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Philippine College of Chest Physicians (PCCP) Council of Tobacco or Health and Air Pollution (TOHAP)

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Foreword

This first edition of the Philippine Clinical Practice Guidelines on the Diagnosis and Treatment of Tobacco Use and Dependence is a significant milestone in the prevention and control of non-communicable diseases, particularly tobacco use and dependence and the various medical conditions associated with it. This is a concrete manifestation of strong advocacy of the private sector, particularly the Philippine College of Chest Physicians (PCCP), as it collaborates with various sectors in the fight against tobacco use and dependence.

The importance of this Guideline cannot be overemphasized. By referring to this document, health care providers even at the remotest health care facility would be equipped on how to screen tobacco users for dependence and how to deliver evidence-based tobacco-smoking cessation services. Through this Guideline, health professionals in various health settings in the primary, secondary and tertiary care are provided with the algorithm on smoking cessation including the approaches to be employed in assisting tobacco users to quit smoking.

While this Guideline contains the key smoking cessation approaches and basic steps to be followed and provides the management and treatment protocol to be observed, note that there are still some interventions that need to be firmed up. Consider therefore this Guideline as a work in progress, and once sufficient data and evidences are made available, an updated version will ensue.

This Guideline may not contain all the answers you need but we believe that we are in the right track as we endeavor to provide the quality services that our clients need. I encourage all health organizations, medical societies and professionals to promote, adopt and comply with these guidelines. Likewise, I trust that our partners in the government sector at the local, national and international arena, as well as private practitioners and providers, non-government organizations (NGOs), patient organizations (POs) and support groups among others, will also adhere to the policies and protocols espoused in this document.

CHARLES YU, MD, FCCP
President, Philippine College of Chest Physicians (PCCP)
Preface

Globally, tobacco use and dependence continue to cause significant health risk. It is the leading cause of preventable death. It is a prime risk factor in diseases such as cardiovascular disease, stroke, lung cancer and chronic obstructive pulmonary disease, which are key contributors to the burden of disease in the Philippines.

Since 2003, the Philippines as party to the WHO Framework Convention on Tobacco Control, has been implementing policies on tobacco regulation. Continuing the battle against tobacco use and dependence, the health care professionals play a significant role in promoting a Smoke-Free Philippines. Thus, the Council on Tobacco or Health and Air Pollution (TOHAP) of the Philippine College of Chest Physicians (PCCP) developed its first edition of Clinical Practice Guidelines to equip health care professionals with current scientific evidence and knowledge on interventions for smoking cessation.

The image of a Red Orchid on the cover of this manual depicts the incentive program of the DOH Red Orchid Award with the goal of promoting the adoption and implementation of the 100% Tobacco-Free Environment. Just like the red orchid which still bloomed even when believed to be nearly extinct, the benefits from the many efforts leading to a Tobacco-Free environment are worth the wait for a better Philippines.

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Task Force 2017: Diagnosis and Treatment of Tobacco Use and Dependence

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# Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMI</td>
<td>Acute Myocardial Infarction</td>
</tr>
<tr>
<td>BOLD</td>
<td>Burden of Obstructive Lung Disease</td>
</tr>
<tr>
<td>CAP</td>
<td>Community Acquired Pneumonia</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence Interval</td>
</tr>
<tr>
<td>CO</td>
<td>Carbon Monoxide</td>
</tr>
<tr>
<td>COPD</td>
<td>Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>CPG</td>
<td>Clinical Practice Guidelines</td>
</tr>
<tr>
<td>DHHS</td>
<td>Department of Health and Human Services</td>
</tr>
<tr>
<td>DOH</td>
<td>Department of Health</td>
</tr>
<tr>
<td>ENDS</td>
<td>Electronic Nicotine Delivery System</td>
</tr>
<tr>
<td>ETS</td>
<td>Environmental Tobacco Smoke</td>
</tr>
<tr>
<td>FNDT</td>
<td>Fagerström Nicotine Dependence Test</td>
</tr>
<tr>
<td>GABA</td>
<td>γ-Aminobutyric Acid</td>
</tr>
<tr>
<td>GATS</td>
<td>Global Adult Tobacco Survey</td>
</tr>
<tr>
<td>DALYs</td>
<td>Disability-Adjusted Life-years</td>
</tr>
<tr>
<td>FEV₁</td>
<td>Forced Expiratory Volume in 1 second</td>
</tr>
<tr>
<td>IHD</td>
<td>Ischemic Heart Disease</td>
</tr>
<tr>
<td>NRT</td>
<td>Nicotine Replacement Therapy</td>
</tr>
<tr>
<td>OR</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>PAFs</td>
<td>Population-Attributable Fractions</td>
</tr>
<tr>
<td>ppm</td>
<td>Parts per million</td>
</tr>
<tr>
<td>RR</td>
<td>Relative Risk</td>
</tr>
<tr>
<td>SHS</td>
<td>Second-hand smoke</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>THS</td>
<td>Third Hand Smoke</td>
</tr>
<tr>
<td>VA</td>
<td>Veterans Affair</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
Definition of Terms

ABC – refers to a three-step approach (Ask, Brief advice, Cessation support) to help patients quit smoking and make their home smoke-free.

Abstinence – state of not smoking any cigarettes at all, not even a puff, qualified as either temporary (stopping smoking completely for a period) or permanent.

Ask – refers to asking all patients whether they currently smoke and/or exposed to smoking inside their home and this is recorded at each visit.

Brief Advice – refers to providing brief personalized advice to all patients at each visit to quit smoking or to continue not to smoke, and make their home smoke-free. This includes linking smoking and exposure to smoking to associated diseases or conditions.

Cessation Support – refers to providing strategies and assistance to patients to quit smoking or to continue not to smoke, and make their home smoke-free.

COPD – refers to Chronic Obstructive Pulmonary Disease, a common preventable and treatable disease characterized by persistent, usually progressive, airflow limitation associated with enhanced chronic inflammatory response in the airways and the lungs due to exposure to noxious particles or gases.

Current Smoker – a patient who smokes, even a puff, and has not made any attempt to quit; includes both daily and non-daily smoking

Daily Smoker – a person who uses tobacco everyday

Intensive Cessation Support – refers to providing longer and more frequent sessions of cessation support, whenever feasible, to patients with strong nicotine dependence, which include offering stop-smoking medications if available and affordable.

Nicotine – refers to the addictive substance most common in tobacco and tobacco products including cigarettes, cigars, chewing tobacco, pipe tobacco, snus, snuff and most e-cigarette liquids.

Nicotine Dependence – also known as Tobacco Use Disorder, a maladaptive pattern of nicotine use, leading to clinically significant impairment or distress, manifested by three (or more) of the following occurring at any time in the same 12-month period: (1) tolerance, (2) withdrawal, (3) taking larger amounts of the substance or over a longer period than was intended, (4) persistent desire for or unsuccessful efforts to cut down on its use, (5) great deal of time spent in activities necessary to obtain or use nicotine, and/or (6) abandonment or reduction of important social, occupational, or recreational activities.

Nicotine Replacement Therapy (NRT) – refers to stop-smoking medications (nicotine gum, patches, inhalers, lozenges) which contain nicotine intended to promote cessation by reducing craving and withdrawal symptoms in the initial period of abstinence from smoking.
Nicotine Tolerance – characterized by the need for markedly increased amounts of nicotine to achieve the desired effect, or markedly diminished effect with continued use of the same amount

Nicotine Withdrawal – refers to the non-life threatening and non-permanent effects that nicotine-dependent individuals experience after they discontinue or decrease nicotine use manifested by anger, irritability, anxiety, depression, impatience, trouble sleeping, restlessness, hunger/weight gain and difficulty concentrating that may usually occur 2-3 hours after last nicotine intake.

