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**Adolescent Health**

## President's Address ■■■



Dear Colleagues,  
I am happy to know that the new issue of the newsletter is on the Adolescent health. It is an extremely important and sometimes neglected area, as this age group is often not seen by either the Paediatrician nor the gynaecologist.

We all know adolescents need many sensitive issues to be addressed – contraceptives and sexual advice, menstrual hygiene and disturbances, hormone imbalance and other issues like ovarian cysts, UTI, Leucorrhoea etc.

We at FOGSI, have done many school programmes, youth summit etc to be able to reach out to the adolescent.

I congratulate Dr. Mala Arora and her team for this excellent newsletter.

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## Chairperson's Address ■■■



Adolescence is the transition to adulthood, this is when the foundation is laid for future reproductive responsibilities. It is associated with behavioural, physical and hormonal changes. Adolescents have special physical and emotional needs, hence adolescent friendly clinics should be initiated to afford confidentiality and non judgemental consultation. Provision of medical consults in school premises and educating peer leaders about where to access safe health services is recommended. Investment in adolescent health reaps dividends in better reproductive health.

**Nutritional** requirements are high due to the growth spurt. Nutritional anaemia is common and gets aggravated in cases with abnormal uterine bleeding. There is a need to enhance the existing adolescent nutritional programs. Iron supplementation programs and awareness about the choosing the right food will help in reducing the prevalence of anaemia. **Supplementing** Vitamin D and calcium will improve bone health. Regular exercise will stabilize mood and help maintain normal BMI. This in turn will reduce the prevalence of polycystic Ovaries.

Adolescent **contraception** awareness is poor and contributes to both teenage pregnancy and reproductive tract / sexual transmitted infections (RTI/STI) There is need to increase awareness about safe sex at the school level and provide easy access to contraception.

**Vaccination** for human papilloma virus (HPV) will considerably reduce the cervical cancer burden and should be integrated with the vaccination against other infective agents.

# Secretary's Message ■■■



**D**ear All !

Adolescents – young people between the ages of 10 and 19 years – are often thought of as a healthy group. Nevertheless, many adolescents do die prematurely due to accidents, suicide, violence, pregnancy related complications and other illnesses that are either preventable or treatable. Many more suffer chronic ill-health and disability. In addition, many serious diseases in adulthood have their roots in adolescence. For example, tobacco use, sexually transmitted infections including HIV, poor eating and exercise habits, lead to illness or premature death later in life.

Adolescents should have Positive connections with supportive people, Safe and secure places to live, to learn, and to play, Access to high-quality, teen-friendly health care, Opportunities for teens to engage as learners, leaders, team members, and workers, Coordinated, adolescent- and family-centered services, as needed.

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*Everything is easy, when you are busy.*

*But nothing is easy, when you are lazy.....*

*- Swami Vivekananda*



# From the Editor's Pen ■■■



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**G**reetings to All!

We present to you yet another issue based on a very important aspect of women health care i.e. 'Adolescent Health'.

Adolescents constitute about one fifth (21.4%) of India's population. They are future building blocks of our nation. Health of an adult depends upon healthy reproductive development and experiences during adolescent years. It is undeniable that a healthy adolescent can blossom into a healthy adult and therefore a healthy parent.

Although adolescents are comparatively healthy i.e. have less chance of infections and other diseases (Non-communicable diseases) as compared to children and old people but, accelerated growth and rapid psychological and emotional changes cause considerable health issues which generally go un-recognized and therefore not addressed properly. Realising the importance of adolescent reproductive health, we have

covered several important aspects of adolescence in this issue.

The issue starts with the current status of various Adolescent health programs in India. Contemporary topics of great clinical interest, such as menstrual disorders and teenage pregnancy have been included. The needs of an adolescent have also been discussed vividly like nutritional needs and cosmetic concerns. Keeping in mind the vulnerability of this group of population, important aspects of adolescent counselling have been effectively summarized. There is also a feature on 'Adolescent Friendly Health Services' as per the need of the hour. Last but not the least, issue ends with journal search of intriguing researches done in the field of adolescent health and an interesting brainteasers section.

On behalf of the Editorial team, I would like to wish happy reading to all of you.

*Yogananda says .....*

*"With the opening of the New Year, all the closed portals of limitation will be thrown open and I shall move through them to vaster fields, where my worthwhile dreams of life will be fulfilled"*

# Adolescent Health Programs in India: The Current status



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## INTRODUCTION

Adolescents (10-19 years) constitute about one fourth of India's population and young people (10-24 years) about 21% of India's population. Adolescence is a significant period for mental, emotional and psychological development. Adolescents suffer significant morbidity caused by risk taking behavior and inadequate access to health care. They face a range of health challenges, including malnutrition and anaemia, lack of knowledge on sexual and reproductive health, substance misuse, communicable and non-communicable diseases, mental health concerns, and injuries and violence (including gender based violence)—all contributing to increased morbidity and mortality not only during adolescence but also later in their lives.

Addressing the health needs of Adolescent Girls leads to a healthier and more productive women force. Definite measures have been to be taken to ensure these rights and also make the girls aware of their duties and responsibilities. We have briefly discussed here about various adolescent health programs in India.

### I. KISHORI SHAKTI YOJNA (KSY)

Kishori Shakti Yojana launched in 2000 under the ambit of Integrated Child Development Scheme, aims at the empowerment and holistic development of adolescent girls by improving their self-perception and creating opportunities for realizing their full potential through Balika Mandals. Adolescent girls who are unmarried and belong to families below the poverty line and school drop-outs are attached to the local Anganwadi Centres for six-monthly learning and training activities.

It has two schemes:

#### a. Girl-to girl approach

Includes girls in 11-15 years age group with income of Rs 6400/year & school dropouts in urban & rural areas. 3 girls selected per Anganwadi for 6 months for learning & training. Initial 3 days training program on personal hygiene, nutrition, preventive health followed by one day every month for 6 months

#### b. Balika Mandal

Includes girls from 11-18 years irrespective of income. 10% of total Anganwadi

centres are selected & 20 girls are selected for 6 months. These girls are provided supplementary nutrition (500 calories + 25 gm of proteins) for 6 days in a week.

Objectives:

- To provide the required literacy and numeric skills through the non-formal stream of education.
- To stimulate a desire for more social exposure and knowledge and to help them improve their decision-making capabilities.
- To improve the nutritional, health and development status of adolescent girls, promote awareness on health, hygiene, nutrition and family care,
- To link them to opportunities for learning life skills, to train and equip the adolescent girls to improve/upgrade home based and vocational skills.
- To help them gain a better understanding of their social environment and take initiatives to become productive members of the society.

### II. NUTRITION PROGRAMME FOR ADOLESCENT GIRLS (NPAG)

This was initiated as a pilot project in the year 2002-03 in 51 identified districts across the country to address the problem of under-nutrition among adolescent girls. Under the program, 6 kg of free food grains per beneficiary per month are given to underweight adolescent girls.

Initially started as a pilot project in 51 districts of the country, it was taken up again as a full project, in 2005-06, to be implemented by the Ministry of Women and Child Development. The scheme was started in 51 backward districts and was restricted to only undernourished adolescent girls. The scheme continues on a pilot project basis. The funds are provided by the central government to the state government in the form of 100% grants. The food is meant to be provided through the public distribution system for no cost to the families identified in this scheme. The scheme targets girl children between the ages of 11 -19 who are less than 35 kgs.

### III. RAJIV GANDHI SCHEME FOR EMPOWERMENT OF ADOLESCENT GIRLS (RGSEAG): SABLA

Both KSY n NPAG schemes had limited financial assistance and coverage besides having similar interventions and catered to more or less the same target groups. Thus, a new comprehensive scheme with richer content, merging the erstwhile two schemes was launched in 2010 that would address the multi-dimensional problems of adolescent girls (AGs). This is implemented using the platform of ICDS Scheme through Anganwadi Centers (AWCs).

Target group: Adolescent girls in age group of 11-18 years.

Objectives:

- Enable the AGs for self-development and empowerment
- Improve their nutrition and health status.
- Promote awareness about health, hygiene, nutrition, Adolescent Reproductive and Sexual Health (ARSH) and family and child care.
- Upgrade their home-based skills, life skills and tie up with National Skill Development Program (NSDP) for vocational skills
- Mainstream out of school AGs into formal/non-formal education
- Provide information/guidance about existing public services such as PHC, CHC, Post Office, Bank, Police Station, etc.

An integrated package of services for AGs as follows-

- Nutrition provision (Supplementary nutrition (SN) containing 600 calories, 18-20 grams of protein and micronutrients, per day for 300 days in a year in the form of Take Home Ration (THR).
- Iron and Folic Acid (IFA) supplementation (convergence with the National Nutrition Anemia Control Program)
- Health check-up (Kishori Diwas) and Referral services
- Nutrition & Health Education (NHE)
- Counseling/Guidance on family welfare, ARSH, child care practices and home management

- vi. Life Skill Education and accessing public services
- vii. Vocational training for girls aged 16 and above under National Skill Development Program (NSDP)

#### IV. BALIKA SAMRIDHI YOJANA:

Launched by Government of India in 1997.

Objectives:

- To change negative family and community attitudes towards the girl child at birth and towards her mother.
- Improve enrollment and retention of girl children in schools,
- Increase the age of marriage of girls and to assist the girl to undertake income generation activities.

Target group: Girl children belonging to families below the poverty line who are born on or after 15th August, 1997. The benefits are restricted to two girl children in a household irrespective of number of children in the household.

Benefits:

- Post birth grant amount of Rs. 500/-
- Eligible for annual scholarships for education according to class

Class	Amount of Annual Scholarship
I-III	Rs. 300/- per annum for each class
IV	Rs. 500/- per annum
V	Rs. 600/- per annum
VI-VII	Rs. 700/- per annum for each class
VIII	Rs. 800/- per annum
IX-X	Rs. 1000/- per annum for each class

Part of the money provided can be put aside for paying the premium on an insurance policy in the name of the girl child under the Bhagyashri Balika Kalyan Bima Yojna. Payment at maturity with interest after attaining 18 years of age. If the girl marries or dies before she is 18 yrs, the amount incurred in interest bearing account will be withdrawn.

#### V. ADOLESCENT REPRODUCTIVE AND SEXUAL HEALTH (ARSH):

This program, launched by Ministry of Health and family welfare has provision of training of all medical officers, health supervisors and health workers under RCH to provide following services to all adolescent married and unmarried girls and boys.

##### I. Promotive services:

- Focused care during antenatal period
- Counselling & provision of emergency contraceptives
- Counselling & provision of reversible contraceptives
- Information/advice on Sexual & Reproductive Health

##### II. Preventive services:

- Services for TT and prophylaxis against nutritional anemia
- Nutritional counselling
- Services for early and safe termination of pregnancy and management of post abortion complications

##### III. Curative services:

- Treatment for common RTI/STIs
- Treatment & counselling of menstrual disorders sexual concerns of males and female adolescents

##### IV. Referral services:

- Integrated Counselling and Testing Centre
- Prevention of Parent to Child Transmission

##### V. Outreach services:

- Periodic health checkups and community camps
- Periodic health education activities
- Co-curricular activities

#### VI. MAHILA SAMAKHYA PROGRAM

The Mahila Samakhya programme was launched in 1988 to pursue the objectives of the National Policy on Education, 1986. It provides equal access to education facilities for adolescent girls and young women. It recognised that education can be an effective tool for women's empowerment, the parameters of which are:

- enhancing self-esteem and self-confidence of women
- building a positive image of women by recognizing their contribution to the society, polity and the economy
- developing ability to think critically
- fostering decision making and action through collective processes
- enabling women to make informed choices in areas like education, employment and health (especially reproductive health)
- ensuring equal participation in developmental processes
- providing information, knowledge and skill for economic independence
- enhancing access to legal literacy and information relating to their rights and entitlements in society with a view to enhance their participation on an equal footing in all areas.

#### VII. THE ADOLESCENCE EDUCATION PROGRAMME (AEP)

Under Ministry of Human Resource Development, National AIDS Control Organisation developed adolescent education program, which focuses primarily

on prevention through awareness building. The AEP is one of the key policy initiatives of National AIDS Control Program-II. Relevant messages on safe sex, sexuality and relationships are developed and disseminated for youth via posters, booklets, panels and printed material.

Objectives:

- Co-curricular adolescence education in classes IX-XI
- Curricular adolescence education in classes IX-XI and life skills education in classes I- VIII
- Inclusion of HIV prevention education in pre-service and in-service teacher training and teacher education programmes.
- Inclusion of HIV prevention education in the programmes for out-of-school adolescents and young persons
- Incorporating measures to prevent stigma and discrimination against learners/ students and educators and life skills education into education policy for HIV prevention.

