

SECOND-HAND SMOKE

TRAINING FOR HEALTH CARE PROVIDERS



Children's Health and the Environment
WHO Training Package for the Health Sector
World Health Organization
www.who.int/ceh

WHO/CED/PHE/EPE/19.12.13

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Notes:

- Please add details of the date, time, place and sponsorship of the meeting for which you are using this presentation in the space indicated.
- This is a large set of slides from which the presenter should select the most relevant ones to use in a specific presentation. These slides cover many facets of the problem. Present only those slides that apply most directly to the local situation in the region.

Learning objectives



- Define second-hand smoke (SHS)
- Recognize products related to SHS
- Understand the scope of the global issue of smoking
- Identify children's unique vulnerabilities to SHS
- Describe clinical effects of SHS exposure on children
- Find strategies to prevent and reduce SHS exposures

Figure:

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Outline



- Definitions
- Sources and epidemiology
- Clinical presentation
 - Signs and symptoms
 - Red flags for morbidity/mortality
 - Environmental health history
- Treatment and prevention
- Advocacy

Figure:

- © WHO/ SEARO / Anubhav Das. Illustration about tobacco in India.

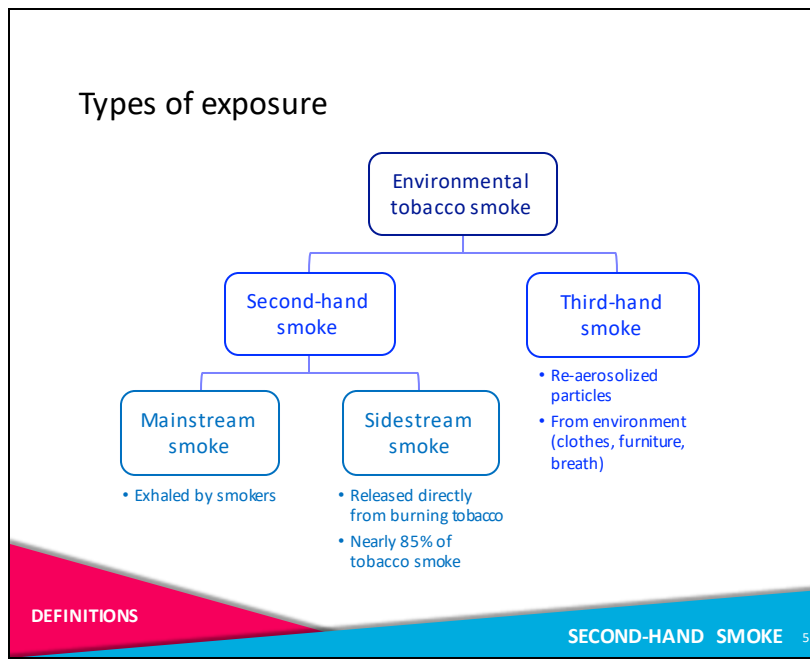
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Multiple terms refer to exposures of non-users to tobacco smoke.

Environmental tobacco smoke (ETS) includes materials in the air originating from burned or heated tobacco. Exposure continues after smoking stops and includes second- and third-hand smoke.

Second-hand smoke (SHS) includes smoke released from actively burning tobacco products.

Sidestream smoke is formed from smouldering of cigarettes or other paraphernalia between puffs.

Mainstream smoke is emitted at the mouthpiece during a puff, then exhaled by a smoker

Third-hand smoke refers to particles re-suspended in air. Sources include furniture, clothing, and smokers' breath.

All forms of environmental tobacco smoke are detrimental to health. Children are at particular risk, not being able to control their environments and re-volatizing third-hand smoke particles through active play and exploration. In the case of third-hand smoke, many of the same chemicals present in first- or second-hand smoke remain but may be transformed into other hazardous forms with currently unknown effects. This module focuses on the many well-researched aspects of second-hand smoke.

References:

- Oberg M, Woodward A, Jaakkola MS, Peruga A, Prüss-Ustün A (2011). Global estimate of the burden of disease from second-hand smoke. Geneva: World Health Organization. (https://www.who.int/tobacco/publications/second_hand/global_estimate_burden_disease/en/, accessed 27 February 2019).

Smoked tobacco products

Directly smoked

- Cigarettes
 - May be flavoured
- Cigars
- Cigarillos
- Bidi (beedi)
 - May be flavoured
- Kretek (clove cigarette)
 - Anesthetizes airway
- Pipe



Indirectly smoked

Water pipe

- Tobacco heated on a burner
- Smoke is passed through a water chamber
- Water cools smoke
- Also known as shisha, hookah, narghile

DEFINITIONS

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Tobacco is smoked directly, or can be heated to release smoke into an inhalation system. Some previously regional means of smoking tobacco have become globally popular over time.

Electronic nicotine delivery system and e-cigarette use is rapidly increasing in many countries. Synthetic nicotine can be added to such products in any quantity leading to higher risks. Regulation has not always kept up with use of these products; therefore, nicotine users can often bypass smoking restrictions by using this product. Vapor is released into the environment, subjecting others to 'second-hand vaping' through environmental contamination. There is limited data on the short and long term impacts of this form of tobacco use, although some information suggesting that teens who use it are more likely to take up smoking has been published.

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- WHO (2019). WHO global report on trends in prevalence of tobacco use 2000-2025, third edition. Geneva: World Health Organization. (<https://www.who.int/publications-detail/who-global-report-on-trends-in-prevalence-of-tobacco-use-2000-2025-third-edition>, accessed 24 December 2019).
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Figure:

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Windows of exposure

Prenatal

- Maternal tobacco use or maternal SHS exposure
- Tobacco products, including nicotine, cross the placenta

Postnatal second-hand exposure

- Second-hand smoke (SHS)
- Transmission via breastmilk

First-hand exposure

- Smoking
- Smokeless tobacco
- Accidental oral, dermal or other exposure

DEFINITIONS

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Windows of exposure during development include three major forms.

- Prenatal exposures consist of maternal smoking or maternal SHS exposure.
- Postnatal second-hand exposures can occur via inhalation or breastmilk consumption
- First-hand exposures may occur when children use tobacco themselves.

Reference:

- Pronczuk-Garbino J, editor (2005). Children's health and the environment: A global perspective. A resource manual for the health sector. Geneva: World Health Organization. (<https://www.who.int/publications-detail/children's-health-and-the-environment>, accessed 8 December 2019).

Tobacco smoke content

Tobacco smoke contains toxic, carcinogenic and irritating substances

Over 7000 chemicals have been identified in cigarette smoke, at least 250 of which are known to be toxic or carcinogenic



DEFINITIONS

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Some of these chemicals can be found in other toxic mediums, such as:

- **Acetic acid:** found in vinegar
- **Ammonia:** found in detergent
- **Arsenic:** found in poison
- **Butane:** found in lighters
- **Cadmium:** found in batteries
- **Carbon monoxide:** found in exhaust gas
- **Hexamine:** found in barbecue starters
- **Methane:** found in sewer gas
- **Methanol:** found in rocket fuel
- **Nicotine:** found in insecticide
- **Paint**
- **Stearic Acid:** found in candle wax
- **Toluene:** found in industrial solvent

References:

- U.S. Department of Health and Human Services (2010). How tobacco smoke causes disease: the biology and behavioral basis for smoking-attributable disease: a report of the surgeon general. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. (<https://www.ncbi.nlm.nih.gov/books/NBK53017/>, accessed 28 February 2019).
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Image:

- © WHO

Outline

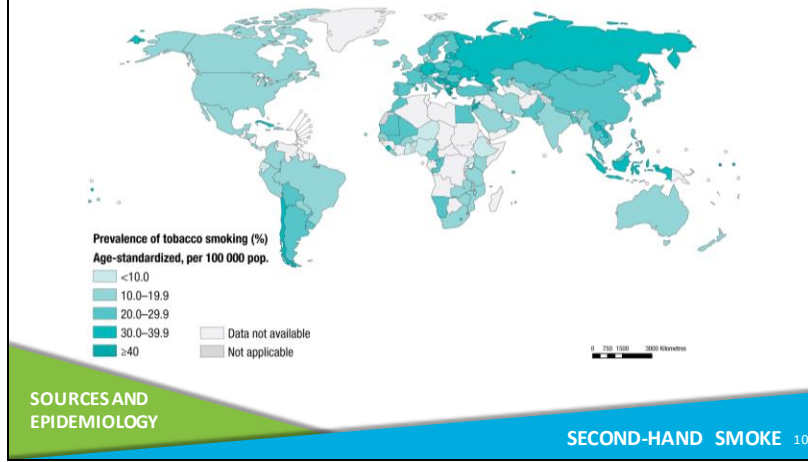


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Age-standardized prevalence of tobacco smoking among persons age 15 years or older, 2015



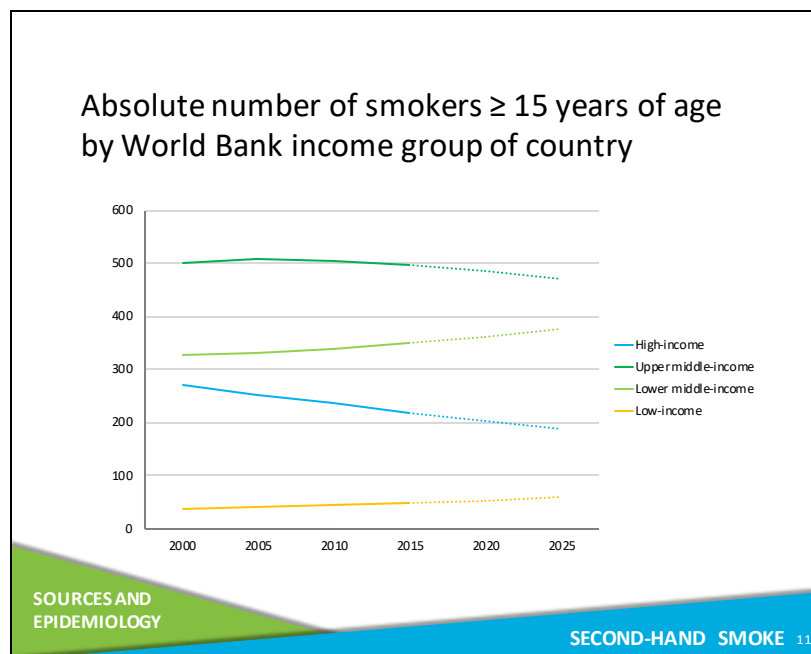
Tobacco caused 7.1 million deaths in 2017. Second-hand smoke alone led to 1.22 million deaths in that year, with 61,348 deaths in children under five and 66,455 deaths in those under 20 years of age.

Note:

Other maps available at this site include implementation of strategies to control tobacco use. Specific information for countries is also available. Please see <http://gamapserver.who.int/mapLibrary/>.

References:

- GBD 2017 Risk Factor Collaborators (2018). Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 392(10159):1923–1994. doi:10.1016/S0140-6736(18)32225-6.
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Around the world, most smokers 15 years of age or older live in middle-income countries. The worldwide total number of smokers fell by 28.6 million between 2000 and 2015 to 1.1 billion smokers. However, this was driven mostly by reductions in high-income and upper middle-income countries, while lower middle-income and low-income countries saw increased numbers of smokers. These trends are predicted to continue to 2025.

On a positive note, age-standardized prevalence rates of smoking in those 15 years of age or older have decreased in all income groups. In 2015, the fitted smoking prevalence was 24.6% in high-income countries, 23.4% in upper middle-income countries, 17.4% in lower middle-income countries and 11.6% in low-income countries. Smoking prevalence has been decreasing in all WHO regions except the African and Eastern Mediterranean Regions where it has remained flat. The worldwide prevalence in 2015 was 20.2%, down from 26.9% in 2000, with a further decrease to 17.3% expected by 2025.

References:

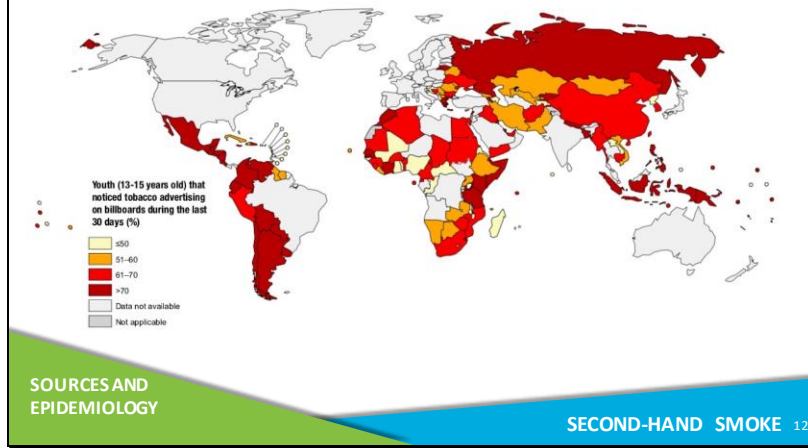
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Figure

- Adapted from information in: WHO (2018). WHO global report on trends in prevalence of smoking 2000–2025, second edition. Geneva: World Health Organization. (<https://www.who.int/tobacco/publications/surveillance/trends-tobacco-smoking-second-edition/en/>, accessed 28 March 2019).

Tobacco advertising, promotion and sponsorship target children

TEENAGERS ARE EXPOSED TO BILLBOARD TOBACCO ADVERTISING AT AN ALARMING MAGNITUDE (DATA FROM THE GLOBAL YOUTH TOBACCO SURVEY)



Tobacco manufacturers hope to attract children to become lifelong smokers. Most new smokers become addicted to tobacco beginning in childhood. To exploit children at these vulnerable ages, tobacco companies use several tactics.

First, tobacco companies advertise their products to children to portray smoking in a glamorous way. Young people who see beautiful models surrounded by others may wish to smoke to be as popular as those false advertisements appear. Smoking is frequently featured in media, including movies aimed at children. The figure here shows the percentage of teens 13 to 15 years of age by country that saw tobacco advertising on billboards in the prior 30 days (survey years 2004-2011).

Teenagers are also targeted with offers of free cigarettes and promotional discounts. Indirect advertising and brand promotion are designed to attract youth while circumventing restrictions on direct advertising. Once introduced to tobacco products, teenagers may become addicted.

New e-cigarettes, which do not contain nicotine, have been held up by manufacturers as quitting aids for prior smokers. However, many companies add flavours such as fruit and candy to attract children. Older users do not use flavoured cigarettes as frequently, whereas most children try flavoured products. Nicotine addiction can then lead children to cigarettes and nicotine-containing tobacco products.

Tobacco products are purposely designed to be more palatable to child victims. Manufacturers add chemicals that alter the taste and smoothness of tobacco to hide their harshness. Flavourings mask harshness with sweetness; levulinic acid reduces irritation caused by smoke; bronchodilators increase airways so that smoke can pass more easily; and menthol cools the irritated throat.

Finally, tobacco products are more addictive now than in the past. Nicotine levels are higher, ammonia additives allow faster nicotine transmission to the brain, and sugars increase the additive effects of nicotine. Children's developing brains are highly vulnerable to the detrimental effects of nicotine addiction.