Non-smoker – a person who has never smoked or who used to smoke but has not smoked, not even a puff, in the last 3 months.

Occasional Smoker – a smoker who intermittently uses any tobacco products

Oral Tobacco User – one who chews tobacco

Pack-years – the product of number of packs per day and years smoked

Quit Attempt – when a smoker tries to quit and succeeds for at least 24 hours

Quit Date – the target date to completely stop smoking, ideally scheduled within 2 weeks from consultation

Quitter – a smoker who has not used any tobacco product at all, not even a puff, in the last 2 weeks before consultation visit

Relapsed Smoker – a smoker at the start of treatment who has made at least one quit attempt and failed since the last consultation visit.

Smoke-free – no smoking at any time in a specific environment, (in the buildings and open spaces); including the home (inside and outside). This is to protect patients, children and visitors from exposure to smoking and to contribute to creating tobacco-free health care.

Smokeless tobacco - refers to a variety of tobacco products that are either sniffed, sucked, or chewed.

Stop-Smoking Medications – medications to help patients who smoke to quit, such as NRTs, bupropion and varenicline,

Tobacco Dependence - cluster of behavioral, cognitive and physiological phenomena that develop after repeated tobacco use and that typically include a strong desire to use tobacco, difficulties in controlling its use, persistence in tobacco use despite harmful consequences, a higher priority given to tobacco use than other activities and obligations, increased tolerance and sometimes a physical withdrawal state

Tobacco Use - any habitual use of the tobacco plant leaf and its products. The predominant use of tobacco is by smoke inhalation of cigarettes, pipes, and cigars.

Tobacco-Free – refers to having a smoke-free environment, banning (prohibiting) the sale of tobacco products, tobacco advertising, promotion, sponsorship, and any other activities associated with or influence from the tobacco industry
INTRODUCTION
A. Rationale

Cigarette smoking remains the leading cause of preventable premature morbidity and mortality worldwide (WHO Framework Convention on Tobacco Control). An average of 600,000 people die prematurely from tobacco-related disease a year, which include 1 in 3 cancer deaths and 1 in 5 deaths overall (WHO Report on Global Tobacco Epidemic, 2011). A lifelong smoker has about 33% chance of dying prematurely from any complication of smoking (WHO Role of Health Professionals in Tobacco Control, 2005).

In the Philippines, the Food and Nutrition Research Institute (FNRI) conducted the National Nutrition Survey (NNS) involving 10,131 households and 31,235 adults aged 20 years old and older. This survey showed current smoking prevalence of 23.3%, lower than the previous data in 2013 of 25.4% and 2008 of 31.0%. (National Nutrition Survey 2013 and 2015).

In a household survey among 15 years old or older from 13,963 sampled Filipino households for a global tobacco survey, 23.8% (16.6 million) are current tobacco users, 22.7% (15.9 million) currently smoke tobacco, 18.7% (13.1 million) currently smoke tobacco daily, and 21.5% (15.1 million) currently smoke manufactured cigarettes, smoking an average of 11.2 sticks per day for males and 8.6 sticks per day for females. (Global Adult Tobacco Survey or GATS, 2015).

<table>
<thead>
<tr>
<th>Table 1. Global Adult Tobacco Survey (GATS): Comparison Fact Sheet, Philippines, 2015 versus 2009</th>
</tr>
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<tbody>
<tr>
<td>Indicator</td>
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<tr>
<td>Prevalence of current tobacco use by sex (%)</td>
</tr>
<tr>
<td>Overall</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Exposure to secondhand smoke in past 30 days (%)</td>
</tr>
<tr>
<td>Public transportation</td>
</tr>
<tr>
<td>Homes</td>
</tr>
<tr>
<td>Restaurants</td>
</tr>
<tr>
<td>Workplace</td>
</tr>
<tr>
<td>Government buildings</td>
</tr>
<tr>
<td>Healthcare Facilities</td>
</tr>
<tr>
<td>Interest in quitting (%)</td>
</tr>
<tr>
<td>Advised to quit by healthcare provider (%)</td>
</tr>
<tr>
<td>Made a quit attempt (%)</td>
</tr>
<tr>
<td>Successfully quit (%)</td>
</tr>
<tr>
<td>Thought of quitting because of warning labels (%)</td>
</tr>
<tr>
<td>Thought of quitting because of anti-cigarette info/ads (%)</td>
</tr>
<tr>
<td>Noticed any advertisements/promotions (%)</td>
</tr>
<tr>
<td>Noticed any tobacco advertisements in stores (%)</td>
</tr>
</tbody>
</table>

These data are relatively lower compared to a similar survey in 2009 (Table 1) due to warning labels on cigarette packs (44.6%), high cost of cigarettes (55.5%) and anti-cigarette information (83.2%). A monthly average of P678 is spent for cigarettes among cigarette smokers (GATS, 2015).

Interest in quitting has increased since 2009 (76.7% in 2015 from 60.4% in 2009) in the same way that percentage of current smokers (52.2%) who made a quit attempt increased. However, the quit rate was still very much lower at 4%. This low success rate maybe related to the availability and access to smoking cessation program across the country. Notably too is the absence of remarkable increase in advise to quit by health care providers.

Exposure to secondhand smoke in homes and public places decreased significantly in 2015 from 2009 with the lowest exposure noted in health care facilities and the highest in bars and night clubs (86.3%), followed by public transportation (37.6%) and at home (34.7%) (GATS, 2015).

B. Objectives of this Manual

This Clinical Practice Guidelines (CPG) is a resource and guide for all health care professionals to screen tobacco users for nicotine dependence (ICD10 F17.2), and deliver evidence-based tobacco-smoking cessation management to patients and specific population groups who use tobacco. It is aimed to enhance the capabilities of our health care professionals in the diagnosis and management of tobacco users in the country within the context of our local health system delivery and available resources. Overall, it is hoped that the use of this Manual will help bring down morbidities and mortalities associated with smoking and tobacco dependence.

The role and image of the health care professionals are essential in promoting tobacco-free-lifestyles and cultures. Thus these guidelines are intended for all health professionals, namely doctors, dentists, nurses, psychologists, pharmacists, dieticians, social workers, occupational therapists, and physiotherapists in carrying out their tobacco cessation initiatives. They can be instrumental in helping people change their behavior, particularly in quitting tobacco use.

C. Evidence and Recommendations

The guidelines are developed based on comprehensive literature review of recent evidences on tobacco use and dependence treatments until 2016. These evidences were assessed based on quality and research design, which formed basis for strong or weak recommendations.

<table>
<thead>
<tr>
<th>QUALITY OF EVIDENCE</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>High</td>
<td>Evidence based on randomized controlled trials, further research is very unlikely to change confidence in the estimate of effect</td>
</tr>
<tr>
<td>Moderate</td>
<td>Evidence based on downgraded RCTs or upgraded observational studies, further research is likely to have impact on the confidence in the estimate of effect</td>
</tr>
</tbody>
</table>
Low Evidence based on observational studies, further research is very likely to have an important impact on the confidence in the estimate of effect

Very Low Evidence based on case series or expert opinion, any estimate of effect is very uncertain

STRENGTH OF RECOMMENDATION

Strong The benefits outweigh harm, there are no cost or access issues for the general population

Weak Best available evidence is very low to low quality, magnitude of benefits or risks is uncertain or closely balanced for the general population and applicable to a specific group, population or setting; benefits may not warrant the cost or resource requirements in all

D. How to Use this Manual

The CPG has 6 chapters, each chapter focused on the following topics or concerns:

Chapter 1. *The Ill-Effects of Smoking*

Describes the toxicology of tobacco and nicotine dependence, enumerating the different diseases associated with smoking. This information can be useful for health workers to motivate patients who smoke to quit by informing them of the hazards of smoking on their health.

