diabetes in the offspring.

- Reference :

- Vitamin B12 and folate concentrations during pregnancy and insulin resistance in the offspring: the Pune Maternal Nutrition Study (C. S. Yajnik,corresponding author1,7 S. S. Deshpande,1 A. A. Jackson,3 H. Refsum,4,5 S. Rao,6 D. J. Fisher,2 D. S. Bhat,1 S. S. Naik,1 K. J. Coyaji,1 C. V. Joglekar,1 N. Joshi,1 H. G. Lubree,1 V. U. Deshpande,1 S. S. Rege,1 and C. H. D. Fall2)

# What to do for B12

- Load foetus with B12 when it is still in maternal womb
- School health programme should work to improve B12 levels in childhood. (Screen, detect, treat adequately(DOT) & follow up)
- Mid day meal fortification .

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth
- 3) Prevent growth restriction
- 4) Prevention of childhood anaemia
- 5) Insuring adequately prolonged breast feeding
- 6) Avoid childhood infections
- 7) Correct mother & baby's vit B12 levels
- 8) Correct mother & baby's vit D3 levels

# Impact of Maternal Vit D3 deficiency & brain development

- Researchers in Spain measured the level of vitamin D in the blood of almost 2,000 women in their first or second trimester of pregnancy and evaluated the mental and motor abilities of their babies at about 14 months of age. The investigators found that children of vitamin D deficient mothers scored lower than those whose mothers had adequate levels vitamin D.

- lower scores in these tests at 14 months lead to lower IQs in childhood.

- Vit D3 also act by boosting immune system against viral infections. Recurrent infections lead to low IQ.

- Vit D3 deficiency in childhood causes debelating & deforming Ricket.

- Reference:


- Pediatrics. 2012 Oct;130(4):e913-20. doi: 10.1542/peds.2011-3289. Epub 2012 Sep 17. ;Circulating 25-hydroxyvitamin D3 in pregnancy and infant neuropsychological development.; Morales E1, Guxens M, Llop S, Rodríguez-Bernal CL, Tardón A, Riaño I, Ibarluzea J, Lertxundi N, Espada M, Rodriguez A, Sunyer J; INMA Project.
- https://www.ncbi.nlm.nih.gov/pubmed/22987876

# Status of Vit D3 deficiency in India?

- 18 cities spread all over India 2012 (N = 2119) 79% Indians are vit D3 deficient.

- No differences were found either between men and women or northern and southern India.

Reference :


- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3942730/table/nutrients-06-00729-t001/
- Nutrients. 2014 Feb; 6(2): 729–775. Published online 2014 Feb 21. doi: 10.3390/nu6020729

# Status of Vit D3 deficiency in Indian mothers & babies?

- Dr Mahwah, in 2011, estimated Vit D3 levels in Delhi.
- out of 521, Pregnant women 96.3% found D3 deficient.
- Out of 342, Lactating mothers 99.7% found D3 deficient.
- Out of 342, Exclusively breastfed Infants 98.8% found D3 deficient.
- Referance : Marwaha R.K., Tandon N., Chopra S., Agarwal N., Garg M.K., Sharma B., Kanwar R.S., Bhadra K., Singh S., Mani K., et al. Vitamin D status in pregnant Indian women across trimesters and different seasons and its correlation with neonatal serum 25-hydroxyvitamin D levels. Br. J. Nutr. 2011;106:1383–1389. doi: 10.1017/S000711451100170X.

# What to do to reduce maternal and foetal vit D3 deficiency.

- Minimum 2,00,000 IU of Vit D3 must be given to every pregnant mother preferably by DOT.
- School health programme should work to improve D3 levels in childhood. (Screen, detect, treat adequately(DOT) & follow up)
- Mid day meal fortification .