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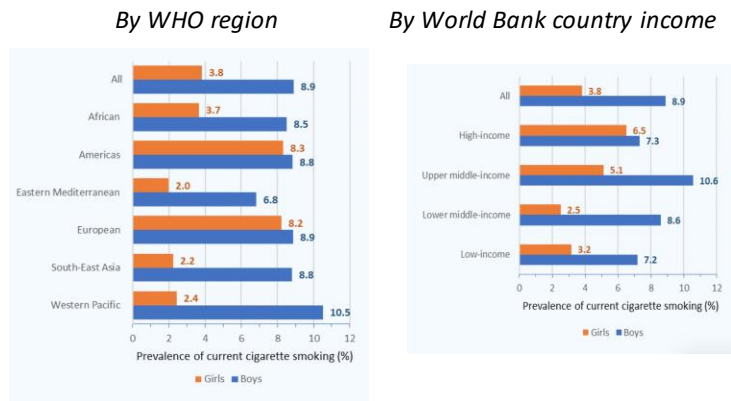
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- WHO (2015). Smoke-free movies: from evidence to action. Third edition. Geneva: World Health Organization. (<https://www.who.int/tobacco/publications/marketing/smoke-free-movies-third-edition/en/>, accessed 27 February 2019).
- WHO (2013). WHO report on the global tobacco epidemic 2013: enforcing bans on tobacco advertising, promotion and sponsorship. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/2013/en/, accessed 1 April 2019)

Figure

- WHO (2013). WHO report on the global tobacco epidemic 2013: enforcing bans on tobacco advertising, promotion and sponsorship. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/2013/en/, accessed 1 April 2019)

Smoking prevalence, children 13-15 years of age



SOURCES AND
EPIDEMIOLOGY

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Around 24 million or 6.5% of children 13 to 15 years of age smoke cigarettes. The figure above shows smoking prevalence for boys and girls in different regions of the world. In general, boys smoke at higher rates than do girls. Prevalence of smoking for girls is highest in high-income regions, while prevalence for boys is highest in upper middle-income regions.

In addition to exposure via personal use, 41% of children globally have at least one smoking parent. The highest rate of child exposure to parental smoking is in the Western Pacific Region at 68%; the lowest rate is in the Africa Region at 13%.

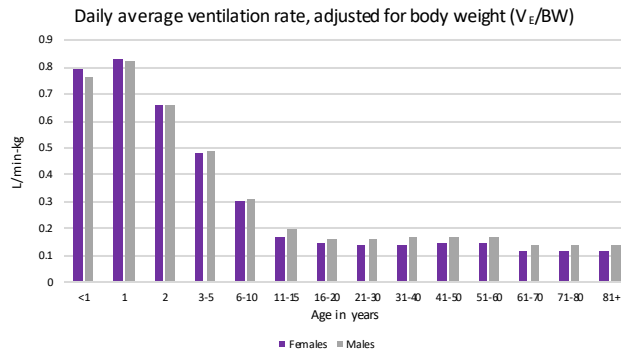
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Figure

- WHO (2019). WHO global report on trends in prevalence of tobacco use 2000-2025, third edition. Geneva: World Health Organization. (<https://www.who.int/publications-detail/who-global-report-on-trends-in-prevalence-of-tobacco-use-2000-2025-third-edition>, accessed 24 December 2019).

Special vulnerability of children



SOURCES AND
EPIDEMIOLOGY

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Children breathe more air per kilogram of body weight than adults at rest, as shown here. An infant breathes at a rate about five times that of an adult and children three to five years of age breathe 60% more than adults do. Children also tend to be more physically active than adults. Therefore, SHS toxicants found in the air will be delivered to children at higher internal doses than to adults, compounding their deleterious effects on the developing body.

Figure:

- Derived from information in: U.S. Environmental Protection Agency (2009). Metabolically derived human ventilation rates: a revised approach based upon oxygen consumption rates. Washington, DC: National Center for Environmental Assessment. (<https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=202543>, accessed 19 October 2018).

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Effects of exposures during pregnancy

Adverse birth outcomes

↑ miscarriage
↑ stillbirth
↑ preterm birth
↑ low birthweight
↑ congenital anomalies

Later effects

↓ lung function
↑ wheezing
↑ asthma
↑ COPD

CLINICAL
EFFECTS ON CHILDREN

SECOND-HAND SMOKE 16

↑ = increased risk
↓ = decreased risk

SHS exposure to non-smoking mothers increases the risk of adverse birth outcomes. The risk of stillbirth has been found to increase by 23%. The risk of congenital anomalies increases by 13% with prenatal SHS exposure; these include heart, limb-reduction, kidney/urinary tract and cleft lip and palate defects.

Prenatal SHS exposure has also been tied to deleterious effects later in life.

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Postnatal exposure risks

- ↑ 2 x sudden infant death syndrome
- ↑ 60% acute respiratory illnesses
- ↑ 24 – 40% chronic respiratory symptoms
- ↑ 21% asthma and exacerbation of asthma symptoms
- ↓ lung growth and function
- ↑ 1.5 x recurrent otitis media (repeated ear infection)
- ↑ 60-100 % cleft palate
- ↑ neurobehavioral deficits
- ↑ neurodevelopmental deficits
- ↑ childhood cancer

CLINICAL
EFFECTS ON CHILDREN

SECOND-HAND SMOKE 17

↑ = increased risk
↓ = decreased risk

References:

- Oberg M, Woodward A, Jaakkola MS, Peruga A, Prüss-Ustün A (2011). Global estimate of the burden of disease from second-hand smoke. Geneva: World Health Organization. (https://www.who.int/tobacco/publications/second_hand/global_estimate_burden_disease/en/, accessed 27 February 2019).
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SIDS

- Sudden, unexpected death
- No evidence of fatal illness at autopsy

Postulated mechanisms related to SHS

- Direct airway irritation
- Respiratory inflammation
- Nicotine exposure alters
- Response to hypoxia/hypercapnia (low O₂, high CO₂)
- Catecholamine metabolism

Sudden infant death syndrome is defined as a sudden, unexpected death of an infant, without evidence of any fatal illness at autopsy. Active maternal smoking during pregnancy is an established risk factor for sudden infant death syndrome.

Postulated mechanisms in relation to second-hand tobacco smoke exposure:

- Second-hand tobacco smoke promotes direct irritation of the airways and respiratory infection
- Exposure to nicotine may alter infant's response to hypoxia (abnormal control of cardio-respiratory activity)
- Exposure to nicotine may alter infant's catecholamine metabolism (catecholamines act as hormones or neurotransmitters)

References:

- Oberg M, Woodward A, Jaakkola MS, Peruga A, Prüss-Ustün A (2011). Global estimate of the burden of disease from second-hand smoke. Geneva: World Health Organization. (https://www.who.int/tobacco/publications/second_hand/global_estimate_burden_disease/en/, accessed 27 February 2019).
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Postnatal exposure and lung development

Alveolar development

- Begins during pregnancy and continues throughout childhood

SHS exposure increases adverse events

- Negatively impacts lung function
- Decreases lung volume due to decreased alveolar growth and complexity

Older children's lung function affected

- By the presence of tobacco products in the air
- Directly by smoking

Formation of the respiratory system begins in the prenatal period, with alveolar development starting in the third trimester. At birth, an infant has 30-50% of the alveoli of an adult. Alveolar development occurs most rapidly in the first two years of life, though it may continue throughout childhood for many years.

Second-hand smoke increases the risk of respiratory infections, which may adversely affect lung functioning. *In utero* exposure to maternal smoking may have lasting effects on the airways of the lung. Lung functioning declines with active smoking among older children.

References:

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Postnatal exposure and asthma

↑ clinically diagnosed asthma with smoking parent

- Maternal > paternal smoking
- Stronger effect in the first 5–7 years of life

Parental smoking increases disease severity

- Frequency & severity of exacerbations
- Emergency room visits
- Medication use
- Severe exacerbations requiring invasive ventilation

CLINICAL
EFFECTS ON CHILDREN

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Research results on smoking parents and relation to asthma in children include:

- ↑ 21% clinically diagnosed asthma when either parent being a smoker
 - Meta-analysis (37 studies): Clinically diagnosed asthma: odds ratio = 1.44 (95% confidence interval (1.27-1.64))
- Developing asthma or wheezing is more related to maternal than paternal smoking.
 - Meta-analysis (25 studies): The pooled odds ratio for either parent smoking: odds ratio = 1.21 (95% confidence interval (1.1-1.34))

Effect was stronger for the first 5–7 years of life than for school age

Incidence of asthma or wheezing was related to maternal smoking.