Chapter 2. *Benefits of Quitting*

Outlines the useful information on the time-bound benefits of quitting smoking. This will also serve as a guide to health workers on their key messages to motivate patients in their quit attempt as they shift from a smoker to a non-smoker status. This will also reinforce the benefits of staying abstinent once smokers quit.

Chapter 3. *Assessing Patients for Tobacco Use and Dependence*

Outlines the protocols on how to screen and assess the tobacco practice status of individuals consulting for related diseases or other complaints. It also includes a step-wise overview of the algorithm in smoking cessation, showing the outline of the continuum of care that must be provided at each level for individuals who want to quit smoking.

Chapter 4. *Management and Treatment of Tobacco Use and Dependence*

Defines the protocols in the management and treatment of tobacco use and dependence in the general population without co-morbid conditions. It enumerates the various treatment
options, which a tobacco user can avail with corresponding explanation of their effectiveness.

Chapter 5.  

*Pharmacologic Treatment*

Reviews the evidence for the various pharmacologic management and treatment options for tobacco use and dependence, and which are locally available in the country.

Chapter 6.  

*Treatment and Management of Special Populations*

Describes the management of tobacco use and dependence among patients who are hospitalized, will undergo surgery, adolescents, pregnant or lactating, mentally ill, and with alcohol or substance dependence or abuse.
CHAPTER 1
The Ill-Effects of Smoking
QUESTION 1: What is the composition of Tobacco Smoke?

Tobacco smoke is an aerosol mixture of water, nicotine alkaloids, tar, and more than 7,000 chemicals, hundreds of which are known to be toxic and carcinogenic, both in particulate or gaseous phase.

Tobacco smoke is an aerosol of droplets containing water, nicotine alkaloids, tar and a deadly mix of more than 7,000 chemicals, hundreds of which are toxic, and about 70 are carcinogenic (Rodgman, 2009) (US Department of Health, 2014).

- **Particulate Phase** – contains nicotine, benzo(a)pyrene and polycyclic hydrocarbons, N-nitrosornonicotine, B-naphthylamine, polonium-210, nickel, cadmium, arsenic and lead (Hoffman, 1988)
- **Gaseous Phase** – contains carbon monoxide, acetaldehyde, acetone, methanol, nitrogen oxides, hydrogen cyanide, acrolein, ammonia, benzene, formaldehyde, nitrosamines, and vinyl chloride (Hoffman, 1988)

These chemicals produce illness by way of systemic absorption causing both localized pulmonary and multiple organ injury (Fowles, 2003).

QUESTION 2: How does addiction to tobacco and nicotine dependence develop?

Nicotine, a highly addictive substance found in tobacco leaves, leads to dependence with prolonged use, causing multiple heightened mood and enhanced performance with use and associated with withdrawal symptoms once stopped.

Nicotine found in tobacco leaves is a highly addictive substance; its prolonged use leads to dependence. Nicotine addiction is sustained through the activation of the mesolimbic pathway, the “reward system” circuit within the brain that regulates feelings of pleasure and euphoria. This creates a feeling of heightened mood and enhanced performance reducing stress and anxiety as well as modulating levels of arousal. Cessation of smoking causes the emergence of withdrawal symptoms such as irritability, depressed mood, restlessness, increased appetite and anxiety. The intensity of these mood disturbances may be severe and can hamper one’s life (Benowitz, 1996).

**Figure 1** illustrates the step-wise mechanism how nicotine enters the brain after each puff of cigarette smoke: (1) Inhaled nicotine enters the circulation rapidly through the lungs. (2) Nicotine is absorbed throughout the bloodstream and reaches the brain in 10-20 seconds. (3) In the brain, nicotine binds to nicotinic acetylcholine receptors resulting in an upsurge of neurotransmitters such as dopamine, glutamate and y-aminobutyric acid (GABA). Dopamine signals a pleasurable experience. (4) Persistence of nicotine in the brain alters the structure and function of the nicotinic receptors leading to neuro-adaptation and tolerance. (5) At this time, the smoker becomes dependent on smoking to modulate mood, arousal and relief of withdrawal symptoms, or both (Benowitz, 2008).
Aside from nicotine addiction, factors that sustain cigarette smoking are (1) learned or conditioned behaviors (anticipated “rush” that reinforces the effects of nicotine and the urge to use nicotine); (2) genetics (attributed to alpha-5 alpha-3 beta-4 nicotinic cholinergic receptor gene complex on chromosome 15, which show strong genetic determinant of nicotine dependence); and (3) social and environmental factors.

Factors favoring nicotine addiction which correlate with difficulty in smoking cessation are: (1) early childhood use of cigarette; (2) behavioral problems (e.g., poor school performance, peer and parental influences); (3) personality characteristics (e.g., rebelliousness, risk taking, depression, anxiety); (4) concomitant mental illness; and (5) substance abuse disorders.

Users often relapse because of withdrawal symptoms like irritability, anxiety, difficulty concentrating, stress, and weight gain. (Benowitz, 2008) (Center for Disease Prevention, 2002)

**QUESTION 3: What are the ill-effects of Smoking?**

Smoking harms nearly every organ of the body (Figure 2). It is linked to cancer, cardiovascular and pulmonary diseases which contribute to most deaths to date. It is associated with self-reported poor health and increased absenteeism from work, leading to increased health care utilization and cost.

Smoking is a silent killer in our country, being one of the established risk factors in 7 out of 10 leading causes of mortality in the Philippines as shown in Table 2. (DOH, 2013).
Table 2. Top Ten Leading Causes of Mortality in the Philippines by Sex, 2013

<table>
<thead>
<tr>
<th>Top Ten Leading Causes of Deaths</th>
<th>Rate/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Diseases of the Heart</td>
<td>134.7</td>
</tr>
<tr>
<td>2. Diseases of the Vascular System</td>
<td>76.7</td>
</tr>
<tr>
<td>3. Accidents</td>
<td>63.1</td>
</tr>
<tr>
<td>4. Pneumonia</td>
<td>54.3</td>
</tr>
<tr>
<td>5. Malignant Neoplasms</td>
<td>53.7</td>
</tr>
<tr>
<td>6. Chronic lower respiratory diseases</td>
<td>33.9</td>
</tr>
<tr>
<td>7. Tuberculosis, all forms</td>
<td>32.7</td>
</tr>
<tr>
<td>8. Diabetes Mellitus</td>
<td>26.7</td>
</tr>
<tr>
<td>9. Nephritis, nephrotic syndrome and nephrosis</td>
<td>17.7</td>
</tr>
<tr>
<td>10. Certain conditions originating in the perinatal period</td>
<td>12.4</td>
</tr>
</tbody>
</table>

Reference: Philippine Health Statistics, Department of Health, 2013

Figure 2 illustrates the overall harmful effects of tobacco use and secondhand smoke exposure on every organ of the human body. Smoking is implicated in the most number of cancer types, and is linked to cardiovascular diseases; both of these diseases causing the highest mortality in most epidemiologic studies.