#### VIII. YUVA-YOUTH UNITE FOR VICTORY ON AIDS

Yuva comprising seven youth organisations, Nehru Yuva Kendra Sangathan, National Service Scheme, Indian Red Cross Society, National Cadet Corps, Bharat Scouts and Guides, Youth Hostels Association of India and the Association of Indian Universities.

Nehru Yuva Kendra Sangathan act as health awareness unit- through active participation of youth.

Goal is to have an "AIDS prepared Campus, AIDS prepared Community and AIDS prepared Country"

Objective: Prevention, education and life skills for promoting healthy and safe behaviour and practices amongst them young people

#### IX. REPRODUCTIVE, MATERNAL, NEWBORN, CHILD AND ADOLESCENT HEALTH (RMNCH+A)

Launched by Ministry of health and Family welfare in 2013. This has been an important step by inclusion of adolescence as a distinct 'life stage' in the overall strategy of Maternal and Child Health program. The priority under adolescent health include nutrition, sexual and reproductive health, mental health, addressing gender-based violence, non-communicable diseases and substance use.

Objectives (Adolescent health):

- Reduce anaemia in adolescent girls and boys (15-19 years) at annual rate of 6% from the baseline of 56% and 30%, respectively
- Decrease the proportion of total fertility



contributed by adolescents (15–19 years) at annual rate of 3.8% per year from the baseline of 16%

Priority interventions:

1. Adolescent nutrition; iron and folic acid supplementation (Iron ki nili goli')
2. Facility-based adolescent reproductive and sexual health services (Adolescent health clinics)
3. Information and counselling on adolescent sexual reproductive health and other health issues
4. Menstrual hygiene ('Free days' sanitary napkins)
5. Preventive health checkups

#### X. RASHTRIYA KISHOR SWASTHAYA KARYAKARAM (RKSK)

launched on 7th January 2014, RKSK reaches out all adolescents including male and female, rural and urban, married and unmarried, in and out-of-school adolescents.

Objective:

- all adolescents in India are able to realise their full potential by making informed and responsible decisions relating to their health and well-being
- promotion and prevention and reaching adolescents in their own environment, such as in schools and communities.
- community based interventions like peer educators and outreach by counsellors.

Interventions:

1. Community based interventions:
  - Peer Education (PE)
  - Quarterly Adolescent Health Day (AHD)
  - Weekly Iron and Folic Acid Supplementation Programme (WIFS)
  - Menstrual Hygiene Scheme (MHS)

#### 2. Facility based interventions

- Strengthening of Adolescent Friendly Health Clinics (AFHC)

#### 3. Convergence

- *Within Health & Family Welfare - FP, MH (including Village Health and Nutrition Day), Rashtriya Bal Swasthya Karyakram, National AIDS Control Program, National Tobacco Control Program, National Mental Health Program, NCDs and IEC*
- *With other departments/ schemes - Woman and Child Development (ICDS, KSY, BSY, SABLA), Human Resource Development (AEP, MDM), Youth Affairs and Sports (Adolescent Empowerment Scheme, National Service Scheme, NYKS, NPYA).*

#### 4. Social and Behavior Change Communication with focus on Inter Personal Communication

#### XI. PROTECTION OF CHILDREN FROM SEXUAL OFFENCES (POCSO) ACT 2012

An Act to protect children from offences of sexual assault, sexual harassment and pornography and provide for establishment of Special Courts for trial of such offences and for matters connected therewith or incidental thereto.

This act covers children less than 18 years of age and defines punishments for sexual offences against children and adolescents below 18 years of age. There is a provision of 'mandatory reporting' of suspected foul play or notice of any such offence against the children covered under POCSO Act.

As per the guidelines of medicolegal examination of a sexual assault survivor issued by ministry of health and family welfare in 2014 a child above age of 12 years can give consent for his or her medical examination.

#### SUGGESTED READING

1. Kishori Shakti Yojana, Ministry of Women and Child development, gov. of India. [wcd.nic.in/kishori-shakti-yojana](http://wcd.nic.in/kishori-shakti-yojana)
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10. Protection of Children from Sexual Offences (POCSO) Act 2012. <http://indiacode.nic.in/amendmentacts2012/The%20Protection%20of%20Children%20From%20Sexual%20Offences%20Act.pdf>

*Yogananda says ...*

*Faithfulness in the performance of small duties  
gives us strength to adhere to difficult determinations  
that life will someday force us to make.*

# AUB In Adolescents



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### INTRODUCTION

The term 'adolescence' is derived from Latin 'adolescere' meaning to grow, to mature and considered as transition from childhood to adulthood. The progression from appearance of secondary sexual characteristics to sexual and reproductive maturity is the marked feature. Adolescents<sup>1</sup> are categorized as:

- Early adolescence (10 -13 yrs): Spurt of growth of development of secondary sex,
- Middle adolescence (14-16 yrs): Separate identity from parents, new relationship to peer groups, with opposite sex and desire for experimentation
- Late adolescence (17-19 yrs): Distinct identity, well formed opinion and ideas

AUB is defined as abnormal patterns of bleeding that is irregular in terms of frequency, amount, and duration. It manifests as menorrhagia, metrorrhagia, menometrorrhagia. This has an incidence of 15% among 15-19 years of age. Adolescence is an important phase in the life of a female for it marks the onset of reproductive capability after menarche; nutritional status defines the health in reproductive age group.

### CASE SCENARIO 1

*A 14 yr old girl, menarche 1 yr back, cycles once in 2-3 months, lasting for 30 days, not associated with pain, associated with passage of clots, changing 5 pads/day, history of 2 units PCV transfusion, on T. Tranexamic acid bd, low dose OCP at present. Patient gives history of multiple clinic visits and taking progesterone orally as well as injections earlier, OCP. There was no AUB history in mother. O/E thin built, anemic, not dyspneic, not in failure, no palpable pathology.*

### DISCUSSION

This is a common scenario we tend to come across in our day to day practice. The repeated evaluations exhaust the kid and make the parent anxious. So the first step in treating AUB in adolescents is understanding the physiology, etiology and reassuring the family.

### PHYSIOLOGY OF MENSTRUATION

Menstruation occurs due to changes in hypothalamo pituitary ovarian axis. GnRH from hypothalamus stimulates FSH from pituitary causing follicular growth. Estrogen levels tend to rise in the follicular phase and bring about endometrial growth. Following

ovulation, corpus luteum is formed and progesterone secretion occurs. Corpus luteum regresses and fall in hormones result in withdrawal of support to endometrium which is shed as menstrual blood. There is another concept of autodigestion of endometrium by enzymatic degradation – matrix metalloproteinases, lysosomes triggered by withdrawal of estrogen and progesterone. Shedding of functional layer and exposure of basal layer of endometrium causes coagulation, reepithelialization and vasoconstriction which arrests the menstrual flow.

### CAUSES OF AUB

In the adolescent group, the maturity of HPO axis takes about 2 years.<sup>2</sup> The immature axis presents with anovulatory cycles which lead to unopposed estrogen exposure and abnormal endometrial hyperplasia, which when shed manifests with excessive bleeding. *Painless bleeding points more towards anovulatory cycles.*

Anovulatory AUB can also be due to endocrine abnormality such as PCOS, hypothyroidism. PCOS commonly presents as oligomenorrhea (87%) and in 26% present with amenorrhea followed by heavy bleeding after normal menstruation for few years. Hyperandrogenism with acne, obesity is rampant among adolescents and incidence of PCOS is on the rise. So PCOS as a cause of AUB needs to be considered.

Hypothyroidism<sup>3</sup> due to altered TRH interference with GnRH causes anovulatory AUB. Hypothyroidism also alters LH response, decrease SHBG and reduce metabolic clearance of estrogen resulting in hyperestrogenic state and endometrial proliferation. 30-50% of hypothyroidism and 5% of hyperthyroidism present with menorrhagia.

While anovulatory cycle happens to be the physiology in this case, there can be other causes to adolescent AUB. 20% adolescents with AUB have bleeding disorders, the most common being von Willebrand's disease, platelet function defects, thrombocytopenia, clotting factor deficiencies (Fig 1). They tend to have family history of bleeding disorders, easy bruisability, very heavy first cycle, rarely endometriosis and hemorrhagic ovarian cysts. 4% cases can present with AUB due to genital tuberculosis. There also occurs a rare possibility of ovarian tumors – granulosa cell tumors and theca cell tumors. Apart from all the causes, adolescent AUB

could be following sexual abuse, pregnancy related complications, PID, STI.

### CASE SCENARIO 2

*A 16 yr old girl with history of menarche at 14 yrs, regular 3/30 cycles earlier. She had amenorrhea for 2 months, 6 months earlier. Blood investigations done, iron tablets started and then patient was given progesterone for withdrawal bleeding. Following which she resumed cycles, irregular, once in 45 days, lasting for 15 days. Patient was given haematinics, tranexamic acid, and progesterone supplementation. She developed severe pain in the present cycle and ultrasound study revealed ovarian cyst. Ovarian cystectomy done. HPE: Benign granulosa cell tumor.*

### DISCUSSION

This case scenario although a rare occurrence shows that AUB need not always be due to anovulatory cycles in the adolescent. Proper evaluation is a must before arriving at a diagnosis and initiating treatment.

Likewise any period of amenorrhea or excess bleeding, needs to be evaluated for pregnancy related causes. Patients with history of sexual abuse, trauma, STI can also present as AUB. A simple urine pregnancy test can help us in identifying the cause and save us from missing out emergency situations like ectopic pregnancy<sup>4</sup>, incomplete abortion, septic abortion, molar pregnancy. PID affects function of ovaries and alters hormone milieu, and the associated endometritis, cervicitis can present with AUB.

Drugs like corticosteroids, digoxin, phenytoin, antidepressants, sedatives, hormones interfere with estrogen metabolism and present with menorrhagia.

### CASE SCENARIO 3

*15yr old girl, with menarche – 1 yr back, regular 5/30 cycles since menarche, menorrhagia in the present cycle for 8 days, 1 episode of giddiness, Hb-8g, afebrile, pallor ++, 1 unit PCV transfused and started on hormones. On day 2 of admission, USG showed features of serositis, and falling platelet count. Attenders then revealed history of fever for 3 days. Diagnosis suggestive of viral hemorrhagic fever.*

### DISCUSSION

In this scenario, patient presented with AUB and was managed for her gynecologic complaint. The history of fever missed out. Menorrhagia in this case was a complication of fever and treatment for the underlying condition was delayed. This points out to