Second-hand tobacco smoke increases airway hyper responsiveness.

While exposure to second-hand tobacco smoke increases the risk of sensitization to food allergens in the first few years of life, it does not appear to increase the sensitivity to inhalant allergens.

References:

- Gergen PJ (2001). Environmental tobacco smoke as a risk factor for respiratory disease in children. *Respir Physiol.* 128(1):39-46.
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Postnatal exposure and acute respiratory illness

SHS increases the incidence and severity of acute respiratory illnesses

- Bronchial inflammation

SHS particulate matter has a small diameter

- Reaches bronchioles and alveoli
- Some products may be directly absorbed

SHS particles can affect multiple pulmonary systems

- Ciliary function
- Macrophage activity
- Immune and inflammatory response

CLINICAL
EFFECTS ON CHILDREN

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- Second-hand tobacco smoke may increase the severity of acute respiratory illnesses by irritating and inflaming the lungs.
- Second-hand tobacco smoke particles are small and can penetrate the airways and alveoli of the lung.
- The gaseous components of second-hand tobacco smoke may adversely affect lung defences, with effects on cilia, macrophage function, immune response.

References:

- Oberg M, Woodward A, Jaakkola MS, Peruga A, Prüss-Ustün A (2011). Global estimate of the burden of disease from second-hand smoke. Geneva: World Health Organization. (https://www.who.int/tobacco/publications/second_hand/global_estimate_burden_disease/en/, accessed 27 February 2019).
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- U.S. Environmental Protection Agency (1992). Respiratory health effects of passive smoking. Washington, DC: U.S. Environmental Protection Agency, Office of Research and Development, Office of Health and Environmental Assessment. (EPA/600/6-90/006F, <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=2835>, accessed 24 December 2019).

Postnatal exposure and acute respiratory illness

SHS causes significant increases in

- Lower respiratory tract illnesses
 - Infections in general
 - Viral bronchiolitis
 - Pulmonary tuberculosis

Results of epidemiological studies

- 60% increase if either parent smokes
- 70% increase if only the mother smokes
- 30% increase if another household member smokes

CLINICAL
EFFECTS ON CHILDREN

SECOND-HAND SMOKE 22

- Risk of acute respiratory illness from second-hand tobacco smoke is highest in the first year of life, and remains elevated until about the age of 3 years.
- Direct effects of second-hand tobacco smoke exposure on the risk of acute respiratory illness in young children's, independent of *in utero* exposure to second-hand tobacco smoke.
- The effects of second-hand tobacco smoke on the susceptibility to infections can be protected, at least to some extent, by breastfeeding the child for a lengthy period.
- A meta-analysis (36 studies) showed the following associations between parental smoking and acute respiratory illness:
 - For either parent smoking: odds ratio = 1.6 (95%confidence interval (1.4 –1.7))
 - For maternal smoking only: odds ratio = 1.7 (95%CI (1.6 – 1.9))
 - For other household member smoking: odds ratio = 1.3 (95%confidence interval (1.2 – 1.4))

References:

- Hofhuis W, de Jongste JC, Merkus P (2003). Adverse health effects of prenatal and postnatal tobacco smoke exposure on children. *Arch Dis Child*. 88(12):1086–1090. doi:10.1136/adc.88.12.1086.
- Strachan DP, Cook DG (1997). Health effects of passive smoking. 1. Parental smoking and lower respiratory illness in infancy and early childhood. *Thorax*. 52(10):905–914. doi:10.1136/thx.52.10.905.
- Scientific Committee on Tobacco and Health (1998). Report of the scientific committee on tobacco and health. London: Stationery Office. (<https://www.gov.uk/government/publications/report-of-the-scientific-committee-on-tobacco-and-health>, accessed 24 December 2019).
- U.S. Department of Health and Human Services (2006). The health consequences of involuntary exposure to tobacco smoke: a report of the surgeon general. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. (<https://www.ncbi.nlm.nih.gov/books/NBK44324/>, accessed 28 February 2019).
- U.S. Environmental Protection Agency (1992). Respiratory health effects of passive smoking. Washington, DC: U.S. Environmental Protection Agency, Office of Research and Development, Office of Health and Environmental Assessment. (EPA/600/6-90/006F, <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=2835>, accessed 24 December 2019).

Postnatal exposure and middle ear infection

Eustachian tube dysfunction

- Central to the development of middle ear disease

ETS contributes to Eustachian tube dysfunction

- ↓ Mucociliary clearance
- ↑ Adenoidal hyperplasia
- ↑ Mucosal swelling
- ↑ Frequency of upper respiratory tract infections

Parental smoking is linked with middle ear disease

- Increased incidence
- Increased severity

CLINICAL
EFFECTS ON CHILDREN

SECOND-HAND SMOKE 23

Second-hand tobacco smoke may contribute to Eustachian tube dysfunction through:

- ↓ mucociliary clearance
- ↑ adenoidal hyperplasia
- ↑ mucosal swelling
- ↑ frequency of upper respiratory tract infections

References:

- Oberg M, Woodward A, Jaakkola MS, Peruga A, Prüss-Ustün A (2011). Global estimate of the burden of disease from second-hand smoke. Geneva: World Health Organization. (https://www.who.int/tobacco/publications/second_hand/global_estimate_burden_disease/en/, accessed 27 February 2019).
- Treyster Z, Gitterman B (2011). Second hand smoke exposure in children: environmental factors, physiological effects, and interventions within pediatrics. Rev Environ Health. 26(3):187-195. doi:<https://doi.org/10.1515/reveh.2011.026>.
- Heinrich J (2003). Nonallergic respiratory morbidity improved along with a decline of traditional air pollution levels: a review. Eur Respir J Suppl. 40:64s-69s.
- Scientific Committee on Tobacco and Health (1998). Report of the scientific committee on tobacco and health. London: Stationery Office. (<https://www.gov.uk/government/publications/report-of-the-scientific-committee-on-tobacco-and-health>, accessed 24 December 2019).

Postnatal exposure and neurobehavioural and neurodevelopmental outcomes

Biologically plausible mechanism

- Environmental exposures may be more hazardous than in utero exposure to maternal smoking

Household smoking

- Decreases academic performance
- Decreases cognitive, perceptual, auditory and linguistic ability
 - Limited and conflicting evidence
 - Decreases reading and math abilities in age 6-16 in one study
 - Other studies show reduced general intellectual ability
- Increases hyperactive behaviours
 - Increased ADHD in some studies
- Prenatal and postnatal exposure both have impact

References:

- Banderali G, Martelli A, Landi M, Moretti F, Betti F, Radaelli G et al. (2015). Short and long term health effects of parental tobacco smoking during pregnancy and lactation: a descriptive review. *J Transl Med.* 13:327. doi:10.1186/s12967-015-0690-y.
- Eskenazi B, Castorina R (1999) Association of prenatal maternal or postnatal child environmental tobacco smoke exposure and neurodevelopmental and behavioral problems in children. *Environ Health Perspect.* 107(12): 991–1000. doi:10.1289/ehp.99107991.