The following clinical conditions are associated with smoking:
1. Cancer

Chemicals derived from tobacco smoke serves as tumor initiators, co-carcinogens, tumor promoters, or complete carcinogens. Smoking is considered to be the largest preventable cause of cancer, and is responsible for about 30% of all cancer deaths. Smoking accounts for 87% of lung cancer deaths in men and 70% in women (Cancer Facts and Figures, 2016).

1.1 Lung Cancer

Lung cancer is the most common cancer linked to smoking and associated with the lowest survival rate (Ngelangel, 2002). In the Philippines, malignant neoplasms rank third as the leading cause of mortality next to cardiovascular diseases, with the lungs as the leading cancer site based on 2 population-based cancer registries in the country (DOH-Rizal Cancer Registry, PCSI-Manila Cancer Registry, 1980-1995).

Among 178 patients with squamous cell or small cell adenocarcinoma at the Philippine Veterans Memorial Medical Center, there were more smokers than non-smokers (Pulmonary Carcinoma Survey, 1984). Lung cancer was higher among those who smoked for at least 20 years and those who used cigarettes compared to other tobacco products.

This evidence points out that smokers with longer exposure were more susceptible to lung cancer than non-smokers. Half of persistent smokers will die of a smoking-related illness. Current smokers are 15-20x more likely to die from lung cancer than life-long non-smokers. The risk of mortality from lung cancer increases with the number of cigarettes smoked per day, although duration of smoking is the stronger determinant of lung cancer in smokers (Who Report on Global Tobacco Epidemic, 2011).

Smoking at 15 years of age doubles the risk of lung cancer compared to starting at the age of 20 years or later, after adjusting for the amount smoked (Action on Smoking and Health, 2013). Some data also suggest that young smokers are more susceptible to DNA damage and persistence of genetic alterations than those who begin smoking at an older age, which gives an important reason to prevent adolescent smoking (Murray, 2011).

Because of the low survival rate in lung cancer, quitting smoking is strongly recommended. Chronic smokers who stop during middle age avoid subsequent risk of lung cancer; while stopping before middle age avoids more than 90% of the risk attributable to smoking (Doll, 2005) (Action on Smoking and Health, 2013). As the period of abstinence increases, the risk of lung cancer decreases. However, even for periods of abstinence over 40 years, the risk for former smokers is still higher relative to never smokers.

For 2008, lung cancer incidence and mortality estimates were 10,871 cases and 9,871 deaths respectively, accounting for an estimated 267,787 DALYs lost, 99% of which were due to years of life lost. The population-attributable fractions of smoking were 65%, a total of 173,103 DALY’s were smoking-attributable, with increasing trends in incidence, mortality and DALY rates with age, majority higher among males (Bilano, 2014)

1.2 Other Cancers

There is sufficient evidence to confirm that smoking is the cause of cancer in at least 15 sites – bladder, bone marrow (myeloid leukemia), cervix, colo-rectum, kidney,
Diagnosis and Treatment of Tobacco Use and Dependence 2017


2. Pulmonary Diseases

Smoking poses a risk of developing pulmonary diseases such as Chronic Obstructive Pulmonary Disease (COPD), Bronchial Asthma, Pneumonia, and Tuberculosis. Other less common respiratory diseases include bronchiolitis-associated interstitial lung disease, desquamative interstitial pneumonitis, Langerhans cell histiocytosis, cryptogenic fibrosing, alveolitis, and eosinophilic pneumonia (Murray, 2011).

2.1 Chronic Obstructive Pulmonary Disease

The deleterious effects of smoking on airways are well established. Tobacco smoking induces airway inflammation with influx of a variety of chronic inflammatory cells and mediators, cytokines, and proteolytic enzymes, causing inflammatory damage, further augmented by oxidative stress (Hooper, 2012) (Jindal, 2004). These lead to small airway fibrosis due to parenchymal destruction, abnormal repair and disrupted defense mechanisms, resulting to airflow limitation, air trapping, gas exchange abnormalities, mucus hypersecretion, pulmonary hypertension, and other systemic effects of the inflammation (GOLD, 2014). COPD is predicted to become the third most common cause of death and disability worldwide by 2020.

Figure 3. The Natural History of Chronic Airflow Obstruction "Fletcher curve"


Despite the pathologic relationship between smoking and obstruction, Fletcher and colleagues (Figure 3) suggested that only 10-15% of smokers develop COPD due to genetic and environmental factors predisposing some smokers to have accelerated decline in lung function (Murray, 2011). Tobacco use remains the single most important factor in the pathogenesis of COPD in 80-90% of cases.
Majority of smokers are likely to have reduced lung function as they age in a dose-dependent manner. In the US, 80% of patients with COPD who eventually died, were smokers (Murray, 2011).

In a population-based survey done in the Philippines (Dantes, unpublished), 12.5% of 361,864 Filipinos aged 40 years or higher, were diagnosed with at least COPD Stage 2 by spirometry. Based on history of smoking, 19% of males with 10-20 pack years and 29% with more than 20 pack years had spirometry consistent with COPD, a pattern not observed among females. COPD was also observed in 7% who were never smokers, which may imply that other factors aside from smoking may contribute to its development (CPG COPD, 2014) (Dantes, unpublished).

A similar survey conducted in the rural setting among 722 subjects with acceptable post-bronchodilator spirometry showed an overall prevalence of COPD (all stages) of 20.8% (Idolor, 2011). There was significant association between smoking history of ≥20 pack-years and all stages of COPD (OR 2.86; 95% CI 1.78–4.60). Other factors associated with COPD include farming for >40 years, use of firewood for cooking for >60 years, and a history of tuberculosis. The number of pack-years of smoking was associated with risk of COPD at each site (Idolor, 2011).

Smoking cessation is the single most effective way of reducing the risk of developing COPD and delaying its progression. Subjects with COPD who stopped smoking had slower rate of disease progression which may approach the forced expiratory volume in 1 second (FEV₁) among non-smokers (Murray, 2011). Studies, however, have shown that merely reducing the number of cigarettes smoked does not alter the rate of decline in lung function in patients who continued to smoke (Dantes, unpublished).

2.2 Bronchial Asthma

Tobacco smoke damages the cilia in the lungs, permanently damages the airways, and modifies inflammation associated with asthma (Thomson, 2004). It causes bronchial irritation, increases bronchial responsiveness and causes airway sensitization to several occupational allergens (Action on Smoking and Health).

Smoking has been found to be a major trigger for asthma exacerbations, and is associated with accelerated decline in lung function and impaired short-term therapeutic response to corticosteroids (Murray, 2015). Cigarette smoking may alter the molecular mode of action of the steroids (airway inflammatory cell phenotypes, glucocorticoid receptors, pro-inflammatory transcription factors) (Thomson, 2004) (PCCP CPG Asthma, 2009).

Continued smoking by adult asthmatics will likely cause irreversibility of airway obstruction, which may lead to development of COPD (Action on Smoking and Health).

Although exposure to second hand smoke is common, its role in the development of asthma in childhood remains controversial (Quinto, 2013). A review showed that second-hand smoke (SHS) or environmental tobacco smoke (ETS) has been linked to higher risk of middle ear infections, bronchitis, pneumonia, coughing, wheezing and worsening of lung function. Children with asthma whose parents smoke have more severe symptoms and more frequent exacerbations (Thomson, 2004).

Smoking during pregnancy also affects lung size formation. There is increasing evidence that in-utero and childhood exposure to tobacco causes higher risk of abnormal lung function and wheezing in childhood, which may persist into adolescence.
and essentially unchanged after adjustments for lifetime SHS exposure and personal smoking (Action on Smoking and Health) (Quinto, 2013).