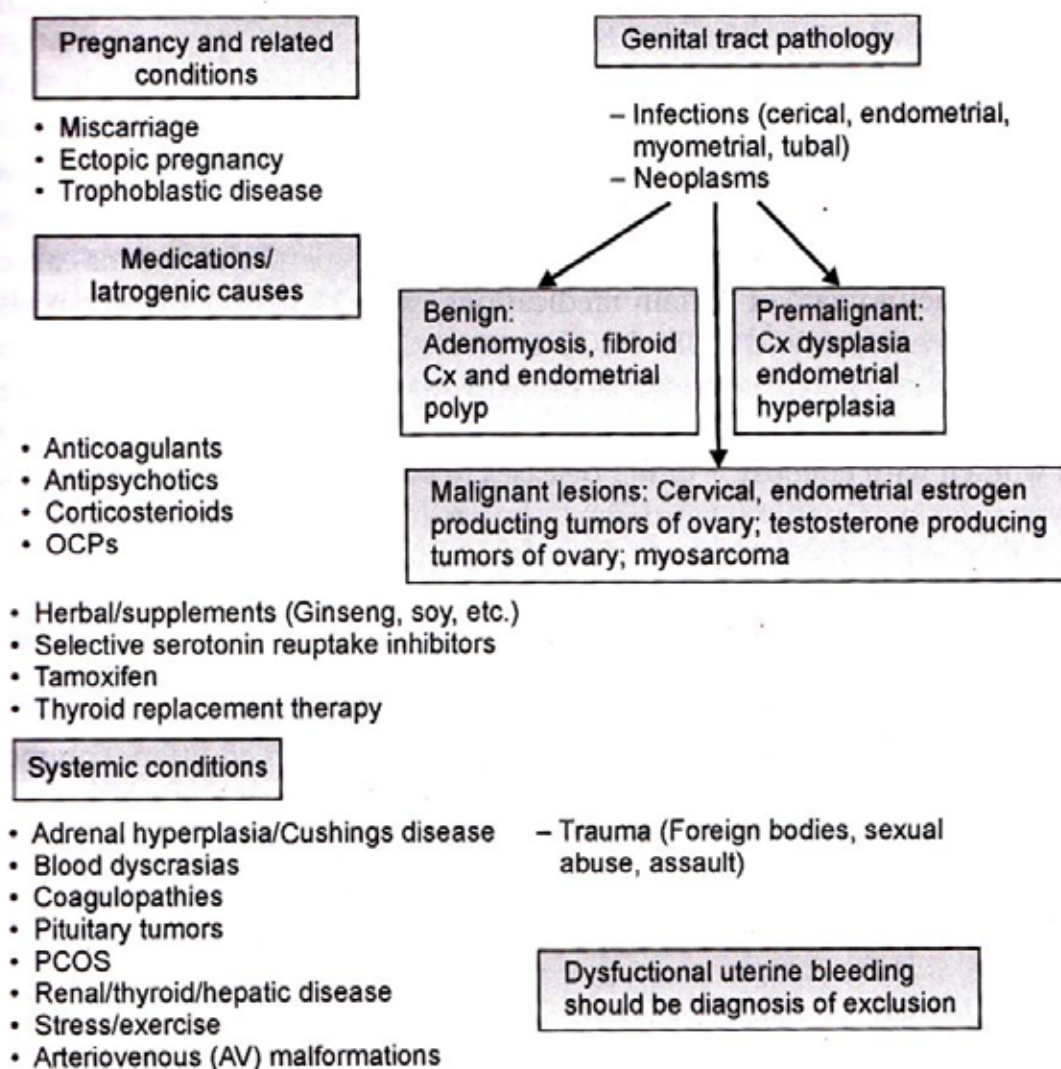


Figure 1: Differential diagnosis of AUB in adolescents

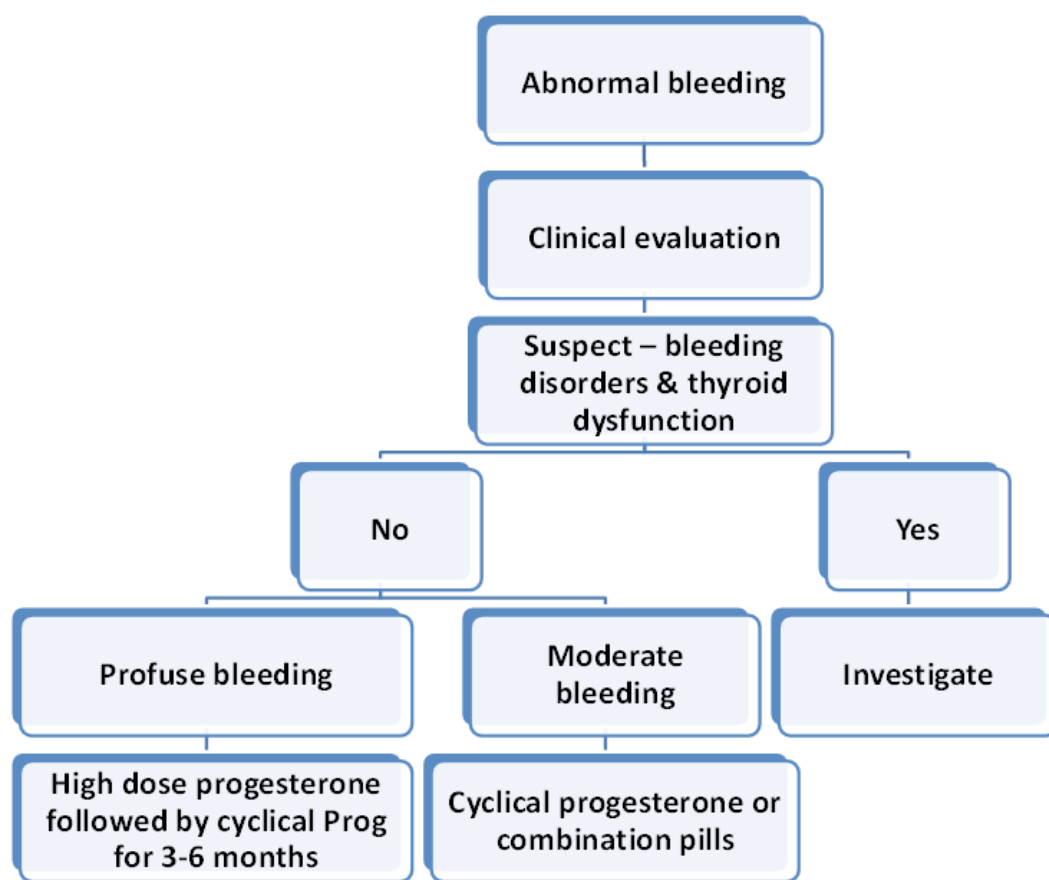


Figure 2: Diagnosis and management

the importance of history taking. As much as treating the condition is important it is also imperative to arrive at the correct diagnosis so as to not lose time in identifying the underlying pathology.

### LABORATORY EVALUATION

History and clinical features help us in identifying the probable cause of AUB. We then proceed with laboratory investigation

to confirm our diagnosis and provide proper treatment to the patient.

The first test to be done in case of AUB irrespective of the age group is **urine pregnancy test**. It is simple, inexpensive and helps to exclude pregnancy related complications. But in the Indian scenario, some parents are unwilling to give consent. The need for the test needs to be explained and proper counseling provided before testing in such cases. It is not advisable to miss the test so as to not hurt the sentiments of the patient.

The next test in the lineup of investigations is **complete blood count**, with hemoglobin, platelet count and peripheral smear. This identifies anemia, thrombocytopenia, and smear study can identify less common conditions like leukemia, hemolytic anemia.

In anovulatory AUB, **TSH** estimation excludes hypothyroidism with normal levels being 0.45 to 4.5, **Serum prolactin**, in case of galactorrhea or headaches.

Coagulation studies indicated when there is heavy bleeding > 7 days that impairs daily activities, history of treatment for anemia, family history of bleeding disorder, bleeding manifestations like gum bleeding, epistaxis. The spectrum includes coagulopathies<sup>5</sup>, platelet abnormality, clotting factor deficiencies, von Willebrand disease. Tests to identify the pathology are **platelet count**<sup>6</sup> **prothrombin time** – extrinsic and final common coagulation pathway, **activated partial thromboplastin time** – intrinsic and common coagulation cascade, **bleeding time** – platelet function. Apart from these test, the presence of von Willebrand's disease in 13% menorrhagia patients justifies the measurement of **von Willebrand factor, factor VIII level**.

Screening for STI infections<sup>7</sup> for **Chlamydia, gonorrhoea** in wet mount is essential if findings suggestive of vaginitis and cervicitis are noted.

When patient presents with features of obesity and hirsutism, evaluation for **PCOS** with pelvic ultrasound is done. Serum FSH, LH tests are not routinely indicated.

Imaging studies are significant to differentiate anovulatory bleeding from anatomical causes. **Pelvic ultrasound** can help to identify PCOS, ovarian tumors and rule out other pathology. USG can also help to identify endometrial thickness.

### CASE SCENARIO 4

18 yr old girl, menarche at 15 yrs, irregular cycles once in 30-45 days, lasting for 8 days, not associated with pain, changing 3 pads per day, subsides without treatment. O/E pt not anemic, obese, no features of hyperandrogenism. She was given reassurance earlier and started on haematinics. Patient concerned of irregular cycles now as her marriage was imminent. Laboratory workup: Hb- 10.5g, TSH <0.01, USG – normal. She was started on T.Eltroxin 100µg. Follow up visit after 3 months revealed regular cycles.

## DISCUSSION

In this case scenario, AUB is in the form of prolonged duration of bleeding, not severe enough to warrant hospitalization or anemia manifestation, rules out bleeding disorder. Painless bleeding suggests anovulatory bleeding. Patient has been menstruating for 3 yrs which lessens the possibility of immature HPO axis. The other possibility being PCOS ruled out as no history of oligomenorrhea, hyperandrogenism or ultrasound abnormality. The next cause – thyroid abnormality, evaluated with TSH reveals hypothyroidism. Treating the hypothyroidism, regularized her cycles.

### CLINICAL CLASSIFICATION

Severity	Duration	Flow	Hemoglobin
Mild	<7 days	Mild to moderate	10-12
Moderate	>7 days	Moderate to heavy	>10
Severe	Disruptive	Heavy	<10

## MANAGEMENT

Goals of treatment of AUB are (Fig. 2) :

- Ensure hemodynamic stability
- Correct anemia
- Resume normal menstrual cycles
- Prevent recurrence
- Prevent long term complications of anovulation: infertility, endometrial cancer

## CORRECTION OF ANEMIA

In mild to moderate anemia, oral iron supplementation with 60mg elemental iron twice a day is advised.

In case of severe anemia, if patient is stable, oral 60mg elemental iron, or parenteral Ferric Carboxy Maltose, or in very severe conditions, blood transfusion is advised.

## HORMONE THERAPY

Estrogen promotes proliferation of endometrium and heals the bleeding sites and brings about haemostasis, whereas progesterone stabilizes the endometrial lining. The dilemma lies in the fact that estrogen causes premature close of growth plates and can be administered only when the adolescent has achieved >95% of adult height.

Monophasic OCP containing 30-35µg EthinylEstradiol and varying progesterone are preferred for most adolescents<sup>8</sup>. OCP continued for a maximum of 3-6 months. One pill 8<sup>th</sup> hourly (tds) till bleeding stops, bd for 5 days, od for 21 days.

Progesterones: 10mg MedroxyProgesterone Acetate daily for last 10-12 days/month, or 5-10mg NorethindroneAcetate, 5-10mg Norethisterone as 4<sup>th</sup> hourly till bleeding stops, 6<sup>th</sup> hourly for 4 days, 8<sup>th</sup> hourly for 3 days, 12<sup>th</sup> hourly for 2 weeks.

Ethinyl Estradiol: 30-35µg qid till bleeding stops, tds for 3 days, bd for 2 weeks. Patients intolerant to oral estrogen may need intravenous conjugated estrogen 25mg 4<sup>th</sup> hourly till bleeding stops upto a maximum of 6 doses. The significant complication with estrogen administration is thromboembolism. Once bleeding controlled switch over to COC for 3 to 6 months.

## NON HORMONAL METHODS

Mefenamic acid: 500mg tds - Inhibits prostaglandin synthetase and reduces bleeding

Tranexamic acid: 1mg tds for 5 days - Anti fibrinolytic drug, reduces 50% blood loss

Alter the balance between thromboxane and prostacyclin, may relieve cramping and reduce flow volume by 20 to 50%<sup>9</sup>

Desmopressin: 0.3µg/kg IV over 15-30 minutes

Severe bleeding:

Hospitalisation is indicated when:

- Hemodynamic instability
- Hb<7g with heavy bleeding
- Symptomatic anemia
- Evaluate for bleeding disorders

Bleeding	Hb	Management
Mild	>11	<ul style="list-style-type: none"> <li>• Reassurance</li> <li>• Iron supplement</li> <li>• Low dose OCP</li> </ul>
Moderate	9-11	<ul style="list-style-type: none"> <li>• Rule out bleeding disorder</li> <li>• Iron</li> <li>• Low dose OCP</li> </ul>

Bleeding	Hb	Management
Severe	7-9	<ul style="list-style-type: none"> <li>• Rule out coagulopathy</li> <li>• OCP</li> <li>• Progesterone</li> <li>• Blood transfusion</li> </ul>

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*"Happiness is an attitude.*

*We either make ourselves miserable, or happy and strong.*

*The amount of work is the same."*

*- Carlos Castaneda*



# Teenage Pregnancy



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## INTRODUCTION

Teenage pregnancy, also known as adolescent pregnancy, has been noticed as a universal problem in all cultures across the world. The United Nations Children's Fund (UNICEF) defines teenage pregnancy as conceiving between the ages of 13 and 19 years old. Pregnant teenagers anticipate pregnancy related issues in a similar way as other women. However, teenage pregnancy has been associated with a range of adverse outcomes, particularly preterm birth, especially in the 13–16 year age group. Whilst teenage motherhood can be a positive experience for some young women, it is often both a marker of social and economic disadvantage at a young age and a cause of further disadvantage, emotional and physical health problems.

Worldwide, not all teenage pregnancy is considered undesirable. Teenage pregnancy in developed countries is usually outside of marriage, teenage pregnancies in developing countries are result of early marriages. Teenage parents are often married, and their pregnancies welcomed by family and society. Teenage pregnancy, irrespective of geographical boundaries is usually outside of marriage and carries a social stigma in many communities and cultures. However, main concern of early pregnancy is its poor social and health outcomes for mother and child.

## THE WORLDWIDE PICTURE

According to WHO, about 16 million girls aged 15 to 19 years and two million girls under the age of 15 give birth every year. Worldwide, one in five girls has given birth by the age of 18. In the poorest regions of the world, this figure rises to over one in three girls. Almost all adolescent births – about 95% – occur in low- and middle-income countries. Within countries, adolescent births are more likely to occur among poor, less educated and rural populations. Perinatal and infant mortality rates are 50% higher among adolescent mothers than women aged 20–29 years. By far the highest rates of teenage pregnancy are recorded in sub-Saharan Africa, where early marriage is more common. Early marriage is also a cultural norm in Indian subcontinents. However, prevalence of this is more in rural areas compared to their urban counterparts. This is mainly due to increased education and

financial background among city teenagers. By contrast, the lowest teenage birth rates among the world have been reported in well developed Asian nations such as Singapore and Korea. Indonesia and Malaysia have also shown sharp decline in early miscarriage and pregnancy rate, although it remains relatively high. In Europe, however, number of teenage births has decreased.