Postnatal exposure and childhood cancer

Second-hand tobacco smoke exposure

- Some increased risk in all tumours
 - Early studies suggested significantly increased risks
 - Not all studies demonstrate risk
 - Recent meta-analysis demonstrated a small increased risk in all tumour types

Controversial topic

Variable results depending on study

CLINICAL
EFFECTS ON CHILDREN

SECOND-HAND SMOKE 25

- Brain tumours (10 studies): relative risk = 1.22 (95% confidence interval (1.05-1.40))
- Lymphomas (4 studies): relative risk = 2.08 (95% confidence interval (1.08-3.98))
- Brain tumours among children of non-smoking women exposed to tobacco smoke from the husband's smoking:
 - during early pregnancy: relative risk = 1.8 (95% confidence interval (1.2-2.5))
 - during late pregnancy: relative risk = 1.7 (95% confidence interval (1.2-2.6))

References:

- Oberg M, Woodward A, Jaakkola MS, Peruga A, Prüss-Ustün A (2011). Global estimate of the burden of disease from second-hand smoke. Geneva: World Health Organization. (https://www.who.int/tobacco/publications/second_hand/global_estimate_burden_disease/en/, accessed 27 February 2019).
- Treyster Z, Gitterman B (2011). Second hand smoke exposure in children: environmental factors, physiological effects, and interventions within pediatrics. *Rev Environ Health*. 26(3):187-195. doi:<https://doi.org/10.1515/reveh.2011.026>.
- Banderali G, Martelli A, Landi M, Moretti F, Betti F, Radaelli G et al. (2015). Short and long term health effects of parental tobacco smoking during pregnancy and lactation: a descriptive review. *J Transl Med*. 13:327. doi:10.1186/s12967-015-0690-y.
- Boffetta P, Trédaniel J, Greco A (2000). Risk of childhood cancer and adult lung cancer after childhood exposure to passive smoke: A meta-analysis. *Environ Health Perspect*. 108(1):73-82.
- Chang JS, Selvin S, Metayer C, Crouse V, Golembesky A, Buffler PA (2006). Parental smoking and the risk of childhood leukemia. *Am J Epidemiol*. 163(12):1091-100.

Postnatal exposure and breastfeeding

Smoking has adverse effects on breastfeeding

- Quality and quantity
 - Decreased production
 - Shorter duration of breastfeeding
 - Reduces long chain fatty acids, dose dependent
 - Breastmilk nicotine 2 x maternal serum nicotine in smoking mothers
- Negative effects on infant
 - Increased colic and crying
 - Decreased sleep

General recommendations

- Avoid smoking while breastfeeding due to impacts on breastmilk
- Breastfeeding is still best
 - For nursing mothers who can't stop smoking, never smoke near a child

Nicotine impacts the quality and quantity of breastmilk. The effects on infants can be immediate, with poor sleep, increased colic and crying. They can also be delayed, with conflicting evidence that neurodevelopmental and neurobehavioural outcomes, as well as obesity, cardiovascular and respiratory diseases, are more prevalent in infants of smoking mothers. It is difficult to determine how much of this effect is due to nicotine in breastmilk, since those infants are also exposed to smoking homes.

Ideally mothers who are producing breastmilk should not smoke, however breastfeeding is still the best choice for infants, therefore for smoking mothers, minimizing second-hand tobacco smoke exposure to their children is key.

The National Commission for Breastfeeding in Germany recommends to advise smoking breastfeeding women as follows:

- Smoking should be avoided during the months of breastfeeding.
- A breastfeeding woman who does smoke should try continuously to reduce the number of cigarettes smoked.
- Given the possibility of passive uptake of smoke particles, people should never smoke near a child.

Please note smoking is not a reason for the mother to give up breastfeeding. Breastfeeding is one of the most effective ways to ensure child health and survival. WHO actively promotes breastfeeding as the best source of nourishment for infants and young children.

Note: Include recommendations from your country.

References:

- Banderali G, Martelli A, Landi M, Moretti F, Betti F, Radaelli G et al. (2015). Short and long term health effects of parental tobacco smoking during pregnancy and lactation: a descriptive review. *J Transl Med.* 13:327. doi:10.1186/s12967-015-0690-y.
- Napierala M, Mazela J, Merritt TA, Florek E (2016). Tobacco smoking and breastfeeding: effect on the lactation process, breast milk composition and infant development. A critical review. *Environ Res.* 151:321-338. doi:10.1016/j.envres.2016.08.002.
- National Breastfeeding Committee (2019). National Breastfeeding Committee [website]. Berlin: Federal Ministry of Food and Agriculture (BMEL). (https://www.bfr.bund.de/en/national_breastfeeding_committee-742.html, accessed 24 December 2019).

Clinical effects on children: Intoxication

- Infants ingest tobacco products
- Risk factors
 - Oral exploration
 - Dexterity
- USA National Poison Data System study, 2012-2015
 - 80% children under two years of age
 - 60% exposures from cigarettes
 - Increased risk from e-cigarette exposures
- Protective factors
 - Maturity

RED FLAGS
FOR CHILDREN

SECOND-HAND SMOKE 27

Infants and young children are dextrous oral explorers. Because of this, they have a tendency to put non-food items in their mouths. Due to the content of cigarettes and other nicotine-containing substances, as well as the direct toxicity of nicotine, intoxication (poisonings) due to environmental tobacco product exposure are all too common.

A study by the National Poison Data System in the United States examined calls to the US Poison Control Centers for cigarette and nicotine exposures in children under six years of age between January 2012 and April 2015. The vast majority of children exposed were under two years of age, and most exposures occurred via ingestion: 95.5% from ingestion alone and 2.8% from multiple routes including ingestion. Cigarettes were involved in most poisonings, at 60.1% of exposures; 14.2% involved e-cigarettes; and 16.4% involved other tobacco products, such as chewing tobacco and snuff.

Significant increases in child poisonings were driven by a 1492.9% increase in e-cigarette exposures, corresponding to a rise in e-cigarette use. The odds of a severe outcome were 2.6 times higher from exposure to e-cigarettes compared to exposure to cigarettes. The odds of health care facility admission were also 5.2 times higher for such exposures. E-cigarettes pose a rising and elevated risk to children via intoxication.

Attractive packaging and flavours increase the risk of a child ingesting a substance. The emergence of candy-flavoured synthetic nicotine products that are packaged in a way that allows toxic amounts of nicotine to be ingested in a single dose may substantially increase the risk of significant morbidity and mortality in small children. Older children with more mature taste discrimination may still be attracted to flavoured products.

Reference:

- Kamboj A, Spiller HA, Casavant MJ, Chounthirath T, Smith GA (2016). Pediatric exposure to e-cigarettes, nicotine, and tobacco products in the United States. *Pediatrics*. 137(6). pii: e20160041. doi:0.1542/peds.2016-0041.

Intoxication symptoms

Gastrointestinal

- Nausea & vomiting
- Oral irritation
- Abdominal pain
- Diarrhoea

Neurologic

- Drowsiness & lethargy
- Dizziness & ataxia
- Tremor
- Seizure
- Coma

Cardiovascular

- Tachycardia
- Hypotension
- Asystole and cardiac arrest

Respiratory

- Cough/choke
- Cyanosis
- Respiratory depression & arrest

Dermal

- Irritation, erythema

Miscellaneous

- Conjunctivitis & ocular irritation
- Burns
- Diaphoresis

RED FLAGS
FOR CHILDREN

SECOND-HAND SMOKE 28

Symptoms shown here represent the clinical effects of nicotine and tobacco product exposures from the National Poison Data System Study described on the previous slide. The most common clinical effect was vomiting, seen in 22% of exposures. Less common serious clinical effects, including cardiac arrest, coma, seizure, respiratory arrest, were seen in children under three years of age.

Reference:

- Kamboj A, Spiller HA, Casavant MJ, Chounthirath T, Smith GA (2016). Pediatric exposure to e-cigarettes, nicotine, and tobacco products in the United States. *Pediatrics*. 137(6). pii:e20160041. doi:0.1542/peds.2016-0041.

Clinical effects on children: Smoking

Children who smoke are:

- More likely to use alcohol
- More likely to use street drugs
- More likely to demonstrate risk-taking behaviours

Risks include:

- Decreased lifespan
- Shortness of breath
- Loss of physical performance
- Increased sputum production and foul breath
- Adult smoking-related diseases

RED FLAGS
FOR CHILDREN

SECOND-HAND SMOKE 29

Children who smoke are subject to all the health risks that adult smokers face. Most tobacco users begin prior to 18 years of age, and teenagers become addicted to nicotine faster than adults do. Children who smoke are at risk for diseases later in life; tobacco use affects almost all organs of the body.