### 2.3 Tuberculosis

Smokers are three times more likely to develop latent TB infection, two to three times likely to develop active TB, and three times higher risk for re-infection compared to non-smokers. This risk further increases with the amount and duration of smoking. Smoking is associated with more severe disease and increases the risk of death among TB patients up to six times (Public Health Agency of Canada) (Bothamley, 2005). A systematic review and meta-analysis showed that smoking is a risk factor for TB infection and TB disease. However, it is not clear whether smoking causes additional mortality risk in persons who already have active TB (Bates, 2007).

According to WHO, more than 20% of global TB incidence may be attributed to smoking. Among high TB and smoking burden countries, it is postulated that 40% of the TB burden in India may be attributed to smoking, and a dramatic reduction in smoking and exposure to indoor air pollution in China could reduce TB incidence by up to half by 2033 (WHO TB and Tobacco).

In the most recent 2016 national TB prevalence survey (NTPS) involving 46,689 Filipinos at least 15 years of age from 108 clusters nationwide, the risk to develop pulmonary tuberculosis (PTB) among men increased among smokers and more pack-years, with the highest risk observed among men with more than 5 pack-years of smoking (aOR=3.3, 95% CI: 2.7-4.1) as shown in Table 3. Women with 1-5 pack-years of smoking also had increased risk in developing PTB (aOR=1.9, 95% CI: 1.3-2.7).

**Table 3.** Smoking as Risk Factor for Pulmonary Tuberculosis (PTB) among Survey Participants, 2016 National TB Prevalence Survey, Philippines

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Crude Distribution of Survey Cases No. (%)</th>
<th>Adjusted Distribution of Survey Cases* (%)</th>
<th>Adjusted OR*</th>
<th>SE* (OR)</th>
<th>95% CI*</th>
<th>P value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females, non-smokers</td>
<td>96 (0.5)</td>
<td>0.4</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Females, 1-5 pack years smokers</td>
<td>34 (0.9)</td>
<td>0.9</td>
<td>1.9</td>
<td>0.4</td>
<td>1.3-2.7</td>
<td>0.001</td>
</tr>
<tr>
<td>Females, &gt;5 pack years smokers</td>
<td>1 (2.7)</td>
<td>2.7</td>
<td>4.0</td>
<td>4.3</td>
<td>0.5-33.6</td>
<td>0.199</td>
</tr>
<tr>
<td>Males, non-smokers</td>
<td>57 (0.9)</td>
<td>0.9</td>
<td>2.3</td>
<td>0.4</td>
<td>1.6-3.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Males, 1-5 pack years smokers</td>
<td>199 (1.5)</td>
<td>1.5</td>
<td>3.3</td>
<td>0.4</td>
<td>2.7-4.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Males, &gt;5 pack years smokers</td>
<td>15 (2.6)</td>
<td>2.5</td>
<td>3.5</td>
<td>1.0</td>
<td>1.9-6.3</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*estimated using survey logistic regression, with stratified cluster design and accounting for inverse probability weights. Reference: Modified from the National Tuberculosis Prevalence Survey 2016, Philippines, Department of Health

### 2.4 Pneumonia
Both active and passive smoking are established independent risk factors for community-acquired pneumonia (Huttunen, 2010). The risk is higher in current and former smokers compared to non-smokers (Torres, 2013). This may be due to multifactorial mechanisms by which smoking causes peri-bronchiolar inflammation and fibrosis, increased mucosal permeability, impairment of mucociliary clearance, changes in pathogen adherence and disruption of respiratory epithelium as well as altered cellular and humoral immune system function involving the respiratory tract (Murray, 2011).

Invasive pneumococcal disease was associated with cigarette smoking (OR 4.1; 95% CI 2.4–7.3) and with passive smoking among nonsmokers (OR 2.5; 95% CI 1.2–5.1). The adjusted population attributable risk was 51% for cigarette smoking and 17% for passive smoking (Huttunen, 2010). Approximately half of otherwise healthy adults with invasive pneumococcal disease are cigarette smokers. The risk of pneumococcal disease declines to non-smoker levels ten years after cessation (Torres, 2013).

Smokers have an increased risk of developing post-operative pulmonary complications, such as pneumonia, atelectasis, prolonged mechanical ventilation and others (Murray, 2011) (Pearce, 1984).

3. Cardiovascular Disease

Smokers have an increased risk for stroke and heart diseases. The prevalence of smoking was 31% in a survey for atherosclerosis-related risk factors among 7,700 Filipinos (Sy, 2012). Risks for coronary artery disease, sudden death, cerebrovascular disease, peripheral vascular disease, and aortic aneurysm are increased. Cigarette smoking accelerates atherosclerosis and promotes acute ischemic events due to hemodynamic stress brought by increased heart rate and blood pressure, endothelial injury and dysfunction, development of atherogenic lipid profile, enhanced coagulability, arrhythmogenesis and relative hypoxemia.

Cigarette induces a chronic inflammatory state which contributes to atherogenesis that persists even with low levels of smoking. After acute myocardial event, the risk of recurrence is higher with 50% survival over the next 12 years for persistent smokers compared to quitters (WPRO Training Manual for Health Workers).

Current smoking was associated with a greater risk of non-fatal acute myocardial infarction (AMI) (OR 2.95; 95% CI 2.77–3.14; p<0.0001). The risk is also increased by 5.6% for every additional cigarette smoked. The magnitude of risk is linearly related to the number of cigarettes smoked, with even low levels of smoking (5 cigarettes per day) being associated with an appreciable risk of AMI (Teo, 2006).

Former smokers also have a higher risk of AMI compared to non-smokers, but this risk decreases within three years of quitting (OR 1.87; 95% CI 1.55–2.24). Among light smokers, there was no excess risk for AMI after three to five years of quitting; while moderate to heavy smokers still had increased risk even 20 years after quitting (OR 1.22; 95% CI 1.09–1.37) (Teo, 2006).

Exposure to second hand smoke increases the risk of AMI in non-smokers and former smokers. The risk was also related to the duration of exposure from those least exposed (1-7 hours/week) (OR 1.24; 95% CI 1.17–1.32) to those most exposed (>21 hours/week) (OR 1.62; 95% CI 1.45–1.81) (Teo, 2006).

4. Stroke
In a prospective study among 40,000 Japanese subjects aged 40 to 59 years, after adjustment for cardiovascular risk factors, the relative risk (RR) for total stroke for current smokers compared with never-smokers was 1.27 (95% CI 1.05-1.54); RR 0.72 (95% CI 0.49-1.07) for intracerebral hemorrhage; RR 3.60 (95% CI 1.62-8.01) for subarachnoid hemorrhage; and RR 1.66 (95% CI 1.25-2.20) for ischemic stroke. A dose-response relationship between the number of cigarettes smoked and the risk of ischemic stroke for men was observed (Stroke Society of the Philippines, 2011) (Stroke, 2004).

The Framingham Heart Study showed that the RR of stroke in heavy smokers (<40 cigarettes/day) was twice that of light smokers (<10 cigarettes/day), and the risk of stroke increased with the number of cigarettes smoked (Wolf, 1988). The large cohort study of US male physicians showed that heavy smokers (>20 cigarettes/day) had a RR of 2.7 for total nonfatal stroke and 1.46 for fatal stroke (Kurth, 2003).