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth
- 3) Prevent growth restriction
- 4) Prevention of childhood anaemia
- 5) Ensuring adequately prolonged breast feeding
- 6) Avoid childhood infections
- 7) Correct mother & baby's vit B12 levels
- 8) Correct mother & baby's vit D3 levels

# Impact of congenital hypothyroidism on brain development

- Neonatal hypothyroidism is only preventable cause of mental retardation (very very low IQ).
- Cord blood TSH is easy method of detection of congenital hypothyroidism.
- If missed at birth, neonatal hypothyroidism is diagnosed late in childhood. By this time mental retardation is already set.
- The first multi-centric study screening above 1 lakhs neonates (ICMR) National Task Force Team on New Born Screening (NBS) at AIIMS New Delhi (2007–2012) and the results reveal a much higher incidence of Congenital Hypothyroidism all over India at 1 in 1172, particularly in south Indian population (1 in 727). (1 in 4000 in western population).
- Referance : Indian J Endocrinol Metab. 2015 May-Jun; 19(3): 436–437.

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight.
- 2) Avoid premature birth
- 3) Prevent growth restriction
- 4) Prevention of childhood anaemia
- 5) Ensuring adequately prolonged breast feeding
- 6) Avoid childhood infections
- 7) Correct mother & baby's vit B12 levels
- 8) Correct mother & baby's vit D3 levels
- 9) Detect congenital hypothyroidism at birth by cord blood TSH .

# सुप्रजा निर्माण हेतू शिशू के IQ को कैसे बढाया जाए?

- 1) Achieving good birth weight : avoid maternal anaemia & PIH
- 2) Avoid premature birth: Avoid maternal anaemia, PIH & infections.
- 3) Prevent growth restriction: Avoid maternal anaemia & PIH
- 4) Prevention of childhood anaemia: Avoid maternal anaemia
- 5) Insuring adequately prolonged breast feeding: Avoid maternal anaemia & counselling
- 6) Avoid childhood infections : avoid anaemia
- 7) Correct mother & baby's vit B12 levels
- 8) Correct mother & baby's vit D3 levels
- 9) Detection of Congenital Hypothyroidism at birth by cord blood TSH estimation.

# Common & Correctable factors for सुप्रजा निर्मिती

- Prevent maternal  PIH, iron deficiency, Vit B12 deficiency, Vit D3 deficiency.
- Detection of congenital hypothyroidism by cord blood TSH
- Prevent infections in pregnancy & childhood.
- Preventing childhood iron deficiency, Vit B12 deficiency, Vit D3 deficiency.

# सुप्रजा निर्मितिके लिए क्या करे और क्यूं करे हो गया. अब रहा सवाल- कैसे करे?

- वैद्यक शास्त्र के तर्क पर खरी उतर सके ऐसी "गर्भावस्था और उसके बाद के Dos & Don'ts की सूचि" बनाकर उसका प्रचार किया जाये.

- इस सूचि में low birth weight, preterm labour & prematurity, pregnancy induced hypertension, anaemia, iron / vit B12 / Folic Acid / Calcium / Vit D3 Deficiency आदिसे बचने हेतु क्या क्या किया जा सकता है इसका तर्क के साथ वर्णन हो.

# कैसे करे?

- गर्भावस्था में लोह(100mg), फोलिक एसिड(5mg), B१२(1.5mg), कल्शियम(1000mg) और D3(1500IU) आवश्यक मात्रा में गोली के रूप में दिए जाये. उन्हें गोली खाने का महत्व समजाया जाये. इसपर प्रबोधनपर काम किया जाये.

- कृमी हटाने हेतु हर छटे महिनेमें Albendazole 400 mg की मात्रा दियी जाये.

# कैसे करे?

- गोली ना खाने वाले गर्भावाती को पहचाननेकी व्यवस्था निर्माण करे.

- उन्हें “DOT-Directly Observed Therapy” या फिर इंजेक्शनसे आवश्यक मात्रा में जरुरी घटक दिए जाने की व्यवस्था हो.

# कैसे करे?

- जन्म के समय नाल से बच्चेका खून लेकर थायरोईड कि जांच कि जाये.
- बाल्यावस्थामें (PNC care programme / school health programme) लोह, फोलिक एसिड, B१२, कल्शियम और D3 आवश्यक मात्रा में गोली के रूप में माता या शिक्षक द्वारा दिए जाये.
- कृमी हटाने हेतु हर बच्चे को प्रति छे महिनेमें Albendazole 400 mg की मात्रा दी जाये.

धन्यवाद