There is growing evidence that children who experiment with vaping are more likely to begin smoking traditional cigarettes. Vaping may desensitize youth to the negative effects of smoking; having detected to immediate harm from vaping, they may conclude that the dangers of smoking are exaggerated.

The effects of nicotine on a child's brain may lead them to use other substances. Of particular concern is use of other substances, such as alcohol and street drugs. It is unclear whether there is an underlying tendency toward riskier behaviours in children who smoke, or if smoking encourages these behaviours in children. More research is needed in this area.

Reference:

- Miech R, Patrick ME, O'Malley PM, Johnston LD (2017). E-cigarette use as a predictor of cigarette smoking: results from a 1-year follow-up of a national sample of 12th grade students. *Tob Control* 26(e2):e106-e111. doi:10.1136/tobaccocontrol-2016-053291.
- American Academy of Pediatrics Council on Environmental Health (2019). Tobacco use and tobacco smoke exposure. In: Etzel RA, editor (2019). *Pediatric environmental health*, 4th edition. Itasca, IL: American Academy of Pediatrics.

Clinical presentation: Environmental health history

- History-taking is key to determine exposure
- Even in tobacco-related illnesses, history-taking by paediatricians is limited and insufficient
 - 60% in one study, of which nearly 30% were positive
- Recommended at every health care interaction
- For children with suspected tobacco-related illness an environmental health history is key
 - Respiratory and related presentations
 - Intoxication symptoms (poisoning)

ENVIRONMENTAL
HEALTH HISTORY

SECOND-HAND SMOKE 30

Note: For more information on history-taking, see the Paediatric environmental history module. For more information on biomonitoring, see Biomarkers and human biomonitoring module.

A study of paediatric patients presenting to a large paediatric emergency department in Cincinnati, Ohio between 2012 and 2013 found that only 60% of children with tobacco smoke exposure-related illnesses were screened for tobacco smoke exposure. Of the children screened, 28% were positive for tobacco smoke exposure. The significant morbidity associated with tobacco smoke exposure in children should drive screening at every health care interaction and especially those where tobacco-related illnesses present.

Reference:

- Lustre BL, Dixon CA, Merianos AL, Gordon JS, Zhang B, Mahabee-Gittens EM (2016). Assessment of tobacco smoke exposure in the pediatric emergency department. *Prev Med.* 85:42-6. doi:10.1016/j.ypmed.2016.01.003.

Exposure assessment

Biomarkers:

- Alkaloid nicotine metabolites
 - Cotinine
 - Anabasine
 - Anatabine
- Tobacco-specific nitrosamines: most common is 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol and its glucuronides (NNAL)
- Total nicotine equivalents (include all biomarkers)
- Cotinine is frequently used as a biomarker
 - Long half life, relatively easy to measure
 - Can be collected from non-invasive testing (hair, urine, buccal swab) or blood

Measurement of exposure:

- NNAL a tobacco carcinogen
 - Measured in the urine of 144 infants exposed to ETS
- Detected in 46.5%
- Cigarettes/week was higher ($P < 0.0001$) when NNAL was detected

References:

- Hecht SS, Carmella SG, Le KA, Murphy SE, Boettcher AJ, Le C et al. (2006). 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol and its glucuronides in the urine of infants exposed to environmental tobacco smoke. *Cancer Epidemiol Biomarkers Prev.* 15(5):988-92.
- Chang CM, Edwards SH, Arab A, Del Valle-Pinero AY, Yang L, Hatsukami DK (2017). Biomarkers of tobacco exposure: summary of an FDA-sponsored public workshop. *Cancer Epidemiol Biomarkers Prev.* 26(3):291-302. doi:10.1158/1055-9965.EPI-16-0675.

Outline



- Definitions
- Sources and epidemiology
- Clinical presentation
 - Signs and symptoms
 - Red flags for morbidity/mortality
 - Environmental health history
- Treatment and prevention
- Advocacy

Figure:

- © WHO/ SEARO / Anubhav Das. Illustration about tobacco in India.

Benefits of prevention

Second-hand tobacco smoke exposure is associated with:

- ↑ respiratory problems like wheezing and asthma
- ↑ pneumonia and hospitalization the first year of life
- ↑ infant mortality (smoking during and after pregnancy)

Stopping smoking by 16 weeks gestation

- Decrease infant deaths, including SIDS
- Decrease diseases of childhood
 - Respiratory problems
 - Acute and chronic
 - Infections
 - Ear infections
 - Bronchiolitis and pneumonia
 - Allergic sensitization
 - Behavioural problems

TREATMENT
AND PREVENTION

SECOND-HAND SMOKE 33

Smoke released from cigarettes, cigars and pipes is composed of more than 4000 different substances. Particulate matter is two to three times higher in homes of smokers. Exposure may occur at home, school, child care settings, relatives' homes and other locations. It is important to reduce second-hand tobacco smoke and it justifies prohibiting smoke at home, schools and child care settings.

Note: This is not a WHO guideline. For full details on WHO recommendations on tobacco use during pregnancy see:

- WHO (2013). WHO recommendations for the prevention and management of tobacco use and second-hand smoke exposure in pregnancy. Geneva: World Health Organization. (<https://www.who.int/tobacco/publications/pregnancy/guidelinstobaccosmokeexposure/en/>), accessed 24 December 2019).

References:

- Oberg M, Woodward A, Jaakkola MS, Peruga A, Prüss-Ustün A (2011). Global estimate of the burden of disease from second-hand smoke. Geneva: World Health Organization. (https://www.who.int/tobacco/publications/second_hand/global_estimate_burden_disease/en/), accessed 27 February 2019).
- Treyster Z, Gitterman B (2011). Second hand smoke exposure in children: environmental factors, physiological effects, and interventions within pediatrics. *Rev Environ Health*. 26(3):187-195. doi:<https://doi.org/10.1515/reveh.2011.026>.
- American Academy of Pediatrics Council on Environmental Health (2019). Tobacco use and tobacco smoke exposure. In: Etzel RA, editor (2019). *Pediatric environmental health*, 4th edition. Itasca, IL: American Academy of Pediatrics.
- Wisborg K, Kesmodel U, Henriksen TB, Olsen SF, Secher NJ (2001). Exposure to tobacco smoke in utero and the risk of stillbirth and death in the first year of life. *Am J Epidemiol*. 154(4):322-7.

Primary prevention

Start before pregnancy

Consider all aspects of lifestyle and counselling

- Learning style
- Consumption style
- Communication
- Stress management

Study:

- Smoking patients and spontaneous quitters
 - Anti-smoking counselling vs standard written material provision (control)
- Follow up one year post-partum
 - Smoking cessation higher in counselling group (OR 5.4)
 - Abstinence higher in counselling group (OR 3.7)

TREATMENT
AND PREVENTION

SECOND-HAND SMOKE 34

Stop before conception or never start.

Reference:

- American Academy of Pediatrics Council on Environmental Health (2019). Tobacco use and tobacco smoke exposure. In: Etzel RA, editor (2019). Pediatric environmental health, 4th edition. Itasca, IL: American Academy of Pediatrics.

