TOBACCO AND CHILDREN'S HEALTH

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Quit Tobacco International, including development of the curriculum, is a team effort, in which individuals have different responsibilities as described below:

Lead institution(s) involved in module development

GadjahMada University, Indonesia
Dr. Nawi Ng, MD, MPH, PhD
Dr. ArikaDewi, MD, MPH
Dr. WikaHartanti, MD

SreeChitraTirunal Institute for Medical Sciences and Technology, India
Dr K R Thankappan, MD
DrMeenaDaivadanam, MBBS, MPH
DrThankachyRamachandranYamini, MBBS, MPH

University of Arizona, USA
Dr. Mimi Nichter, PhD
Dr. Mark Nichter PhD, MPH
Dr. Myra Muramoto, MD, MPH
Charla Dain, MM

Partner institutions participating in pilot testing

India:
Academy of Medical Sciences, Pariyaram, Kerala
Amrita School of Medicine, Kochi, Kerala
Bangalore Medical College, Bangalore, Karnataka
Kasturba Medical College, Mangalore, Karnataka
TD Government Medical College, Alappuzha, Kerala

Indonesia:
GadjahMada University, Yogyakarta
Hasanuddin University, Makasar, South Sulawesi
Muhammadiyah University of Yogyakarta
Islamic University of Indonesia, Yogyakarta

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I. GOAL OF MODULE: Provide students with knowledge about how tobacco affects respiratory health in children, both from active smoking and secondhand smoke exposure; provide students with knowledge about how tobacco affects non-respiratory health in children.

II. TARGET AUDIENCE

a. Level of Student/Learner: undergraduate MBBS course
b. Suggested Course or Subject: Paediatrics

III. LEARNING OBJECTIVES

- To understand the effects of tobacco smoke on respiratory health in children.
- To understand the burden of secondhand smoke on children.
- To understand at least two ways that tobacco harms children's health, other than respiratory health.
- To understand the doctor's role in protecting children from the harm of secondhand smoke through parental education.

IV. CURRICULUM STANDARDS ADDRESSED:

To acquire adequate knowledge and appropriate skills for optimally dealing with major problems of children to ensure their optimal growth and development. The objective of the course is to describe the common paediatric disorders and emergencies in terms of epidemiology, aetiopathogenesis, clinivcal manifestations, diagnosis, rational therapy and rehabilitation. There are 300 hours across semsters V,VIII and IX with 4hrs lectures in respiratory system, 2hrs in malignancies in children and 7hrs in new born, all topics in which this module is relevant.

Skills: To take a detailed paediatric history, conduct an appropriate physical examinbation of children and adolescencts, make clinical diagnosis, conduct common bedside investigations, interpret common laboratory investigations results , paln and institute tharapy.

V. MINI-LECTURES

MINI LECTURE 1: EFFECTS OF TOBACCO ON RESPIRATORY HEALTH IN CHILDREN

CORE SLIDES

1. Smoking and Acute RespiratoryIllness in Children
2. Secondhand Smoke and Illness in Children
3. Effects of Smoking Exposure on Lung Development and Function
4. Secondhand Smoke and Children: Global Perspectives

5. Household Survey Findings: India
6. Doctors' Role in SHS Exposure

OPTIONAL SLIDES

1. Secondhand Smoke and Asthma in Children
2. Smoking and Respiratory Infection: The Mechanisms

MINI LECTURE 2: OTHER EFFECTS OF TOBACCO ON CHILDREN'S HEALTH

CORE SLIDES

1. Developmental Consequences of Prenatal Tobacco Exposure (PTE)
2. Maternal Smoking and Gastrointestinal Disease
3. Cardiovascular Function in Infants Exposed to Tobacco Smoke
4. Tobacco Smoke and Cot Death
5. Thirdhand Smoke
6. Tobacco, Poverty, and Children
7. Doctors' Role in SHS Exposure

VI. CASE DISCUSSION / CLINICAL SCENARIO AND SKILLS CHECKLIST

CASE SCENARIO: Asking patient about tobacco use

Overview

In this module, students are asked to practice integrated communication during case discussion under supervision of instructors, in order to develop their smoking cessation skills. Students will be trained to routinely ask about patients' smoking status in every case. After obtaining patients' current smoking status, students will then practice how to assess patients' readiness to quit, advise and assist patients to quit smoking, and also arrange follow ups to monitor patients' smoking cessation progress. Therefore students will also learn how to deliver efficient encouragement and provide proper explanation about the harm of tobacco on health and to help patients in their smoking cessation attempts.