A meta-analysis of 22 studies also demonstrates an approximate doubling of relative risk of cerebral infarction among smokers versus non-smokers (Robbins, 1994). In another prospective long term study, subjects showed an increased risk for both cerebral infarction and hemorrhagic strokes (RR 2.06; 95% CI 1.08-3.96); and subarachnoid hemorrhage (RR 3.22; 95%CI 1.26-8.18) among smokers (>20 cigarettes/day) (Stroke Society of the Philippines CPG, 2011).

Second hand smoking also affects cerebrovascular events for non-smokers. Cohort studies showed an elevated prevalence of stroke among non-smoking women living with husbands who smoked. The prevalence increased as the intensity and duration of husbands’ smoking increased (Zhan, 2005). A population-based cross-sectional study among Chinese subjects exposed to SHS showed higher risk of coronary heart disease (adjusted OR 1.69; 95% CI 1.31-2.18) and ischemic stroke (adjusted OR 1.56; 95% CI 1.03-2.35) compared to those never exposed after adjustment for 13 potential risk factors (Stroke Society of the Philippines CPG, 2011).

5. Viral Infections

Cigarette smoking is a substantial risk factor for viral infections due to structural changes in the respiratory tract and immune response. Influenza risk is several fold higher and more severe in smokers than non-smokers. Studies have shown that smoking predisposes young men to more severe influenza and higher influenza-related mortality in a dose-dependent fashion. A large longitudinal cohort study also showed that female and current heavy smokers are at increased risk of contracting colds of longer duration compared with non-smokers (Huttunen, 2010) (Arcayi, 2014).

6. Wound Infections

Smoking poses an increased risk of surgical wound infections, pressure ulcers, and impaired repair of post-surgical flaps and grafts. It inhibits healing through its deleterious effects of anoxia, hypoxia, impaired epithelialization, vasoconstriction, and enzymatic system toxicity. Smoking impairs normal arterial endothelial function, a predisposing factor in the development of atherosclerosis, peripheral vascular diseases and angina (McDaniel, 2014). Patients who continued to smoke within one month of surgery were at higher risk of pulmonary events and post-operative mortality. The optimal window for smoking cessation may be at eight weeks prior to elective surgery (Murray, 2011). Smokers should be advised to quit as soon as possible.

QUESTION 4: What is Second-Hand Tobacco Smoke (SHS)?
Second-hand smoke, also known as environmental tobacco smoke (ETS), is formed from the side-stream smoke emitted into the environment from the smoldering of cigarettes and other tobacco products between puffs and from the mainstream smoke exhaled by the smoker (Global Burden of Disease Related to SHS).

Cigarette smoking is the most prevalent and main source for SHS exposure, with varying patterns across countries. It is a complex mixture of developmental or reproductive toxicants containing 7,000 chemicals released as gases, vapors and particles during burning (Report on Carcinogens, 2005).

The US National Toxicology Program estimates that at least 250 chemicals in SHS are known to be harmful and more than 60 are known to be carcinogenic There is no safe level of exposure to second-hand tobacco smoke.

Exposure to SHS has been shown to be associated with lower respiratory infections, and asthma in children, and deaths from asthma, lung cancer, ischemic heart disease (IHD) in adults. This disease burden amounts in total to about 10.9 million DALYs; with deaths attributable to SHS in children (28%) and women (47%) (Global Burden of Disease Related to SHS).

QUESTION 5: What is Third-Hand Tobacco Smoke (THS)?

Third-hand smoke (THS) is the residual of tobacco smoke pollutants that remain in an indoor environment, re-emitted into the gas-phase, or react with other compounds in the environment to form secondary pollutants. This represents a new concept in the field of tobacco control.

Indoor surfaces can represent a hidden reservoir of THS constituents that could be re-emitted long after the cessation of active smoking (Singer, 2006) (Destaillets, 2006). Human exposure to THS pollutants has not been thoroughly studied. Infants and children are more prone to the risks related to THS exposure than adults because they spend more time indoors and have age-specific behaviors that may expose them to potential health hazards from THS (Ferrante, 2013)

QUESTION 6: What are smokeless tobacco and other alternative nicotine sources?

In addition to cigarettes smoke, other forms of tobacco and nicotine sources include smokeless tobacco, chewing tobacco (dip), snuff, as well as alternative forms of inhaled tobacco, such as bidis, kreteks, snus, hookahs, pipes, cigars, rolled tobacco and electronic cigarettes (e-cigarettes).

E-cigarettes, also known as electronic nicotine delivery system (ENDS), are growing in popularity globally especially among teens. Their marketing is directed among smokers attempting to quit.

Smokeless tobacco use is associated with higher levels of cigarette smoking and lower rates of smoking cessation. Its use produces addictive nicotine levels similar to cigarette smoking. Cigar users are at risk of cancers of the lung, oral cavity, larynx and esophagus. Heavy cigar smokers who inhale deeply are also at increased risk of coronary heart disease and COPD.
Similarly, those who smoke pipes are at higher risk of coronary heart disease and cerebrovascular disease when compared to non-smokers (US FDA, 2009) (Dutra, 2014). Studies showed that shisha or water pipes contain similar harmful chemicals that are as addictive as cigarettes (American Lung Association, 2011). Health concerns about these alternative nicotine sources are increasing.
CHAPTER 2
Benefits of Quitting
Survey of Filipino smokers at least 15 years of age showed that 76.7% of current smokers planned to or were thinking about quitting, and 52.2% made a quit attempt in the past 12 months (Global Adult Tobacco Survey, 2015). However, the long-term success rate of an unaided quit attempt is low. Only 4% of those who smoked in the past 12 months successfully quit. Only 25% of smokers who try to quit seek help and even fewer use most effective treatments. It is helpful if health workers inform patients of these immediate and long-term health benefits, aside from the ill-effects of smoking, to generate interest towards smoking cessation.

**Health Benefits of Smoking Cessation**

People who stop smoking greatly reduce their risk for disease and premature death. Although health benefits are greater for people who stop at earlier age, quitting is beneficial at all ages. Several scientific studies established major and immediate health benefits after quitting tobacco use, which redound to health and quality of life. These benefits may be seen in just 20 minutes upon quitting tobacco use as shown in Table 4 below:

**Table 4. Health Benefits of Quitting Smoking**

<table>
<thead>
<tr>
<th>Time from Quitting</th>
<th>Health Benefits of Quitting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>For all smokers</strong></td>
<td></td>
</tr>
</tbody>
</table>
| 20 minutes         | • Blood pressure returns to normal  
                     | • Pulse rate returns to normal  
                     | • Body temperature normalizes |
| 8 hours            | • The level of carbon monoxide in the blood drops to normal levels  
                     | • Level of oxygen returns to normal |
| 24 hours           | • Risk of heart attack decreases  
                     | • Lungs start to clear toxins and mucous out |
| 48 hours           | • Taste and smell sensations return to normal  
                     | • Nerve endings start re-growing |
| 72 hours           | • Breathing becomes easier as bronchial tubes relax  
                     | • Lung function improves  
                     | • Body energy increases |
| 3 months           | • Blood circulation improves  
                     | • Lung function increases |
| 1-9 months         | • Coughing and shortness of breath decrease  
                     | • Sinus congestion and fatigue decrease |
| 1 year             | • Risk from coronary artery disease decreases by 50% |
| 5 years            | • Risk of stroke reduced to that of a non-smoker |
| 10 years           | • Risk of lung cancer falls to about half that of a smoker and risk of cancer of mouth, throat, esophagus, bladder, cervix and pancreas decreases |
| 15 years           | • Risk of coronary artery disease decreases to that of a non-smoker |
For all ages and people who have already developed smoking-related health problems

| At about 30 | • Gain almost 10 years of life expectancy |
| At about 40 | • Gain 9 years of life expectancy         |
| At about 50 | • Gain 6 years of life expectancy         |
| At about 60 | • Gain 3 years of life expectancy         |
| After the onset of life-threatening disease | • Rapid benefit, people who quit smoking after having a heart attack reduce their chances of having another heart attack by 50% |

Quitting smoking decreases the excess risk of many diseases related to second-hand smoke in children, such as respiratory diseases (e.g., asthma) and ear infections.