Secondary prevention and harm mitigation

- Provide information
- Check in at every clinic visit
 - Supportive information to facilitate behaviour change
- Advise harm mitigation
 - Avoid smoking indoors and in the car
- Promote healthy choices
 - Goal-oriented supports
 - Gauge readiness to stop or change
 - Consider 5A model

TREATMENT
AND PREVENTION

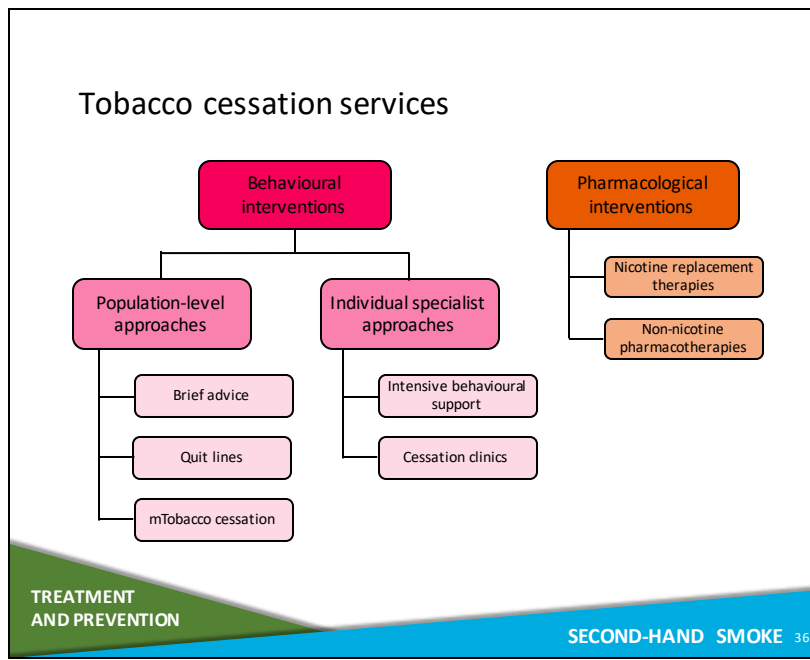
SECOND-HAND SMOKE 35

A German study with questionnaires showed:

- 72% of 105 interviewed parents had thought about the risks of second-hand tobacco smoke.
- 75% thought that asthma and allergies could be triggered by second-hand tobacco smoke.
- General practitioners talked to 46% of all parents about smoking, but only 15% of the paediatricians did so.
- Only 8% of all parents of children with asthma indicated that the paediatrician talked with them about their smoking habits and asthma.
- Parents considered a clear medical opinion and positive requests to reduce smoking as helpful (12%), a bit helpful (44%) and not really helpful (44%).
- Doctor-hopping did not occur as a result of medical advice.

References:

- American Academy of Pediatrics Council on Environmental Health (2019). Tobacco use and tobacco smoke exposure. In: Etzel RA, editor (2019). Pediatric environmental health, 4th edition. Itasca, IL: American Academy of Pediatrics.
- Stein RJ, Haddock CK, O'Byrne KK, Hymowitz N, Schwab J (2000). The pediatrician's role in reducing tobacco exposure in children. *Pediatrics*. 106(5):E66.
- Szczepanski R, Hillen P (1999). [Reduced passive smoking exposure of children--parental behavior, possibilities for change and determinants]. *Pneumologie*. 53(1):37-42 (in German).



Tobacco dependence typically tends to be undertreated, yet effective cessation interventions are available. WHO recommends that cessation support and treatment be provided in all health care settings and by all health care providers. Types of interventions are described below.

- **Brief advice:** Advice to stop using tobacco can be given to all tobacco users in any health care interaction.
- **Quit lines:** National toll-free quit lines can provide both proactive and reactive counselling via telephone.
- **mTobacco cessation:** Personalized tobacco cessation support can be delivered via text messaging.
- **Intensive behavioural support:** Counselling can impart knowledge about tobacco use and quitting, and provide support and resources to develop skills and strategies for changing behaviour.
- **Cessation clinics:** Clinics specializing in tobacco cessation services offer intensive behavioural support, as well as medications or advice on the provision of medication.
- **Nicotine replacement therapies:** Tools in the form of gum, lozenges, patches, inhalers and nasal spray reduce craving and withdrawal symptoms by providing a low, controlled dose of nicotine, gradually reduced over time.
- **Non-nicotine pharmacotherapies:** Medications such as bupropion, varenicline and cytisine reduce cravings and withdrawal symptoms and decrease the pleasurable effects of tobacco products.

Cessation interventions can double a tobacco user’s chances of successfully quitting, and combining multiple methods can increase efficacy.

Reference:

- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).
- West R, Raw M, McNeill A, Stead L, Aveyard P, Bitton J et al. (2015). Health-care interventions to promote and assist tobacco cessation: a review of efficacy, effectiveness and affordability for use in national guideline development. *Addiction*. 110(9):1388-403. doi:10.1111/add.12998.

Outline



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Figure:

- © WHO/ SEARO / Anubhav Das. Illustration about tobacco in India.

Advocacy



Take action

- Individual level (patients)
- Community level
 - Schools and community groups
 - News and internet educational strategies
- Local government
 - Participate in city, county legal planning
 - Lobby local government for changes
- National level
 - Inform, lobby government
- International level
 - Participate in global research, education and movements

Promote education

ADVOCACY

SECOND-HAND SMOKE 38

Countries can take action towards each MPOWER measure as shown above to reach best-practice level and reduce tobacco smoking. If tobacco cessation measures had been adopted at the highest level of achievement in 14 countries between 2007 and 2014, it is estimated that 1.5 million lives could have been saved. The global prevalence of tobacco use among adults was estimated at 23.6% in 2018, which represents further room for improvement and lives to be affected.

Reference:

- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).
- WHO (2019). WHO global report on trends in prevalence of tobacco use 2000-2025, third edition. Geneva: World Health Organization. (<https://www.who.int/publications-detail/who-global-report-on-trends-in-prevalence-of-tobacco-use-2000-2025-third-edition>, accessed 24 December 2019).

Figure:

- WHO (2008). WHO report on the global tobacco epidemic, 2008: the MPOWER package. Geneva: World Health Organization. (https://www.who.int/tobacco/mpower/gtcr_download/en/, accessed 1 March 2019).

Tobacco Free Initiative

- Reduce tobacco-related morbidity and mortality
- Protect present and future generations from
 - Tobacco consumption
 - Environmental tobacco products
- Provide global policy leadership
 - Encourage change at all levels of society
 - Education
- Legislation
- Promote the WHO Framework Convention on Tobacco Control
- Encourage countries to adhere to the principles of tobacco control

ADVOCACY

SECOND-HAND SMOKE 39

WHO established the Tobacco Free Initiative in July 1998 to focus international attention, resources and action on the global tobacco epidemic. The Tobacco Free Initiative's mission is to reduce the global burden of disease and death caused by tobacco, thereby protecting present and future generations from the devastating health, social, environmental and economic consequences of tobacco use and exposure to tobacco smoke.

The Tobacco Free Initiative collaborates closely with other WHO departments at all levels in cross-cluster initiatives to facilitate the integration of tobacco control into other health programmes (e.g. child and maternal health and tuberculosis). Outside WHO, TFI works with Member States, other international organizations and civil society through NGOs working on tobacco control.

Contact information:

WHO Prevention of Noncommunicable Diseases (PND)
20 Avenue Appia
1211 Geneva 27
Switzerland
Fax: + 41 22 791 4832
E-mail: tfi@who.int

Reference:

- WHO (2019). Tobacco Free Initiative (TFI) [website]. Geneva: World Health Organization. (<https://www.who.int/tobacco/about/en/>, accessed 24 December 2019).

WHO Framework Convention on Tobacco Control

- Price and tax measures
- Protection from smoke exposure
- Limits on tobacco product packaging, labelling and display
- Education, communication, training and public awareness
- Limits on tobacco advertising, promotion and sponsorship
- Reduction measures
- Sales restrictions



F C T C

WHO FRAMEWORK CONVENTION
ON TOBACCO CONTROL

ADVOCACY

SECOND-HAND SMOKE 40

The World Health Organization Framework Convention on Tobacco Control, developed in response to the globalization of the tobacco epidemic, is the first treaty negotiated by the Member States of the World Health Organization using their powers under the organization's constitution. It is the pre-eminent global tobacco control instrument, which contains legally binding obligations for its parties, sets the baseline for reducing both demand for and supply of tobacco, and provides a comprehensive direction for tobacco control policy at all levels.