Introduction

A majority of women and children and half of the children in a study in 31 countries on second hand smoke exposure reported as being exposed to secondhand smoke outside the household. Children are particularly at risk for being exposed to maternal and/or paternal cigarette smoke, and they are at high risk of developing secondhand smoke (SHS) related-diseases, including pneumonia, bronchitis, coughing, wheezing, worsening of asthma, middle ear disease, sudden infant death, and possibly neuro-behavioral impairment and cardiovascular disease in adulthood.

Learning Objectives

Upon the completion of this skills laboratory practice, students are expected to be able to:

- Routinely ask all the patients about their smoking status
- Assess patients' readiness to quit
- Advise all patients to quit smoking
- Assist the patients to quit
- Arrange follow ups on patients' smoking cessation progress
- Explain the harm of tobacco on all parts of the body

Asking the patients' smoking history

The health consequences of cigarette smoking are well known, as they are an important cause of increased mortality and morbidity in developed countries and the prevalence is increasing in the developing world as well.

Research studies show that if doctors have a reminder to ask aboutsmoking, e.g. smokingstatus is part of the vital signs, doctors are three times more likely to advisepatients to quit. Simple advice from a physician has been shown to increase abstinence rates significantly (by 30%) compared to no advice.

There are several important factors that should be considered when we are asking the patients'smoking history, i.e. 1) ask the smoking status of all patients (including women and teenagers);2) if a patient does not smoke, they should be asked if they have ever smoked (because even afterquitting, a smoker can start again);3) questions should be delivered in anon-critical manner; 4) evaluate the patients' smoking history as to how many cigarettes they smoke daily, do they use any other forms of tobacco; and 5) make a note of the patients' smoking status in themedical record (maybe you can indicate patients' smoking status in your patients' card). Women and children should not be excluded and they should also be asked about passive smoking.

Case Scenario 1

A six year old girl was brought to the out-patient clinic with complaints of breathlessness and fever. The breathlessness was not resolved in spite of using an inhaler. Mother revealed that she had had birth weight of only 1.8 kg, and gave history of Bronchial Asthma since infancy. Child contracted frequent respiratory infections due to which she had to miss school often. Blood examination ruled out any parasitemia. However, mother revealed that the girl's father was a regular smoker. Moreover, he smoked inside the bedroom where the patient used to sleep with her parents.

Vital Signs

Blood Pressure: 110 / 70
Pulse: 94/min
Body Weight: 18 kgs
Temperature: 97 F
Smoking Status: Smoker Ex-Smokers Never Smoke (Circle one)
Smoking Status of spouse: Smoker Ex-Smokers Never Smoke (Circle one)

Checklist for Case Scenario

S.No.	Aspects	Please tick if student has covered this aspect
	Ask	
1.	• Ask patient whether he/she smokes or not	
2.	• If the patient doesn't smoke, ask whether he/she ever smoked before	
3.	• If the patient smokes, ask how many cigarettes he/she takes per day	
	Assess	
4.	• Assess patient's readiness to quit.	
	Advise	
5.	• Advise patient to quit smoking	
6.	• Personalize advice by using the tobacco user's health status/disease	
	Assist	
7.	• Assist the patient to quit by giving him/herpamphlets, brochures	
	Arrange for Follow-up	
8.	• Arrange to follow up on tobacco use	

Points for Discussion

- **Smoking & children:** Children are at particular risk from SHS as they are unable to avoid the close company of adults. Second hand smoke can cause low birth weight, incidence of SIDS (sudden infant death syndrome), pneumonia, bronchitis, coughing, wheezing, aggravates asthma, middle ear infections and recurrent respiratory infections. The developing brain is even more susceptible to ill effects of tobacco than are adults, as neural connections are only still being developed. Second hand smoke not only affects the children's health but also leads to absence from school, hospitals admissions, loss of time and from workplace for parents and monitory loss.

- **Smoke Free Homes:** All children should be screened for exposure to SHS as a routine part of pediatric care. If a child is exposed to SHS: Parents should be strongly encouraged to implement a complete ban against smoking in the home. Any family member who smokes should be strongly encouraged to quit.