## FACTORS CONTRIBUTING TO TEENAGE PRGNANACY

Poverty and social deprivation are primarily associated with pregnancy at very young age. A number of social factors have been associated with an increased risk of teenage pregnancy and teenage pregnancy itself has also been linked to an increased risk of a number of adverse social outcomes. However, teenage pregnancy rates vary significantly between different countries, and similarly the social factors associated with teenage pregnancies also vary. There are multiple risk factors for early pregnancy:

- Social deprivation
- Lower socioeconomic group
- Low educational achievement
- Having had teenage parents
- Being in the care of social services
- Poor transition from school to work at 16 years of age
- Sexual abuse
- Mental health problems
- Crime

### *Social deprivation*

Younger people from financially underprivileged are 6 times highly prone to be teenage mothers compared to their counterparts from well-to-do families. Teenagers from laborer backgrounds are 10 times more likely to become pregnant during their early twenties and are much less likely to seek termination of pregnancy from skilled professionals.

### *Low educational levels*

Women who had below average educational achievement at ages 7 and 16 years old also have a significantly higher chance of becoming a teenage mother. Young fathers are also more likely to come from lower socioeconomic groups and have lower

educational achievement. The relationship of low educational achievement to higher rates of teenage pregnancy remains even when adjusted for socioeconomic status. School excludes, truants and young people underperforming at school are some of the responsible factors.

### *Teenage parents*

There is evidence that children of teenage mothers are more likely to give birth at very young age.

### *Socioeconomic deprivation*

There is strong correlation between teenage pregnancy and poor socioeconomic condition. Domestic violence, homelessness, being involved in crime, living in or leaving care home are associated with teenage pregnancy.

### *Others*

Being in the care of social services, Poor transition from school to work at 16 years of age, Sexual abuse and mental health problems also contribute to teen pregnancy.

## IMPACT OF TEENAGE PREGNANCY

### *Gynecological immaturity*

Gynecological immaturity undoubtedly predisposes adolescent girls to poor pregnancy outcomes. Obstetrics risks are related to physiological immaturity, poverty, and growth and nutritional status of the mother.

There is a common belief that teenage mothers are more likely to experience fetopelvic disproportion as consequence of incomplete development of bony pelvis. This is a misconception. Lubarsky and colleagues demonstrated no increased of prolong labour or operative deliveries.

### *Impact of pregnancy on teenage*

A number of negative outcomes have been associated with teen pregnancies, including preterm delivery, low birth weight, small for gestation and increased neonatal mortality.

## RISK ASSOCIATED WITH TEENAGE PREGNANCY

Maternal and parental health is of particular concern among teens that are pregnant or parenting. The worldwide incidence of premature birth and low birth weight is



higher among adolescent mothers.

- Premature delivery
- Small-for-gestational-age infants
- Low birth weight
- Increased neonatal mortality
- Anemia
- Pregnancy-induced hypertension
- Postnatal depression
- Sexually transmitted infections
- Offspring of adolescents have:
  - Poorer cognitive development
  - Lower educational attainment
  - More frequent criminal activity
- Higher risks of abuse, neglect and behavioral problems during childhood

#### **Antepartum**

Risks for medical complications are greater for girls aged under 15. There is increased risk of PIH, pre-eclampsia and eclampsia among teenagers compared to older age groups. Many pregnant teens are at risk of nutritional deficiencies from poor eating habits common in adolescence, which results into anemia. Nutritional deficiency also results from their tendency to lose weight, skipping meals and inadequate amount of fresh fruits and vegetables in their diet.

The prevalence of sexually transmitted infections (STIs) is increasing and presents a particular problem in teenagers. A recent study in the USA revealed that 1 in 5 teenagers have an undiagnosed STI. In addition, 1 in 8 teenagers attending a family planning clinic in Nottingham, in the UK, had an STI.

Alcohol, substance misuse and smoking is common in adolescents. A UK survey of alcohol, tobacco and illicit drug use in teenagers aged 15 and 16 years reported that 36% smoked cigarettes and that levels of smoking were higher in girls than boys. Furthermore, girls who have had a teenage pregnancy are more likely to have smoked than those who have not conceived as teenagers. Smoking during pregnancy is also known to be associated with an increased risk of placental abruption, preterm premature rupture of membranes, preterm birth, stillbirth and sudden infant death syndrome.

#### **Intrapartum**

Preterm labour, prolonged labour, obstructed labour and birth injuries are common intrapartum complications. Preterm labour is mainly due to increased risk of urogynecological infection in these girls.

#### **Postpartum**

Postnatal depression and difficulties with breast feeding are major postnatal concerns. Pre-existing anemia leads to PPH and precipitates further anemia. Puerperal sepsis is another area of worries due to anemia and poor hygiene.

#### **Perinatal**

Prematurity, low birth weight and small for gestation are linked to high perinatal and neonatal mortality and inadequate child birth.

#### **Maternal mortality**

Teenage pregnancy related maternal mortality is more common in developing country than well developed countries. Most deaths among this group is related to increased risk of ectopic pregnancy, hypertensive disorder or thromboembolism. In developing countries, maternal mortality among pregnant teenagers is 70,000 each year. Risk is almost doubled in group aged 15-19 years than those between 20 and 24. And this can be as high as 5 times in girls under 14. Unsafe abortion, home deliveries and puerperal sepsis are major contributors to teenage deaths.

### **MANAGEMENT**

#### **General measures**

In order to improve pregnancy outcome, it is desirable that that teenage mothers receive supportive care and are directed towards the social support they need. Focus should be on smoking cessation and attendance at an antenatal clinic should be encouraged. In addition, effective postnatal counselling, particularly regarding contraception, can help prevent subsequent pregnancies and STIs.

#### **Termination of pregnancy and Adoption**

Teenage pregnancies, especially those outside the marriage lead unsafe abortion owing to social stigma and lack of safe abortion services. Teenage pregnancy is often viewed as unplanned and unwanted. Poor knowledge, lack of awareness and accessibility to health services, lack of privacy and confidentiality and lack of counseling skills are the main reason that adolescents use limited health services.

Termination is very commonly performed in these circumstances. Teenagers are more likely to have later terminations, are more likely to resort to unskilled practitioners and dangerous methods and, when complications do arise, they are more likely to present late.

Termination and adoption are options that should be available to pregnant teenage girls. While many of the teenage pregnant girls, who have become pregnant within marriage, choose to continue pregnancy, it is imperative that every effort is made to encourage pregnant teenagers to access antenatal care.

#### **Antenatal care**

Adolescents should be encouraged to attend for antenatal care from an early stage as attendance is frequently poor. This is an opportunity to offer advice on nutrition and adverse habits such as smoking and alcohol use. Social support is just equally important. Information should be in such a format that it

is easy to understand as significant teenagers have limited literacy.

#### **Intrapartum care and delivery**

Management is usually same as other mature women. However, extra care is needed as there is an increased likelihood of preterm delivery, prolong or obstructed labour and small for gestation.

#### **Postnatal management**

Teenage mothers are more likely to have unhealthy habits that place the infant at greater risk of inadequate growth, infection and chemical dependence. This is the best period to provide them education from obstetricians. Unlike other women they are less likely to receive financial and child support from child's biological father. Not only that they are unlikely to complete their education. Therefore, it is vitally important to provide them independence, financial security and contraceptive advice.

### **PREVENTING TEENAGE PREGNANCY**

#### **Primary prevention**

Teenage pregnancy is a social problem. Considering teenage pregnancy in terms of negative social outcomes consideration should be given to a social problem and strategies to try to reduce teenage pregnancy rates should be developed. Main area of focus should be on to develop programs which include: education, improving access to contraception, education for parents and their families, multicomponent prevention and youth development.

Primary prevention focuses on sexual education in schools. However, Child and youth development programs that seem to be particularly successful if combine the following elements:

- Learning support for those who are struggling academically
- Relationship skills development
- Parental involvement
- Work experience opportunities, volunteering, and out of school activities
- Support for those experiencing family breakdown and conflict

#### **Secondary Prevention: Contraception**

Secondary prevention is mandatory and directed at teenagers who are already sexually active, through the use and provision of contraception.

- Condoms are the most widely used contraceptive in adolescence but teenagers are relatively poor users of both barrier and hormonal contraceptives. Condoms give them double protection; against STI and unplanned pregnancies.
- The combined use of condoms plus the contraceptive pill ('double Dutch') is probably the most effective option.

- Long-acting contraception is not widely used and may help to reduce teenage pregnancy but it does not protect against STIs
- Emergency contraception should not be used as an alternative for a regular form of contraception and it does not protect against STIs, but it has the potential to prevent most unplanned adolescent pregnancies.

Easy access to health care services, free transportation, cheap or free and safe availability of contraceptive services and confidentiality are of the paramount importance.

## CONCLUSION

Regardless of marital status, teenage pregnancies are at potential risk of serious physical, psychological and social consequences. While there is no evidence to date of medical interventions that can specifically improve pregnancy outcome, the obstetrician providing care for women in this age group should be aware of the potential challenges. Antenatal care should be tailor-made to the individual needs of this group, particularly with regard to encouraging early and regular antenatal attendance, smoking cessation programs, counseling regarding the risk of STIs, social support and future contraception.

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*Leaders become great  
not because of their power but,  
their ability to empower others.*

*- John Maxwell*



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### INTRODUCTION

Poor nutrition starts before birth, and generally continues into adolescence and adult life and can span generations. Chronically malnourished girls are more likely to remain undernourished during adolescence and adulthood, and when pregnant, more likely to deliver low birth-weight babies. Epidemiological evidence from both developing and industrialized countries now suggests a link between fetal under-nutrition and increased risk of various adult chronic diseases (ACC/SCN, 2000).<sup>1</sup> Nutrition challenges continue throughout the life cycle, particularly for girls and women.

It is thus imperative to prevent malnutrition at every stage of the life cycle. However, not much attention has been paid to adolescents by nutrition-related programs in developing countries. If adolescents are well nourished, they can make optimal use of their skills, talents and energies today, and be healthy and responsible citizens and parents of healthy babies tomorrow. To accomplish such a task, and in order to break the intergenerational cycle of malnutrition, a special focus for overcoming adolescent malnutrition is needed.

### ADOLESCENCE: NUTRITIONALLY CRITICAL PERIOD

Research evidence suggests that optimal nutrition during the brief period of pre-pubertal growth spurt, some 18 to 24 months immediately preceding menarche, results in catch-up growth from nutritional deficits suffered earlier in life.<sup>2</sup> During adolescence, the relatively uniform growth of childhood is suddenly altered by an increase in the velocity of growth. Growth is faster than at any other time in the individual's life except the first year.<sup>3</sup> Over 80% of adolescent growth (attained weight and height) is completed in early adolescence (10-15 years), with a marked deceleration in weight and height velocity in the post-pubertal phase.<sup>4</sup>

This adolescent growth spurt is also associated with cognitive, emotional and hormonal changes. There may be socio-cultural factors or change of lifestyle and food habits of adolescents that can affect both nutrient intake and needs. Growing adolescents have increased nutrient requirements during pregnancy and illness.<sup>5</sup> Psychological changes and development of

their own personality can impact on their dietary habits during a phase when they are very influence-able.<sup>6</sup>

A balanced diet during childhood and adolescence is crucial not only for the well-being and growth of the child, but also for the establishment of sound dietary habits that will persist in later life. Adequate intake of energy and macronutrients has an essential role in the overall physical growth of the adolescent. On the other hand, vitamins and minerals have specific individual and synergistic roles in supporting metabolic function (B vitamins), bone mineralization (calcium), hemoglobin production (iron), and growth (zinc). Micronutrient deficiencies (MNDs) such as vitamin A deficiency (VAD), iron deficiency anemia (IDA), and iodine deficiency disorders (IDDs) have been major nutritional problems in developing countries, adversely affecting adolescents' health and performance, and thereby becoming major impediments to economic development.

In India, these MNDs continue to be of public health significance. Nearly half of the world's micronutrient-deficient population is found in India. Moreover, factors that sought to reduce the macro- and micronutrients intake of adolescents could be unequal intrafamilial distribution of food and adverse and harmful dietary practices including dieting, specific food taboos, and dietary restrictions. Poor nutrition among adolescents leads to short stature. Also, low lean body mass is associated with many concurrent and future adverse health outcomes. Thus, achievement of optimum growth during this period should be of utmost importance for maintaining good health thereafter. Early detection of the morbidities through regular survey helps in prompt treatment and prevention of serious complications.