Price and tax measures: decrease affordability to reduce demand

Protection from smoke exposure: legislate smoke-free spaces

Limits on tobacco product packaging, labelling and display: adopt plain packaging, clear warnings

Limits on tobacco advertising, promotion and sponsorship: ban point-of-sale displays and advertising to minors

Reduction measures: promote education, cessation

Sales restrictions: Ban sales to minors

Reference:

- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).

Image:

- © WHO

Sustainable development goals



Target 3.A

Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate.

ADVOCACY

SECOND-HAND SMOKE 41

The Sustainable Development Goals, a set of global targets adopted in 2015 by United Nations Member States to achieve by 2030, specifically call upon countries to act on FCTC. The following slides delve further into details on how this may be achieved.

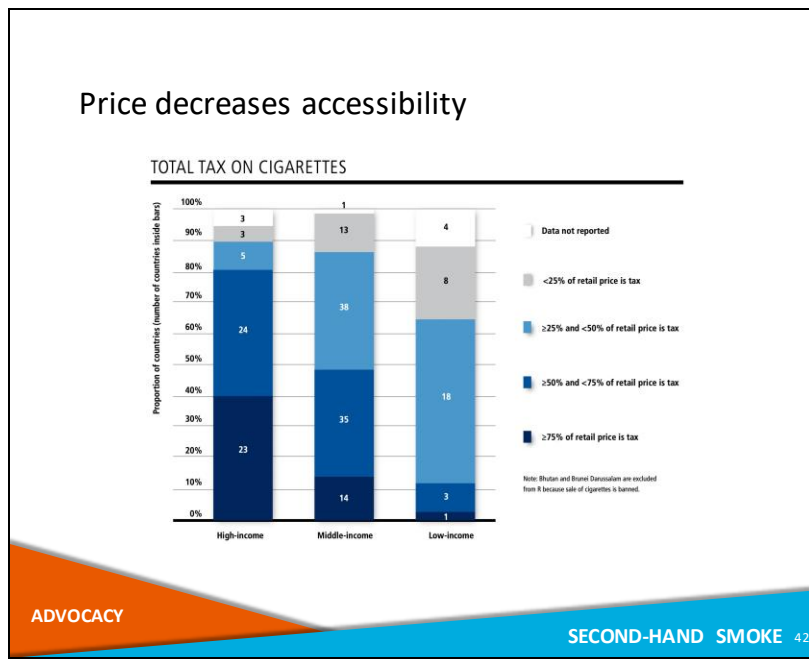
References:

- UN (2019). Sustainable Development Goals [website]. New York: United Nations. (<http://www.un.org/sustainabledevelopment/sustainable-development-goals>, accessed 12 February 2019).

Figure:

- © United Nations

Price decreases accessibility



The single most effective tobacco control measure is to increase the cost of tobacco products. A 10% price increase reduces tobacco consumption by 4-5% on average due to users quitting or smoking less. It is estimated that a 50% price increase in just 13 selected countries would cause 67 million smokers to quit. The figure shown here illustrates the relationship between tax and retail price of cigarettes in countries by World Bank income. Cigarette prices and taxes are highest in high-income countries, but there is a strong case for all countries to increase excise tobacco taxes further.

Taxes must be raised significantly in order to have an impact on consumption. When real income rises, taxes must be increased in order to ensure that tobacco products do not become more affordable. Increase taxes significantly and periodically.

Strengthen tax and customs administration and enforcement capacity. This reduces illicit trade and smuggling of tobacco products and has been successfully managed in numerous countries.

Revenues from price increases can be directed towards the health sector to aid other tobacco reduction initiatives and increase public support for tobacco taxation.

Reference:

- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).

Figure:

- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).

Control the public image of tobacco

ENFORCE BANS ON TOBACCO ADVERTISING, PROMOTION AND SPONSORSHIP – HIGHEST ACHIEVING COUNTRIES, 2018



ADVOCACY

SECOND-HAND SMOKE 43

Tobacco companies spend billions of dollars annually to market their image. The framework convention on tobacco control has called for advertising bans that can reduce smoking rates. Bans should cover both direct forms of advertising, including television, radio, print publications, billboards and Internet-based media, as well as indirect forms, such as brand stretching, free distribution, price discounts, point of sale product displays and sponsorships.

Children are particularly exposed to new media platforms and care should be taken to limit advertising through such media. Exposure to tobacco promotion increases the likelihood that children will start to use tobacco and should be prevented.

Reference:

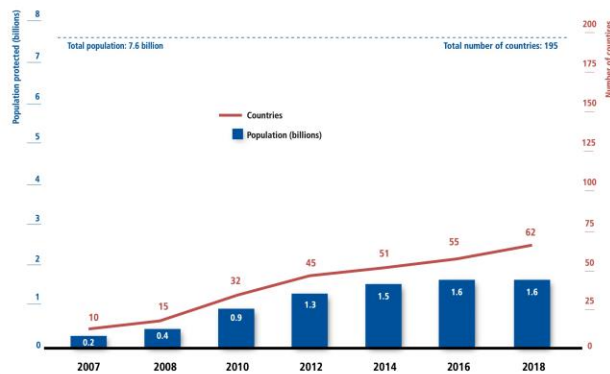
- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).

Figure:

- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).

Control tobacco exposure

PROGRESS IN SMOKE-FREE LEGISLATION (2007–2018)



ADVOCACY

SECOND-HAND SMOKE 44

There is no safe level of exposure to second-hand smoke. The only intervention shown to fully protect from SHS is a smoke-free environment with no exceptions. Accommodations such as smoking rooms and ventilation cannot eliminate all second-hand smoke.

Smoke-free legislation is popular, relatively easy to pass and economically feasible to enforce. Studies show that such laws do not have adverse economic consequences for businesses. Regions with smoking bans see reduced hospital admissions for acute coronary syndrome and reduced mortality from smoking-related illnesses. Smoke-free laws denormalize smoking and encourage healthier behaviours.

While progress has been made in passing smoke-free measures around the world, as shown in the figure here, only 22% of the global population is covered by such comprehensive legislation. A further 6 billion children and adults stand to benefit from reduced exposure to second-hand smoke and consequent improvements in health.

Reference:

- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).

Figure:

- WHO (2019). WHO Report on the Global Tobacco Epidemic, 2019: offer help to quit tobacco use. Geneva: World Health Organization. (https://www.who.int/tobacco/global_report/en/, accessed 23 December 2019).

Role of health and environment professionals

Increase attractiveness of health promotion for health care professionals

- Similar rewards to early diagnosis and treatment of disease

Small steps can lead to big changes in health care providers, patients, and governments

- Respect opinions
- Share ideas
- Motivate change

Framework of change

- Stop promotion of tobacco products
- Increase the price of tobacco products
- Restrict access to children and teens
- Protect non-smokers from environmental tobacco smoke

ADVOCACY

SECOND-HAND SMOKE 45

Suggested paediatric interventions for the prevention of tobacco use include:

Office and setting factors

- Model a tobacco-free lifestyle
- Provide a tobacco-free office environment
- Place anti-tobacco messages (e.g. posters, pamphlets) in office
- Seek continuing medical education on tobacco-use prevention
- Encourage parents to create a tobacco-free home environment

Countering social influences

- Reinforce abstinence from all tobacco products
- Teach about the immediate negative consequences of tobacco use
- Provide counter advertising education
- Teach tobacco refusal techniques

Community-based interventions

- Participate in organizations attempting to reduce tobacco use
- Disseminate tobacco-use prevention messages in local media
- Participate in school-based prevention programs

Policy interventions

- Provide expert testimony to legislative bodies
- Lobby legislators to support tobacco-use prevention efforts
- Support initiatives to increase excise taxes on tobacco products
- Encourage enforcement of laws designed to prevent tobacco sales to minors

Reference:

- Stein RJ, Haddock CK, O'Byrne KK, Hymowitz N, Schwab J (2000). The pediatrician's role in reducing tobacco exposure in children. *Pediatrics*. 106(5):E66.

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