- **Smoking among elders is mimicked:** Children exposed to smoking early on are themselves likely to start smoking earlier and more heavily. Cigarette consumption by parent(s) and siblings serves as a signal to youth that smoking is a socially acceptable habit.

- **Family Support:** Family communication concerning the consequences of tobacco is an important deterrent to smoking initiation. Even if a parent is a smoker, parents can still

enforce a household ban on smoking and can give strong anti-smoking messages to their children.

- **Tobacco Education:** Tobacco education should be made part of school syllabus. It is easier to educate youth while they are still in school. Schools provide access to youth and are already an arena for teaching.

- **Economics of tobacco use:** Economic studies in India show households with a smoker spent significant household income on tobacco, and had less to spend on household necessities and child education.

FACT SHEET: TOBACCO AND CHILDREN'S HEALTH

1. Proven associations of passive smoking affecting children include low birth weight, reduced head circumference at birth, increased incidence of SIDS (3 to 6 times), meningococcal infections, acute lower airway infections (0–3 years), middle ear disease, wheeze (0–5 years), frequent respiratory symptoms (5–16 years), persisting reduced lung function, syncytial virus bronchiolitis and pulmonary tuberculosis .

2. Possible associations of passive smoking in children include reduced and disturbed intra-uterine lung growth, increased incidence of perinatal complications, neurodevelopmental and behavioural problems and childhood cancer.

3. Children exposed to SHS have:

   - 200-300% greater risk for lower respiratory diseases, including bronchitis.
   - 20% increase in asthma induction and exacerbation.
   - 62% greater risk of otitis media.
   - Double risk of sudden infant death (cot death).

4. In children's lungs, tobacco smoke induces inflammation reaction, increased susceptibility to allergic sensitisation and mutagenesis.

5. Prenatal exposure to maternal smoking will lead to smaller calibre airways, 20% reduction in forced expired flows in preterm infants and reduced respiratory compliance among girls.

6. Infant exposure to cigarette smoke leads to increased airway resistance and reduced forced expiratory flow.

7. 84% of women and children live in households with at least 1 smoker; and 23% lives in households with at least 2 smokers.[5]

8. 65% of women and 48% of children are exposed to second hand smoke outside the home.[4]

9. Surveys conducted in households (n= 1306) in Kerala found that: Over 35%(n=464) of women had a husband who smoked. 75% of women reported that they and their children were sometimes or often exposed to SHS smoke at home.76% of women said they had no rules in their home about smoking.

10. Exposure to secondhand smoke (SHS) is associated with 33% higher risk of childhood asthma induction, independent of age, atopy history, and child's smoking.[1]

11. Maternal smoking may harm children's digestive tract function, and is associated with increased incidence of infant colic.

12. Maternal smoking had long-term negative reprogramming effect on CV responsiveness. It is unknown if this predicts future hypertension.

13. Current use of smokeless tobacco products was reported by 55.6% children (Boys 57.6%, Girls 49.2%) in Bihar.[1]

1. **REFERENCE LIST FOR MODULE**

MINI LECTURE 1 ***[Effects of Tobacco on Respiratory Health in Children]***

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2. INSTRUCTOR KEY RESOURCES/REFERENCES

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3. SAMPLE EXAMINATION QUESTIONS

Short Answers

1. What are the effects of second hand smoke on children and how does it act?
2. How does smoking exposure affect the lung development and function?
3. Write a short note on the consequences of prenatal tobacco exposure?
4. What is the doctor's role in second hand smoke exposure in women and children?

Multiple Choice Questions **(Answers in blue font)**

1. In children's lungs, tobacco smoke induces:

    a. Inflammation reaction.

    b. Increased susceptibility to allergic sensitisation.

    c. Mutagenesis.

    d. All of the above

2. Children exposed to SHS have a .....greater risk for lower respiratory diseases.

    a. 15-30% b. 50-70% c. 100-150% d. **200-300%**

3. 84% of women and children live in households with at least 1 smoker.

    a. **True** b. False

4. Infant exposure to cigarette smoke leads to:

    a.Increased airway resistance
    b. Reduced forced expiratory flow.[1]

    c. Both

    d. none of the above

5. Increased …… may be the mechanism underlying the increased risk of colic in infants exposed to tobacco smoke

    a. **Motilin** b.

6. Maternal smoking increases the risk of cot death (sudden infant death syndrome) by

    a. 1-2times b. 2-4 times c. **3-6 times** d. 5-10 times