### ENERGY AND PROTEIN REQUIREMENTS

Adolescence is an important time for gains in height as well as weight. While both muscle and fat increase, girls gain relatively more fat, and boys gain relatively more muscle. Thus, the requirement of energy as well as proteins increases considerably during this period. Energy and protein needs correlate more closely with the growth pattern than with the chronological age.<sup>2</sup> The peak in energy and protein requirements coincides with the peak in growth of adolescents. Actual needs also vary with physical activity. Therefore, monitoring weight and height and body mass

index [BMI (weight/height<sup>2</sup>)] is essential to determine the adequacy of energy intake for individual adolescents.

### MINERAL AND MICRONUTRIENT REQUIREMENTS

Minerals play a crucial role in adolescent nutrition. Adolescents, at the peak of their growth velocity, require large quantities of nutrients. The increment in skeletal mass, body size and body density, associated with pubescence, highlights the role of minerals in the growth process. The role of iron, calcium, iodine and zinc in the growth and nutrition of adolescents is explained briefly below.

#### *Iron*

Iron requirements peak during adolescence due to rapid growth with sharp increase in lean body mass, blood volume and red cell mass which increases iron needs for myoglobin in muscles and haemoglobin in blood.<sup>7</sup> After the growth spurt and sexual maturation, there is a rapid decrease in growth spurt and need for iron.<sup>8</sup>

Iron requirements in adolescence are greater in developing countries because of infectious diseases and parasitic infections that can cause iron loss, and because of low bio-availability of iron from diets.<sup>9</sup> Other benefits of iron for adolescents are improving cognition which leads to better academic performance that may be an incentive for girls to remain in school.

#### *Calcium*

Dietary calcium has been identified as a nutrient of great potential concern for adolescents.<sup>10</sup> The adolescent years are a window of opportunity to influence lifelong bone health. Because of the accelerated muscular, skeletal and endocrine development, calcium needs are greater during puberty and adolescence than in any other population age group except pregnant women.<sup>2</sup> At the peak of the growth spurt, the daily deposition of calcium can be twice that of the average between 10 to 20 years.

Consumption of calcium rich products with every meal goes a long way towards ensuring that requirements are met for calcium and many other nutrients e.g., phosphorus, magnesium and vitamin D needed for bone health.

#### *Zinc*

Zinc is known to be essential for growth



and sexual maturation during puberty. It enhances bone formation and inhibits bone loss. Limited intake of zinc-containing foods may affect physical growth as well as development of secondary sex characteristics.<sup>11</sup>

#### **Iodine**

Iodine is important during adolescence for two reasons. These are the high growth velocity of adolescents, and the increased iodine requirements during pregnancy. As a large percentage of adolescent girls get married early and bear children during adolescence, their requirements for iodine increase to provide for their own growth as well as for the needs of the foetus. Severe iodine deficiency in children results in learning disability and lowered achievement.<sup>12</sup> In fact, even moderate iodine deficiency can lead to loss of 10-13 IQ points. Iodine deficiency during pregnancy has been associated with increased incidence of miscarriages, still births, birth defects and mental retardation, and if severe, may result in cretinism in the offspring.<sup>13</sup>

#### **Other minerals**

Although the roles of other minerals in the nutrition of adolescents have not been studied extensively, the importance of magnesium, phosphorus, copper, chromium, cobalt and fluoride is well recognized. The possibility of interactions among these nutrients cannot be overlooked.

### **VITAMIN REQUIREMENTS**

The requirements for vitamins are also increased during adolescence. Because of higher energy demands, more thiamine, riboflavin and niacin are necessary for the release of energy from carbohydrates. The increased rate of growth and sexual maturation increases the demand for folic acid and vitamin B-12.<sup>10</sup> With increasing evidence of the role of folic acid in the prevention of birth defects, all adolescent girls of childbearing age should be encouraged to consume the recommended amount of folic acid from supplements in addition to intake of food folate from varied diet. The

Center for Disease Control and Prevention recommend 400 mcg of folate for all females of childbearing age. The rapid rate of skeletal growth demands more vitamin D. Vitamins A, C, and E are needed in increased amount for new cell growth. Adolescents' vitamin needs are also associated with the degree of maturity rather than chronological age because of demands of growth.

### **RECOMMENDATIONS**

A periodical and regular health check-up with concerted efforts toward their nutrition, along with focused health education will improve the health and nutritional status of these school-going adolescents. There is a need for the sensitization of adolescents and their parents through health and nutrition education (HNE), information education, and communication (IEC), and appropriate behavioral change communication (BCC) activities. Socioeconomic status of any family depends primarily on the per capita monthly income, which in turn is related to the family size; therefore, there is a need to encourage people to adapt small family norms to combat with nutrition deficiency.

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*"There are two primary choices in life:  
to accept conditions as they exist,  
or accept the responsibility for changing them."*

*- Denis Waitley*

# Adolescent Counseling: How Well Versed We Are?



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## INTRODUCTION

Adolescence is the threshold between childhood and adulthood. It is a period of rapid change in both the external and internal environment of the individual. External environment consists of social, cultural and familial while the inner environment consists of the awareness of one's sexuality, the associated physical changes, the change in psychology and cognition. Needless to say, it is a time that brings curiosity and excitement on the one hand but anxiety and confusion on the other.

In a country like India, where adolescent girls are one-tenth of the population, the situation is further complicated by a rapidly changing social and economic situation. Ours is patriarchal society where the girls are discriminated against and required to play multiple roles. This leads to a serious compromise on their physical, mental and emotional health which can lead to long-term effects.

They have many questions and concerns about what is happening to their bodies but they are unable to share their questions and concerns, and do not seek answers from competent and caring adults. Many of the adolescent problems are due to incorrect information, lack of communication and due to inaccessible health services. These problems can be effectively handled by proper counseling.

## WHAT DOES COUNSELING MEAN?

In its most literal sense means one person trying to help another as they talk person-to-person. It confidence to put their decisions in practice. It requires good communication skills especially with adolescents who are likely to be intimidated, defensive and even resistant during the session.

They are acutely self conscious with a limited perspective of the future and limited understanding of abstract concepts hence leading to the need for patience and understanding on the part of the counsellor.

## ROLE OF GYNAECOLOGIST

Gynecologists may have direct interaction with adolescents due to some menstrual problem or problems related to pregnancy, indirect interaction can be through the mothers/guardian of adolescents. Health

care providers can help healthy adolescents to stay that way and help those with health problems get back to good health. They can:

- Provide them with information, counseling and clinical services aimed at helping them maintain safe behaviors and modify unsafe ones (i.e. those that put them at risk of negative health outcomes)
- Diagnose/detect and manage health problems and behaviors that put them at risk of negative health outcomes; and can refer them to other health and social service providers, when necessary.
- Help community leaders and members understand the needs of adolescents, and the importance of working together to respond to these needs.

## PROVIDERS ATTRIBUTES

The provider should be trained, dedicated personnel with adolescent friendly characteristics as he/she should:

- Be welcoming and friendly,
- Be knowledgeable & presentable
- Have good communication skills
- Maintain confidentiality and privacy
- Be punctual
- Be understanding
- Be a good listener
- Be non-judgmental

## COUNSELING APPROACH

One can use the GATHER approach. (G: Greet, A: Ask about the issue bothering him/her, T: tell all the options, H: help her choose one, E: Explain her regarding the chosen option, R: Return for follow up.)

1. **Establish rapport (Greet)** - It is essential to start the session in a polite, friendly and helpful way. The clients should be given full attention; one may explain the course of the visit in brief in the beginning.
2. **Create an appropriate atmosphere (Greet)** - one should always start with *non-threatening* questions on the background of the client, for example, questions about school, friends and how she spends her time during the day.
3. **Maintain confidentiality (Ask)** - the client should be reassured of *confidentiality*

and the session must be carried out as a *one-to-one*. The parent or guardian accompanying the adolescent also needs to be addressed and this can be done either at the beginning of the session or at the end of the session in the presence of the adolescent.

4. **Obtain complete information (Ask)** - one should ask the relevant questions in a leading manner, without being intrusive or forcing any information. One may begin with asking them their reasons for coming, help them define their problems and express their feelings and needs.
5. **HEADS Assessment (Ask)**- Adolescents may not volunteer information about a health problem or concern because they may be embarrassed or scared to do so, or because they may not be comfortable either with the health worker or the situation they are in. The HEADS assessment is structured- it starts by examining the home and the educational/employment setting. It then goes on to eating, and then to activities. Only then does it deal with more sensitive issues such as drugs, sexuality, safety and suicide/depression.

HEADS is an acronym for

- Home
  - Education/Employment /Eating
  - Activity
  - Drugs
  - Sexuality /Safety /Suicide
6. **Recognize and adjust to barriers in doctor-patient communication(Tell)** - non-verbal communication also plays a role and one must try to avoid negative non-verbal signs, like interrupting the session to attend to other matters or phone calls, appearing distracted, referring to notes etc.
  7. **Decision making (Tell/Help)** - the clients should be given clear, accurate, specific information regarding their choices in the course of the session. The information should be tailored and personalized and the client should be helped to understand the nature of the choice. The counsellor should take special care, especially in matters of sexual behavior, to not to project ones' own opinions and inhibitions in the process of decision making.



8. **Implementation/ explain** – at the end of the session one must summarise the key points and explain the client regarding the instructions and how they must be followed. All medical advice should be given while explaining the basis for it so that the client understands the need to follow it effectively.
9. **Physical examination** – the physical examination should be carried out after a level of comfort has been established. The client should be explained need and the procedure. The client should be appropriately draped. One should try and maintain conversation while the examination is being conducted. Examination of breasts and genitalia must be carried out gently and normal stages of development may be explained so the client is reassured if everything is normal.
10. **Age appropriate counseling-** The health care provider should further acknowledge that adolescence is not a homogenous phase and while early adolescents(10-14 yrs) might have different needs as compared to mid(15-17 yrs) and late adolescence(above 17 yrs). The counsellor should be sensitive to the young person's development level Those in early adolescence may have issues regarding body image and growth and development, while those in late adolescence may have issues regarding intimacy.
11. **Parental/Guardian counselling-** The parent or the guardian accompanying the adolescent should also be counseled either in the beginning or preferably at the end of the session taking the adolescent in confidence.

## COMPONENTS OF ADOLESCENT COUNSELING

- Prevention of anemia and other nutritional deficiency.
- Adolescent Growth, Development and nutrition monitoring and counselling:
- Personal Hygiene and Menstrual Hygiene
- Sexual issues
- Unwanted adolescent pregnancy and unsafe abortion
- HIV/AIDS
- Body Image Issues
- Immunization
- Issues like literacy; pre-marital counselling and gender bias depending on the social and cultural background of the client.

## CHALLENGES IN ADOLESCENT COUNSELING

1. **The client is silent.** Silence can be sign of shyness or may signify anger or anxiety.
  - If it occurs at the beginning of a session the provider can say, "I realize it's hard

for you to talk. This often happens to people who come for the first time."

- If s/he seems angry the counselor can say, "Sometimes when someone comes to see me against her/his will and doesn't want to be here it is difficult to speak."
  - If the client is shy the provider can legitimize the feeling by saying, "I'd feel the same way in your place. I understand that it's not easy to talk to a person you've just met."
2. **The client cries.** The counselor should try to evaluate what provoked the tears
    - If the crying is consistent with the situation the counselor should allow her/him to freely express emotions and not try to stop the feeling or belittle its importance.
    - If the Client is crying to relieve tension the counselor can say "it's okay to cry since it's the normal thing to do when you're sad."
    - If the Client is using crying as manipulation the counselors can say "Although I'm sorry you feel sad. It's good to express your feelings."
  3. **The counselor cannot see a solution to the client's problem.**
    - Counselors may feel anxious if they are not sure what to advice. Express understanding. Sometimes this is what the client really wants. Suggest others who could help.
  4. **The counselor does not know the answer to a client's question.**
    - Say honestly and openly that you do not know the answer but together you can find out. Check with a supervisor, a knowledgeable co-worker, or reference materials, and give the client the accurate answer.
  5. **The counselor makes a mistake.**
    - Correct the mistake and say you are sorry. It is important to be accurate. It is not important to look perfect. Admitting a mistake shows respect for the client.
  6. **Counselor and client already know each other.**
    - Emphasize confidentiality and ensure privacy.
    - If the client wishes, arrange for another counselor.
  7. **The client asks a personal question.**
    - In general, try not to talk about yourself. It takes attention away from the client.
    - You do not have to answer personal questions. The relationship between client and counselor is a professional one, not a social one.

## 8. The client threatens to commit suicide

- *All suicide threats or attempts must be taken seriously.* It is essential to determine if attempts were made in the past, s/he is really considering suicide and the reasons for doing so-or if it's something that was said without thinking. Best to refer to a psychiatrist or psychologist and accompany her/him to the appointment.