Quitting smoking reduces the chances of impotence, having difficulty getting pregnant, having premature births, babies with low birth weights and miscarriage.


Studies show different scenarios where tobacco control can regain years of life lost prematurely because of deaths from cancer compared to either mammography screening according to national policies or to fecal occult blood screening of both men and women more than 50 years of age for colorectal cancer (Ward and Young, 1999).

Despite the inherent risk of cancer death from smoking, quitting is beneficial.

• A study on the effects of prolonged cigarette smoking and cessation on mortality from lung cancer, revealed that chronic smokers who stop during middle age avoid subsequent risk of lung cancer.

• Furthermore, stopping before middle age avoids more than 90% of the risk attributable to smoking.

• As the period of abstinence increases, the risk of lung cancer decreases. However, even for periods of abstinence over 40 years, the risk for former smokers is still higher relative to never smokers.

Economic Benefits

Quitting tobacco has very clear and tangible financial benefits to smokers, potentially saving a monthly average of P678 spent for cigarettes (GATS, 2015). About 55.5% among smokers quit because of the increasing cost of cigarettes. Further, this will also forego high cost of utilization of medical services and resources due to medical disabilities prevented by smoking cessation.

Social Benefits

After quitting, patients will feel less isolated since they can go anywhere, not just where they can smoke. Relationships with family, friends and employers can potentially improve because of less absences, and can spend more time with children and grandchildren without worrying about causing secondhand smoke. They can be more productive since time spent previously to look for a smoking area or buy cigarettes, have been dramatically reduced.
CHAPTER 3
Assessing Patients for Tobacco Use & Dependence
QUESTION 1: How are patients assessed for Tobacco Use and Dependence?

Every healthcare provider should document cigarette smoking during history taking in all patient visits, including pediatric populations. Each patient is asked directly regarding cigarette smoking and tobacco use regardless of the reason for consult. This simple screening procedure is the cornerstone in smoking cessation.

Screening should always be followed with a brief advice on smoking cessation intervention whenever applicable. Possible venues for screening include (1) outpatient consultations at primary care and specialty clinics for asthma, COPD, TB-DOTS, hypertension, diabetes clinics, pre-employment clinics; (2) preoperative evaluations; (3) prenatal checkups and; (4) during ward rounds and monitoring.

Table 5 briefly summarizes the framework of interventions for smoking cessation which depend on the time available and competency of the health care professional. Details of basic level interventions will be discussed in this chapter while intermediate and advanced levels will be discussed in Chapter 4.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>The ABC Approach (Basic Level Intervention)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Ask and document status of tobacco use for every patient.</td>
</tr>
<tr>
<td></td>
<td>2. Brief advice to stop tobacco use for every patient who uses tobacco regardless of intention to quit.</td>
</tr>
<tr>
<td></td>
<td>3. Cessation support for every patient who expresses the intention to quit.</td>
</tr>
</tbody>
</table>

| Level 2 | The 5 A’s Approach (Intermediate Level Intervention): Ask, Advice, Assess, Assist, Arrange |
| Level 3 | Intensive Behavioral Support (Advanced Level Intervention) |
|         | 1. Pre-contemplation |
|         | 2. Contemplation |
|         | 3. Preparation |
|         | 4. Action |
|         | 5. Maintenance |

Level 1. The ABC Approach

The ABC approach is used to provide the Basic Level of Intervention. It aims to incorporate tobacco use cessation advice as routine first-line intervention in every patient encounter opportunity. The simple steps to the ABC approach are as follows:

1. *Ask and document status of tobacco use for every patient.*
   - “Do you use tobacco products?”
   - “Do you smoke cigarettes?”
2. Brief advice to stop tobacco use for every patient who uses tobacco regardless of intention to quit.
   
   • “Smoking makes your health condition worse, quitting may dramatically improve your health and prevent complications.”
   
   • “Quitting smoking is the most important thing you can do to protect your health now and in the future.”
   
3. Cessation support for every patient who expresses the intention to quit.
   
   • “I can guide you in your quit attempt.”

**Level 2. The 5A’s Approach (Ask, Advice, Assess, Assist and Arrange)**

The 5A’s Approach is used for the Intermediate Level of Intervention. For this chapter, details for the steps “ASK” and “ASSESS” will be discussed.

When asking each patient that comes for consult, the following information should be obtained:

1. **Classify patient according to their smoking status.**

   _Non-Smoker_ – a person who has never smoked or who used to smoke but has not smoked in the last three months, not even a puff

   _Quitter/Ex-Smoker_ – a person who has not smoked at all in the last two weeks before consultation visit, not even a puff

   _Occasional Smoker_ – a smoker who intermittently uses tobacco

   _Daily Smoker_ – a person who uses tobacco everyday

   _Oral tobacco user_ – a person who chews tobacco

2. **For patients who smoke or have recently stopped using tobacco:**

   a. Check the tobacco use status and update this on a regular basis.

   b. Ensure that adequate documentation system is put in place for tobacco use status at every visit/consult.

   c. Determine the type of tobacco product used – this provides idea about the patient’s level of addiction since nicotine dependence is more severe among cigarette consumers compared to those who use cigars, pipes, water pipes, e-cigarettes or oral tobacco.

   d. Establish level of tobacco consumption – defined as the number of cigarettes smoked per day or the number of cigarette packs/years.

   **Pack-Years**

   Definition: _number of packs smoked/day multiplied by the number of years of smoking._

   Example:

   | Number of packs smoked per day | 15 cigarettes per day |
   | Number of years smoking | 15 years |

   $15 \times 15 / 20 = 11.2$ pack-years
e. Assess the patient’s dependence – defined by the presence of at least 3 out of 7 definition criteria, present at a given time during the past 12 months:

- Strong desire to smoke,
- Difficulty in controlling quantity,
- Withdrawal symptoms when reducing or quitting tobacco,
- Continued consumption despite obvious harmful effects priority of smoking over other activities,
- High tolerance physical tobacco withdrawal symptoms,
- Great deal of time spent in activities necessary to obtain nicotine, and
- Important activities given up or reduced because of nicotine.

f. Assess patient’s nicotine/cigarette dependence score using the Fagerström Nicotine Dependence Test (FNDT) in Table 6.