## 9. The client wants the counselor to make the decision

- This client may actually be asking for help. You can say, "I can answer your questions and help you think about your choices, but you know your own life best. The best decisions will be the decisions you make yourself."

## TIME REQUIREMENT FOR COUNSELLING

Usually 30 minutes are sufficient for the initial interview first 5 minutes can be spent with parent and the adolescent, then 10 minutes with teenager for exploring, 10 min for examination and 5 minutes for treatment. In follow up visits 15 minutes are sufficient. For complex psychosocial problems, two or three 30 minutes sessions, one week apart are more productive than one long session. This way, both the adolescent and the health care provider can look back and think about their assessment and responses given in the previous session.

## ADOLESCENT FRIENDLY HEALTH SERVICES

Crowding and absence of dedicated space for adolescent counselling can be a significant hurdle in establishing rapport between the counsellor and the client. Hence, it is essential to make the center an Adolescent friendly health centre. This can be done by guiding and training the staff involved, dedicating adequate space which is quiet and ensures privacy with a positive atmosphere. Various charts highlighting the services provided for adolescents and educational charts may be used. An adolescent health card which monitors growth, provides guidelines regarding diet can be provided. Cards and various tools may also be provided giving guidance regarding when a health care personnel should be approached, especially in matters of reproductive and sexual health to avoid delay in the clients seeking care. These services should provide comprehensive healthcare to adolescents that includes preventive, promotive care besides treating the biomedical illnesses and counseling

## CONCLUSION

As a society and as individuals, we now identify adolescence as an important time in a persons' life. A health care provider as a counsellor for adolescents must have a sincere fondness for youth, the willingness to lend an ear, be nonjudgmental and the



courage to be honest and fair. The health care provider should also be well informed and a good communicator with the ability to engage the adolescents interest. Adolescent counselling, if conducted with enthusiasm, in a dedicated manner and on a large scale could go a long way in improving the health of our adolescents, ensuring a healthy future for the people and the society.

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*"Adolescence Represents An Inner Emotional Upheaval,  
A Struggle Between The Eternal Human Wish To Cling To The Past and  
The Equally Powerful Wish To Get on with The Future."*

*- Louise J. Kaplan*

# Cosmetic Concerns of Adolescents



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### INTRODUCTION

Rosie Weitz writes in Rapunzel's Daughters.....

*"Only when all girls and women are freed from stereotypical expectations about our natures and abilities will we also be freed from the bonds of the beauty culture".*

A hard euphemism to keep up to for the Adolescents who experience during puberty a time of rapid physical, psychosocial and mental growth and development, with increases in height, weight, lean muscle mass, fat, organ size and bone density.<sup>1</sup> These significant changes render them more likely to experience highly conflicting perceptions of their body image which are strongly influenced by self-esteem, peer and parental opinion and the all consuming societal standards of appearance and attractiveness.

According to current psychiatric nosology, there is a condition known as body dysmorphic disorder. Patients with this condition may be inordinately distressed by or preoccupied with a minor or even nonexistent cosmetic concern. There is an overwhelming prevalence of thin, fair and lean female images and strong and lean male images common to all westernized societies spewing from every corner. Widespread influence of the media including books, magazines, music videos, TV billboards, and the internet, body image concerns have become widespread among adolescents.

### GLOBAL SCENARIO

Statistics from the American Society of Plastic Surgeons (ASPS) reported 230,000 cosmetic procedures carried out in under 18 year olds in 2011, majority of these were nonsurgical –laser hair removal, chemical peels, micro-dermabrasions, and Botulinum toxin A.<sup>2</sup> 26% of all procedures were surgical like rhinoplasty, otoplasty, breast reduction and breast augmentation which was most common amongst all.

A cross sectional survey done by Jia Hui Ng et al in Singapore among Junior school and medical students offers some insights into the attitudes and extent of knowledge on cosmetic procedures among school and medical students in Singapore.<sup>3</sup> The findings of this study suggest that the younger population is increasingly accepting of cosmetic procedures. However, there is a general lack of understanding concerning the risks associated with these procedures.

Limited research has been done on this subject in India and in the Asian context. There have been occasional reports (Times of India 2009) of increase in the demand for cosmetic surgery. Gynecomastia correction was the most common surgery performed in adolescent boys in India followed by laser hair removal for hirsutism and dermabrasion for acne in girls with Polycystic Ovarian Syndrome (PCOS).<sup>4</sup>

### PSYCHOSOCIAL DETERMINANTS OF BODY IMAGE

Studies conducted over the past several decades have revealed adolescence as a time of particularly notable morphological and functional transformations in the brain that, along with increasing hormone levels and other biological changes, interact with cultural, economic, and psychosocial forces to shape how adolescents think, feel, and behave.<sup>5</sup>

A cognitive lag along with emotional overdrive which supersedes the inhibitory control is a hallmark of the adolescent behavior. Body image perception with an interest in cosmetic surgery in general has been found to be related to various psychological constructs, such as personality features, self-esteem, self-assessed attractiveness, and body dysmorphic disorder-like symptoms.<sup>6</sup> Adolescents need to learn and know, that what is happening to their bodies is normal and expected.

Sociodemographic variables such as teasing history, knowing someone who has had cosmetic surgery, having been recommended cosmetic surgery, education, and quality of relationship with parents are among other important determinants among adolescents

### CONSEQUENCES

While the contributing factors may vary, the outcomes are similar.<sup>7</sup> Over concern with body image and shape can lead to

- Restrictive dieting and unhealthy weight control methods which may lead to severe deficiencies and loss of immunity
- Disordered eating behaviors and depression
- Prejudicial treatment of overweight individuals or teasing based on weight and shape.

- Undergoing surgeries without fully understanding the associated risks.

### SCREENING/ASSESSMENT

It is prudent to screen all adolescents seeking cosmetic surgery for body image issues. A preoperative psychological evaluation and counseling should be done for all with full parental consent and explanation of risks

- Listen to adolescents talk about their health or about any particular health concern
- Do a psychosocial screen
- Determine if their concerns may be body image related or affecting their behaviors.
- Adolescents may talk about wanting to lose weight or ask for weight loss advice; seize the opportunity to discuss body image, healthy weight and shape, media influences on youth, etc.
- Assess physical maturity
- Encourage involvement of parents in decision making.
- Explain the risks of anesthesia.
- Explain the natural growth pattern of adolescent bodies and how the procedure may interfere with the final appearance

### Breast Augmentation

This is the most common cosmetic procedure done on teenage and young women with micromastia.<sup>8</sup> Micromastia is defined as breasts which are small –Tanner stage 2, it may also be defined as "smaller" than what the adolescent or society feels are normal. Various causes include

- Familial, noted in those with a tall, thin body type with limited subcutaneous tissue in general and sometimes those who have connective tissue disorders.
- Partial end-organ response failure in which the breast don't develop into normal breasts.<sup>8</sup>
- Androgen excess in utero or in early infant life; this may be due to congenital adrenal hyperplasia.
- Bilateral hypoplasia can result from
  - Gonadal dysgenesis (Turner syndrome),
  - Androgen-producing tumor,
  - Preadolescent hypothyroidism,

- Gonadotropin deficiency (pituitary hypogonadism)

A careful genetic and endocrinologic evaluation is an important part of assessment of all adolescent girls presenting with hypoplastic breasts or Micromastia Counseling and Reassurance about the normalcy of the breasts is important especially that of its physiological function, sense of femininity, sexual relations, pregnancy, or lactation.

Augmentation mammoplasty or breast implants is advised after the age of 20 years when she is emotionally, cognitively, and financially ready for such surgery. Risks of surgery and possible interference with or failure of lactation should be explained.

#### **Rhinoplasty**

Reshaping of the nose is done under general anesthesia. Rhinoplasty has to wait until the mid-face skeleton has matured, as the nasal bones can still grow till the age of 14 years.<sup>9</sup> Risk includes general anesthesia and there may be a need for bone graft from the long bones. Hence procedure is done only in older teens above the age of 16 years.

#### **Otoplasty**

Reshaping of the ears generally preferred by plastic surgeons to be done under general anesthesia can be done in younger teens if indicated

#### **Dermabrasion and Microdermabrasion**

They are relatively safe, cost effective procedures done usually under local anesthesia whereby the upper layers of the dermis are scraped off as treatment for acne, age spots and scars. Careful assessment for endocrinological causes should be ruled out and treatment for same must be started. Infection is the most common complication of this procedure.

#### **Laser Hair removal**

Destruction of hair follicles by pulsed laser beams is one of the most commonly performed cosmetic procedures on teens worldwide. It results in reduction of the hair growth and is safer than epilation, waxing and hair removal creams which can result in infection. It should be done by a qualified

dermatologist and after investigation for an endocrinological cause.

### **ROLE OF CARE PROVIDER**

It is important for the plastic surgeon to determine that the teenager, not the parents or boyfriend or girlfriend, is initiating the request for the cosmetic procedure. Physicians, particularly those who are familiar with working with teens, can help identify thoughts, beliefs, and ideas that would raise red flags.

The surgeon must determine that the patient has reached a level of physical maturity and that further growth is unlikely to occur. The surgeon must also decide whether the patient's anticipated surgical result is appropriate and consistent with their anatomy, and whether the patients anticipated change in their life is realistic. The surgeon needs to determine that the teenager has realistic requests and goals, as well as sufficient emotional maturity to understand the nature of their requested surgical procedure, the potential problems, the recovery process, and the anticipated long-term results.

### **CONCLUSION**

Simply put, discrepancies can exist between the magnitude of the visible cosmetic concern and the expressed emotional distress associated with it. Appreciating this disconnect can be quite important. This is because such disconnects can lead to unrealistic expectations about the degree to which a surgical procedure might improve a youngster's well-being. Certainly, when the discrepancy between the emotional concern and the physical manifestations are apparent, an understanding of such disconnects can be pivotal.

Adolescent medicine providers need to be involved in improving informed decision making for these procedures, aware of the absence of data on the health and mental health risks and benefits of these surgeries for adolescents, and understand the limitations on teenagers' abilities to evaluate risks.

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*"A man is but the product of his thoughts.*

*What he thinks, he becomes."*

*-- Mahatma Gandhi*



# Adolescent Friendly Health Services: What is Needed?



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## INVESTING IN ADOLESCENT HEALTH

The rapid physical, cognitive, social, emotional and sexual development that takes place during adolescence demands special attention in national development, policies, programmes and plans. It is important to invest in adolescent health so as to avoid preventable deaths & disabilities. To execute these actions, it is vital that adolescents are provided with excellent health care facilities where they can approach without hesitation and their physical & mental health needs are met up with.

### 1. Adolescents have fundamental right to health

Adolescents, like all people, have fundamental rights to life, development, the highest achievable standards of health and access to health services. There is a high burden of conditions from preventable causes in adolescents, mainly related to unintentional injuries; violence; sexual and reproductive health, including HIV; communicable diseases such as acute respiratory infections and diarrhoeal diseases; non-communicable diseases, poor nutrition and lack of physical activity; mental health, substance use and self-harm.

### 2. Investments in adolescent health bring a triple dividend of health benefits:

- For adolescents now – adolescent health is immediately benefited by promotion of positive behaviors and by prevention, early detection and treatment of problems.
- For adolescents' future lives – to help set a pattern of healthy lifestyles and reduce morbidity, disability and premature mortality later in adulthood, support is needed to establish healthy behaviors in adolescence (e.g. diet, exercise and, if sexually active, contraceptive use) and reduce harmful exposures, conditions and behaviors (e.g. obesity and alcohol & tobacco use).

- For the next generation - the health of future offspring can be protected by promoting physical & emotional well-being and healthy practices in adolescence and preventing risk factors and burdens (e.g. lead or mercury exposure, interpersonal violence, female genital mutilation, substance use, early pregnancy and pregnancies in close succession).

### 3. Adolescents are not simply old children or young adults; they have particular needs

Adolescence is one of the most rapidly changing, formative phases of human development. The range of determinants that influence human health take particular forms and have unique impacts in adolescence.

### 4. Adolescents bear substantial proportion of global disease and injury burden

Adolescents are one sixth of the world's population and account for 6% of the world's global burden of disease and injury. In 2015, more than 1.2 million adolescents died. Overall rates of death and disability adjusted life years (DALY) lost are higher for males than females and are particularly high for older adolescent boys and young males. Some causes of death have a high ranking only among males (e.g. drowning) or females (e.g. maternal conditions), or among younger (e.g. lower respiratory infections) or older adolescents (e.g. interpersonal violence and self-harm).

## WHY ARE ADOLESCENT FRIENDLY FACILITIES NEEDED?

1. To understand adolescent health needs in local context so that planning, monitoring & evaluation of programs can be done.
2. Preventing deaths & disabilities resulting from sexual & reproductive health problems, communicable & non-communicable diseases.
3. To involve community in determining &

managing adolescent health issues.

## WHAT ARE THE BARRIERS FACED IN OBTAINING THE HEALTH SERVICES?

1. Unavailability of health services such as emergency contraception and safe abortion either to adolescents or to adults.
2. Restrictive laws and policies that may prevent some health services from being provided to some groups of adolescents (e.g. the provision of contraceptives to unmarried adolescents)
3. Adolescents may not know where and when health services are provided; health facilities may be located a long distance from where they live/study/work; or health services may be expensive and beyond their reach). What this means is that the health services are not accessible to them.
4. Fear that health workers will scold them, ask them difficult questions, and put them through unpleasant procedures; or that health workers will not maintain confidentiality. What this means is that the health services are not acceptable to them.
5. Accessible and acceptable adolescent health services may not necessarily equitable i.e. may not be suitable to all sections of the society.

## WHAT DO ADOLESCENTS PERCEIVE AS 'FRIENDLY' HEALTH SERVICES?

Adolescents are a heterogeneous group so the expectations and preferences of different groups of adolescents are understandably different. But, two main things are very important; they want to be treated with respect and to be sure that their confidentiality is protected.

## WHO-DEFINED DIMENSIONS OF QUALITY HEALTH SERVICES TO ADOLESCENTS

- *Equitable* : All adolescents, not just some groups of adolescents, are able to obtain

**Table 1: Adolescent Friendly Health services at the facilities**

Service package	Level: SC, PHC, CHC and DH
ANC for pregnant adolescents	All levels
Counseling on Nutrition, Skin, Pre-marital counseling, Sexual Problems, Contraceptive, Abortion, RTI/STI, Substance abuse, Learning problems, Stress, Depression, Suicidal Tendency, Violence, Sexual Abuse, Other Mental Health Issues	All levels (by ANM at SC)
Other adolescent specific health services including menstrual disorders, injuries (accidents & violence) and NCD like hypertension, stroke, cardio-vascular diseases and diabetes	PHC, CHC, DH
Treatment by specialists	CHC, DH
Referral	All levels

(SC: Subcentre, PHC: Peripheral Health Centre, CHC: Community Health Centre, DH: District Hospital)

the health services that are available.

- *Accessible* : Adolescents are able to obtain the health services that are available.
- *Acceptable*: Adolescents are willing to obtain the health services that are available.
- *Appropriate* : The right health services (i.e. the ones they need) are provided to them.
- *Effective* : The right health services are provided in the right way, and make a positive contribution to their health.

## ADOLESCENT FRIENDLY HEALTH SERVICES (AFHS) IN INDIA

AFHS provides a broad range of preventive, promotive & curative services as per WHO consultation 2001 under Adolescent District Health Project. AFHS in India was first taken up by Safdarjung Hospital in New Delhi.

### Objectives

- Monitoring of growth & development
- Monitoring of behavior problems
- Offer information & counselling on developmental changes, personal care & ways of seeking help
- Reproductive health including contraceptives, STI treatment, pregnancy care & post abortion management
- Integrated counselling & testing for HIV
- Management of sexual violence
- Mental health services including management of substance abuse

The National Institute of Research in Reproductive Health started AHFS “Jagruti” in Mumbai for providing specialized sexual & reproductive services for adolescent boys & girls. “Mamta” an NGO started AFHS in some villages which comprises of community based Youth Information Centres (YIC’s) supported by peer educators, health facility

based youth clinics at primary health centres & youth friendly centers at first referral unit. In four districts of Madhya Pradesh a pilot project of AFHS launched as name “Jigyasa” by The Family Planning Association of India (FPAI).

The RCH-II has a strategy to provide services for adolescent health at public health facilities & at primary health care level during routine hours and on dedicated days & times. Haryana is the first state in the country to launch a distinct Adolescent Reproductive & Sexual Health (ARSH) program providing AFHS at government health facilities.

## FACILITY BASED STAFF

Staff at the facility should be well versed with

- equitable service provision to adolescents
- informed consent
- confidentiality and privacy
- adolescents’ participation in planning, monitoring, evaluation and provision of services (Table 1)
- the organization of welcoming services (e.g. optimizing operating hours and waiting time, ensuring privacy and maintaining a clean environment)
- the planned transition from child-centered to adult-centered health care for adolescents with chronic conditions.
- evidence-based information to adult visitors about the value of providing health services to adolescents
- monitoring these activities as part of supportive supervision and self-assessments.
- respecting the rights of adolescents to information, privacy, confidentiality, participation, and health care that is provided in a respectful, non-judgemental and non-discriminatory manner.

## SERVICES PROVIDED BY THE STAFF

Counselling: GATHER approach should be followed.

Examination: in a secure & private place

Immunization: tetanus toxoid & other immunization

Information, Education & Counselling material (IEC) to give correct scientific information & dispelling myths.

Treatment: adequate supplies of medications

Referral: to higher center / specialist if necessary

## MONITORING OF PROGRAM

Adolescent friendly services will be useful only if they are monitored properly. The Global accelerated action for health of adolescents (AA-HA!) guidance summaries the particular monitoring & evaluation on needs of adolescent health programs and the indicators & monitoring framework for adolescent health (2016-30). It also stresses the importance of monitoring indicators of program inputs, processes and outputs achieve the targets of the sustainable development goals and the Global strategy.

## CONCLUSION

Making health services adolescent friendly sets out the public health rationale for making it easier for adolescents to obtain the health services that they need to protect and improve their health and well-being, including sexual and reproductive health services. It is intended for national public health program managers, and individuals in organizations supporting their work. Its focus is on managers working in the government sector, but it will be equally relevant to those working in non-governmental organizations and in the commercial sector.

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### 1. Polycystic Ovary Syndrome in Adolescents: Which MR Imaging based Diagnostic Criteria?

Fondin M, Rachas A, Huynh V, Franchi Abella S, Teglas JP, Duranteau L, Adamsbaum C.

*Radiology.* 2017;161513 doi: 10.1148/radiol.2017161513.

**OBJECTIVE:** To evaluate the validity and reproducibility of magnetic resonance (MR) imaging based ovarian morphologic measurements for diagnosis of polycystic ovary syndrome (PCOS) in adolescents.

**METHODS:** This case-control study included 110 adolescent girls (age range, 13-17 years) who underwent pelvic MR imaging in 2006-2015. The case group included girls with high (n = 40, hyperandrogenism and oligomenorrhea or amenorrhea), intermediate (n = 8, hyperandrogenism), or low (n = 7, oligomenorrhea or amenorrhea) suspicion of PCOS. Control subjects were 55 age-matched ( $\pm 2$  years) girls with no clinical hyperandrogenism, oligomenorrhea, or amenorrhea. The validity (sensitivity, specificity, and area under the receiver operating characteristic curve [AUC]) of the number of follicles per ovary (FPO) measuring 9 mm or smaller (FPO-9) and FPO measuring 5 mm or smaller (FPO-5), ovarian volume (OV), sphericity index, peripheral distribution of follicles, and absence of a dominant follicle were determined, with girls who were highly suspected of having PCOS compared with control subjects as the reference. Two radiologists independently measured these criteria in 50 girls who were suspected of having PCOS to assess reproducibility ( $\kappa$  and intraclass correlation coefficients [ICCs]).

**RESULTS:** All criteria except sphericity index and absence of a dominant follicle were significantly associated with the level of suspicion of PCOS ( $P \leq .05$ ). The AUCs for FPO9 (0.78; 95% confidence interval [CI]: 0.68, 0.87), FPO5 (0.73; 95% CI: 0.62, 0.83), and OV (0.77; 95% CI: 0.68, 0.87) were significantly greater than 0.5; that was not true for sphericity index (AUC, 0.58; 95% CI: 0.47, 0.70). Sensitivity and specificity for peripheral distribution of follicles were 33% (95% CI: 19%, 49%) and 95% (95% CI: 85%, 99%), respectively; for absence of a dominant

follicle, they were 90% (95% CI: 76%, 97%) and 27% (95% CI: 16%, 41%), respectively. Reproducibility was almost perfect for OV (ICC, 0.89), substantial for absence of a dominant follicle ( $\kappa$ , 0.74), moderate for FPO-9 (ICC, 0.54) and FPO-5 (ICC, 0.61), and fair for peripheral distribution of follicles ( $\kappa$ , 0.37).

**CONCLUSION:** The most accurate MR imaging based diagnostic criteria for PCOS were OV, FPO-9, and peripheral distribution of follicles; however, reproducibility of these measures was moderate, except that for OV (ICC, 0.89).

### 2. Normalizing Ovulation Rate by Preferential Reduction of Hepato-Visceral Fat in Adolescent Girls with Polycystic Ovary Syndrome.

Ibáñez L, Del Río L, Díaz M, Sebastiani G, Pozo ÓJ, López-Bermejo A, de Zegher F.

*J Adolesc Health.* 2017;61(4):446-453. doi: 10.1016/j.jadohealth.2017.04.010.

**OBJECTIVE:** Polycystic ovary syndrome (PCOS) is an increasingly prevalent disorder in adolescent girls, commonly presenting with hirsutism/oligomenorrhea, commonly treated with an oral contraceptive (OC), and commonly followed by oligoanovulatory subfertility. We tested whether an intervention targeting the reduction of hepato-visceral adiposity is followed by a higher ovulation rate than OC treatment.

**METHODS:** This randomized, open-label, single-center, pilot proof-of-concept study (12 months on treatment, then 12 months off) was performed in adolescent girls with hirsutism and oligomenorrhea (PCOS by National Institutes of Health; no sexual activity; N = 36; mean age 16 years, body mass index 23.5 kg/m<sup>2</sup>; 94% study completion). Compared treatments were OC (ethinylestradiol-levonorgestrel) versus low-dose combination of spironolactone 50 mg/d, pioglitazone 7.5 mg/d, and metformin 850 mg/d (SPIOMET). Primary outcome was post-treatment ovulation rate inferred from menstrual diaries and salivary progesterone (12 + 12 weeks). Secondary outcomes included body composition (dual X-ray absorptiometry), abdominal fat (magnetic resonance imaging), insulinemia (oral glucose tolerance test), and androgenemia

(liquid chromatography - tandem mass spectrometry).

**RESULTS:** SPIOMET was followed by a 2.5-fold higher ovulation rate than OC ( $p \leq .001$ ) and by a 6-fold higher normovulatory fraction (71% vs. 12%;  $p \leq .001$ ); oligoanovulation risk after SPIOMET was 65% lower (95% confidence interval, 40%-89%) than after OC. Higher post-treatment ovulation rates related to more on-treatment loss of hepatic fat ( $r_2 = .27$ ;  $p < .005$ ). Visceral fat and insulinemia normalized only with SPIOMET; androgenemia normalized faster with OC but rebounded more thereafter. Body weight, lean mass, and abdominal subcutaneous fat mass remained stable in both groups.

**CONCLUSIONS:** Early SPIOMET treatment for PCOS normalized post-treatment ovulation rates more than OC. Focusing PCOS treatment on early reduction of hepato-visceral fat may prevent part of later oligoanovulatory subfertility.

### 3. Reports of Postural Orthostatic Tachycardia Syndrome After Human Papillomavirus Vaccination in the Vaccine Adverse Event Reporting System.

Arana J, Mba-Jonas A, Jankosky C, Lewis P, Moro PL, Shimabukuro TT, Cano M.

*J Adolesc Health.* 2017;61(5):577-582. doi: 10.1016/j.jadohealth.2017.08.004.

**OBJECTIVE:** Human papillomavirus (HPV) vaccination prevents infections with HPV strains that cause certain cancers. Reports of postural orthostatic tachycardia syndrome (POTS) following HPV vaccination have raised safety concerns. We reviewed POTS reports submitted to the Vaccine Adverse Event Reporting System (VAERS).

**METHODS:** We searched the VAERS database for reports of POTS following any type of HPV vaccination (bivalent, quadrivalent, or nonavalent) from June 2006 to August 2015. We reviewed reports and applied established POTS diagnostic criteria. We calculated unadjusted POTS case reporting rates based on HPV vaccine doses distributed and conducted empirical Bayesian data mining to screen for disproportional reporting of POTS following HPV vaccination.



**RESULTS:** Among 40,735 VAERS reports following HPV vaccination, we identified 29 POTS reports that fully met diagnostic criteria. Of these, 27 (93.1%) were in females and mean age was 14 years (range 12-32). Median time from vaccination to start of symptoms was 43 days (range 0-407); most (18, 75.0%) had onset between 0 and 90 days. Symptoms frequently reported concomitantly included headache (22, 75.9%) and dizziness (21, 72.4%). Twenty (68.9%) reports documented a history of pre-existing medical conditions, of which chronic fatigue (5, 17.2%), asthma (4, 13.8%), and chronic headache (3, 10.3%) were most common. Approximately one POTS case is reported for every 6.5 million HPV vaccine doses distributed in the United States. No empirical Bayesian data mining safety signals for POTS and HPV vaccination were detected.

**CONCLUSIONS:** POTS is rarely reported following HPV vaccination. Our review did not detect any unusual or unexpected reporting patterns that would suggest a safety problem.

#### 4. Progesterone Suppression of LH Pulse Frequency in Adolescent Girls with Hyperandrogenism: Effects of Metformin.

Lundgren JA, Kim SH, Burt Solorzano CM, McCartney CR, Marshall JC

*J Clin Endocrinol Metab.* 2017 31. doi: 10.1210/jc.2017-02068.

**BACKGROUND:** Polycystic ovary syndrome (PCOS) and adolescent hyperandrogenism (HA) are characterized by rapid LH (GnRH) pulse frequency. This partly reflects impaired GnRH pulse generator (hypothalamic) sensitivity to progesterone (P4) negative feedback. We aimed to assess whether metformin may improve P4 sensitivity in adolescent HA, for which it is prescribed widely.

**OBJECTIVE:** To test the hypothesis that metformin improves hypothalamic P4 sensitivity in adolescent HA.

**DESIGN:** Non-randomized interventional trial.

**SETTING:** Academic clinical research unit.

**PARTICIPANTS:** Ten adolescent girls with HA.

**INTERVENTION:** Girls underwent LH sampling every 10 minutes for 11 hours, both at baseline and after 7 days of oral P4 and estradiol (E2). Subjects then took metformin (1 g twice daily) for 9.4-13.7 weeks, after which subjects again underwent frequent LH sampling before and after 7 days of oral P4 and E2 (while continuing metformin). Total and free testosterone (T) and fasting insulin were assessed at each admission. At admissions 1 and 3, 2 h oral glucose tolerance tests (OGTT) were performed.

**MAIN OUTCOME MEASURE:** Metformin-related change in hypothalamic P4 sensitivity index (percent change in LH pulse frequency [before vs. after P4 and E2] divided by day 7

P4 level).

**RESULTS:** Free testosterone levels decreased by 29% with metformin ( $p = 0.0137$ ). However, measures of hyperinsulinemia and P4 sensitivity index did not significantly change with metformin use.

**CONCLUSIONS:** Short-term metformin use improves biochemical hyperandrogenemia, but does not improve hypothalamic sensitivity to P4 suppression, in adolescent girls.

#### 5. Psychoeducational interventions in adolescent depression: A systematic review.

Bevan Jones R, Thapar A, Stone Z, Thapar A, Jones I, Smith D, Simpson S.

*Educ Couns.* 2017 Oct 24. pii: S0738-3991(17)30591-8. doi:10.1016/j.pec.2017.10.015.

**BACKGROUND:** Adolescent depression is common and leads to distress and impairment for individuals/families. Treatment/prevention guidelines stress the need for good information and evidence-based psychosocial interventions. There has been growing interest in psychoeducational interventions (PIs), which broadly deliver accurate information about health issues and self-management.

**METHODS:** Systematic search of targeted PIs as part of prevention/management approaches for adolescent depression. Searches were undertaken independently in PubMed, PsycINFO, EMBASE, guidelines, reviews (including Cochrane), and reference lists. Key authors were contacted. No restrictions regarding publishing dates.

**RESULTS:** Fifteen studies were included: seven targeted adolescents with depression/depressive symptoms, eight targeted adolescents 'at risk' e.g. with a family history of depression. Most involved family/group programmes; others included individual, school-based and online approaches. PIs may affect understanding of depression, identification of symptoms, communication, engagement, and mental health outcomes.

**CONCLUSION, PRACTICE IMPLICATIONS:** PIs can have a role in preventing/managing adolescent depression, as a first-line or adjunctive approach. The limited number of studies, heterogeneity in formats and evaluation, and inconsistent approach to defining PI, make it difficult to compare programmes and measure overall effectiveness. Further work needs to establish an agreed definition of PI, develop/evaluate PIs in line with frameworks for complex interventions, and analyse their active components.

#### 6. The effects of a low-dose physical activity intervention on physical activity and body mass index in severely obese adolescents

Currie J, Collier D, Raedeke TD, Lutes

LD, Kemble CD, DuBose KD.

*International Journal of Adolescent Medicine and Health Published Online: 2017 | DOI https://doi.org/10.1515/ijamh-2016-0121*

**BACKGROUND:** While severe obesity in childhood poses the greatest long-term health risks, access to treatment is a common barrier. The present pilot study examined the effect of a 7-week low-dose physical activity (PA) intervention on PA and body mass index (BMI) in severe obese adolescents delivered via telephone and mail.

**METHODS:** Adolescents ( $n=64$ ) receiving care from a pediatric obesity medical clinic were randomized to a control ( $n=30$ ) or intervention ( $n=34$ ) group. Height and weight were measured and BMI z-scores were calculated. PA was assessed by a pedometer. All measurements were completed pre- and post-intervention. The intervention group received weekly newsletters and telephone calls discussing various PA topics based on motivational interviewing for 7 weeks. The control group received no contact. A series of  $2 \times 2$  (group by time) repeated measures analysis of covariances (ANCOVAs) adjusting for length of time between visits were performed to examine the effect of the intervention on PA and BMI z-scores.

**RESULTS:** The majority of adolescents were severely obese (77%, BMI: >99th percentile). Intention-to-treat analysis revealed intervention effects were not observed for either pedometer steps or BMI z-score ( $p > 0.05$ ). Among those with complete data, adolescents who successfully changed their BMI z-score had larger BMI z-score changes than those who did not change their BMI z-score ( $p = 0.0001$ ). This improvement was due to something other than PA as the change in BMI z-score was similar among those who did and did not successfully increase PA levels ( $p > 0.05$ ).

**CONCLUSIONS:** More intensive, comprehensive, and longer-term treatment is needed in this high-risk population.

#### 7. Vitamin D predictors in polycystic ovary syndrome: a meta-analysis.

Bacopoulou F, Koliass E, Efthymiou V, Antonopoulos CN, Charmandari E

*Eur J Clin Invest.* 2017;47(10):746755. doi: 10.1111/eci.12800.

**BACKGROUND:** The aim of this meta-analysis was to examine differences and predictors of serum 25-hydroxyvitamin D concentrations in women with polycystic ovary syndrome (PCOS) compared with non-PCOS controls matched for body mass index.

**MATERIALS AND METHODS:** Three databases were searched (2003-2015) to retrieve studies that evaluated serum 25-hydroxyvitamin D in PCOS women and controls. Meta-regression analysis was performed with anthropometric and metabolic/endocrine parameters as covariates.

**RESULTS:** Fourteen studies that included 2262 women (1150 PCOS patients/1162 controls) were eligible. Serum 25-hydroxyvitamin D, follicle-stimulating hormone and sex hormone-binding globulin were significantly lower in patients with PCOS than controls. Homeostatic model assessment-insulin resistance index, serum insulin, total cholesterol, triglycerides, low-density lipoprotein cholesterol, luteinising hormone and testosterone were significantly higher in patients with PCOS compared to controls. Meta-regression analysis demonstrated significant effects of waist-to-hip ratio and glucose in PCOS women ( $\beta = -1.60$ , 95% CI: -2.30 to -0.90,  $P = 0.003$ ;  $\beta = 0.20$ , 95% CI: 0.80-0.32,  $P = 0.004$ , respectively) and controls ( $\beta = -2.36$ , 95% CI: -3.38 to -1.33,  $P = 0.003$ ;  $\beta = 0.11$ , 95% CI: 0.00-0.21,  $P = 0.05$ , respectively) and of total calcium and luteinising hormone in PCOS cases ( $\beta = 2.43$ , 95% CI: 1.67-3.19,  $P = 0.005$ ;  $\beta = -0.37$ , 95% CI: -0.68 to -0.06,  $P = 0.03$ , respectively).

**CONCLUSIONS:** Serum 25-hydroxyvitamin D may be predicted positively by serum calcium and negatively

by luteinising hormone in women with PCOS, and negatively by waist-to-hip ratio and positively by fasting glucose in both PCOS and non-PCOS women, independently of the presence of obesity.

#### 8. Body Mass Index z-Scores and Weight Status Predict Conduct Disorder Symptoms in Adolescents

Vannucci A, Christine M.S, Ohannessian MC

*Journal of Adolescent Health 2017;5: 657-60*

**PURPOSE:** The goal of the study was to examine whether baseline body mass index (BMI) z-scores and weight status predicted conduct disorder (CD) symptoms in 368 adolescents (15–17 years).

**METHODS:** Participants in the 10th and 11th grades completed self-report questionnaires at baseline and at a 2-year follow-up. Baseline BMI z-scores and weight status were derived from self-reports of height and weight. CD symptoms were assessed using a symptom checklist. Covariates included baseline demographics, depressive

symptoms, alcohol consumption, drug use, and a retrospective report of CD symptoms before age 15 years.

**RESULTS:** A cubic association was observed between baseline BMI z-scores and follow-up CD symptoms ( $p = .047$ ), such that a positive association emerged only among adolescents with BMI z-scores of greater than  $\sim 1.5$ . Adolescents who were obese at baseline reported more follow-up CD symptoms than nonoverweight adolescents ( $p = .008$ ). Higher baseline BMI z-scores were associated with increased odds of endorsing probable CD at follow-up ( $p$ 's  $< .03$ ). Obese adolescents were more likely to report the presence of probable CD at follow-up than overweight and nonoverweight adolescents ( $p$ 's  $\leq .01$ ).

**CONCLUSIONS:** Findings suggest that nutritional status, particularly high BMI z-scores and obese weight status, may contribute to elevated CD symptoms during adolescence, which should be dually addressed in screening and intervention efforts.

*"Someone once told me that 'time' is a predator*

*that stalks us all our lives.*

*But I rather believe that time is a companion*

*who goes with us on the journey and*

*reminds us to cherish every moment*

*because it will never come again."*

*- Jean-Luc Picard*



# Brain Teasers



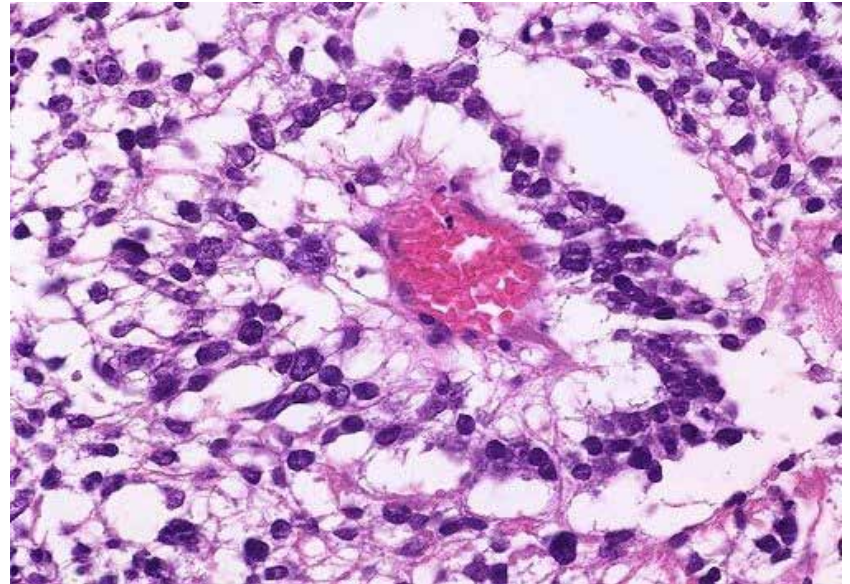
**Dr. Abha Rani Sinha**

Associate Professor, Obst & Gynae, Patna Medical College, Patna,  
Chairperson Quiz Committee FOGSI (2015-2017)

Q. 1. Identify the syndrome



Q. 2. Identify the characteristic histological finding.



Q. 3. What is the most common cause of AUB in adolescents following menarche?

- A. Thyroid disorders
- B. Bleeding disorders
- C. Anovulation
- D. None of the above

Q. 4. A 19 year old girl presented with secondary amenorrhea with severe acne and hirsutism and poorly developed breasts. She is shorter than her sister and her mother. Basic levels of 17OH is 800ng/dl. What is the diagnosis?

Q. 5. What is the most common benign and malignant germ cell tumour in adolescent age group?

## ANSWERS TO BRAIN TEASERS – SEPTEMBER ISSUE

Q 1. Artificial urinary sphincter. Management of stress UI in women only if previous surgery has failed.

Q 2. Percutaneous Tibial Nerve stimulation (PTNS)

Q 3. c

Q 4. d

Q 5. Oxford PERFECT Score

P-Power(According to Oxford grading system)

E-Endurance

R-Repetition

F-Fast Contractions

ECT- Every contraction timed