Table 6. Karl Fagerström Nicotine Tolerance Questionnaire

<table>
<thead>
<tr>
<th>Question</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How many cigarettes do you smoke per day?</td>
<td></td>
</tr>
<tr>
<td>a. 10 or less</td>
<td>0</td>
</tr>
<tr>
<td>b. 11-20</td>
<td>1</td>
</tr>
<tr>
<td>c. 21-30</td>
<td>2</td>
</tr>
<tr>
<td>d. 31 or more</td>
<td>3</td>
</tr>
<tr>
<td>2. How soon after you wake up do you smoke your first cigarette?</td>
<td></td>
</tr>
<tr>
<td>a. 0-5 minutes</td>
<td>3</td>
</tr>
<tr>
<td>b. 30 minutes</td>
<td>2</td>
</tr>
<tr>
<td>c. 31-60 minutes</td>
<td>1</td>
</tr>
<tr>
<td>d. After 60 minutes</td>
<td>0</td>
</tr>
<tr>
<td>3. Do you find it difficult to refrain from smoking in places where smoking is not allowed (e.g. hospitals, government offices, cinemas, libraries, etc.)?</td>
<td>1</td>
</tr>
<tr>
<td>a. Yes</td>
<td>1</td>
</tr>
<tr>
<td>b. No</td>
<td>0</td>
</tr>
<tr>
<td>4. Do you smoke during the first hours after waking than during the rest of of the day?</td>
<td>1</td>
</tr>
<tr>
<td>a. Yes</td>
<td>1</td>
</tr>
<tr>
<td>b. No</td>
<td>0</td>
</tr>
<tr>
<td>5. Which cigarette would you be the most unwilling to give up?</td>
<td></td>
</tr>
<tr>
<td>a. First in the morning</td>
<td>1</td>
</tr>
<tr>
<td>b. Any of the others</td>
<td>0</td>
</tr>
<tr>
<td>6. Do you smoke even when you are very ill?</td>
<td></td>
</tr>
<tr>
<td>a. Yes</td>
<td>1</td>
</tr>
<tr>
<td>b. No</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Level of Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3 points</td>
<td>Low</td>
</tr>
<tr>
<td>4 to 6 points</td>
<td>Medium</td>
</tr>
<tr>
<td>7 to 10 points</td>
<td>High</td>
</tr>
</tbody>
</table>

Reference: Toolkit for delivering the 5A’s and 5R’s brief tobacco interventions in primary care. WHO, 2014
IMPORTANT:

- Key questions are Item 1 (the number of cigarettes smoked daily) and Item 2 (the time of the first cigarette after waking up in the morning). All health workers should ask these 2 questions during consultation, which can then constitute the short version test, scored from 0 to 6, with the same score values as the FTND.

- The higher the score means the higher the nicotine dependence of an individual. A score of 4 or higher indicates the need to administer pharmacological treatment and predicts a severe withdrawal syndrome.

- For in-depth evaluation of the nicotine dependence syndrome, it is relevant for one to record all facets and discrete mechanisms of pro-addiction motivation such as: tolerance, positive and negative conditioning, opposing process, reward effect, social skills. Remember that this is done in specialized centers and are not considered routine.

3. For patients who have never used tobacco or have not used for many years:
   a. Ask repeatedly about tobacco use status.
   b. Analyze previous quit smoking attempts.

   Ask the following series of questions regarding previous quit smoking attempts of the patient. These features are important to anticipate treatment success or failure risk factors, as well as treatment compliance and patient’s capacity to overcome withdrawal:

   - Number of quit attempts,
   - Longest smoking abstinence period,
   - Previous cessation treatment,
   - History of withdrawal symptoms,
   - Relapsing risk factors, and
   - Positive aspects described during abstinence.

**Brief Advice** appears to work by triggering a quit attempt.

1. Provide personalized advice to every patient who uses tobacco regardless of intention to quit.

2. Strengthen advice by linking it to the smoker’s existing tobacco-related medical condition.

3. Document the advice that was given.

**Cessation Support**

1. Ask if the patient is willing to quit and offer appropriate cessation support.

2. Reinforce the advantages and acknowledge the disadvantages.
3. Provide information on the tobacco use cessation services if they are agreeable then proceed with 5A’s.

4. Initiate smoking cessation in dependent smokers in all cases. In the case of smokers with co-morbidities and patients with tobacco dependence, communicate to your patient the decision to treat tobacco dependence for achieving smoking remission. As for all medical decisions, the patient may opt to refuse treatment, but you have to propose smoking cessation treatment having the same conviction as when proposing a treatment for diabetes or for hypertension.

5. It is only in the case of smokers or tobacco users without tobacco dependence that you may leave the therapeutic choice to the patient and provide only counseling, slowly adapt the patient’s initial decision and move him/her towards a decision to quit smoking.

The rest of the steps in intermediate (level 2) and advanced (level 3) interventions will be discussed in the next chapter.

**QUESTION 2:** Are there laboratory tests to determine Tobacco Use and Dependence?

Smoking status as defined based on clinical criteria may be evaluated by biochemical laboratory tests to assess biomarkers of tobacco smoke exposure such as carbon monoxide concentration in exhaled air and level of cotinine as a result of the nicotine metabolism process.

There are two biomarkers used: (1) carbon monoxide (CO); and (2) cotinine.

1. Carbon Monoxide (CO) – the easiest biomarker to monitor which measures tobacco consumption in the absence of CO in the environment

   • Smoker is asked to exhale into the carbon monoxide analyzer to determine CO concentration in a smoker’s body, measured in ppm (parts per million), a measurement unit that can be converted as carboxyhemoglobin equivalent.

   • Normally, CO concentration in exhaled air of a non-smoker should not exceed 4 ppm. Smokers may reach levels of 10-20 ppm (i.e. 2-5% carboxyhemoglobin) with a dose relation increase while most non-smokers have <5 ppm of CO expired.

   • Recommended cut-off to classify smoker and non-smoker is 7 ppm. This measurement is useful in objectively assessing smoking abstinence during follow-up. If a patient under cessation pharmacotherapy declares that he/she has not smoked any more in the previous days, but his CO concentration is >3 ppm, this signifies either a recent exposure to tobacco smoke or that the patient is not honest about his/her smoking status.

   • A lower cut off (5 ppm) is proposed in areas with strong smoke-free laws.

   • Half-life of CO is about 4-6 hours, with the level of CO influenced by physical effort. CO levels reach normal values within 24 hours since the last cigarette smoked which explains why CO concentration in the morning (after several
hours of sleep without smoking) is usually lower. This is the reason why it is recommended to measure CO in the afternoon, when it will represent true tobacco exposure biomarker.

- In clinical practice, high CO values serve as proof of the impact of smoking on the cardiovascular function, while normalized CO values demonstrates elimination of toxins from the organs. Health care providers can modulate therapeutic interventions and verify patient’s adherence to the treatment program. It is thus essential for each smoking cessation center to be equipped with a CO analyzer.

- The decline of CO to normal values may serve as positive feedback to encourage the smoker to be abstinent. This presents as lower CO values at each follow-up visit reinforcing the quit attempt. Patients can appreciate how quitting reduces CO intoxication, improves oxygenation of the body (HbCO) and increases compliance to treatment.

- COPD smokers may have high CO ratio which result from CO production from chronic airway inflammation.

2. **Cotinine** – a major metabolism product of nicotine, used to assess patient’s tobacco smoke exposure.

- The half-life of nicotine is about two hours; its concentration varies depending on the time of the day when the last cigarette was smoked. Cotinine half-life is 15-20 hours, which can be measured in blood, hair, saliva and urine.

- A plasma cotinine concentration of <15 ng/ml is considered proof of non-smoking status

- In smokers, plasma cotinine is about 200 ng/ml, but may reach up to 1000 ng/ml depending on the intensity of smoking.

- Adapting treatment to cotinine level is no more efficient than using clinical symptoms monitoring to adapt the therapeutic dose. Cotinine is not usually used as a monitoring tool to survey smoking cessation in common clinical practice.

Based on the findings of 13 trials aimed to reduce number of cigarettes smoked per day using nicotine replacement therapy in most cases, carbon monoxide and cotinine levels in the body did not correlate with the number of cigarettes reduced per day. This observation led to a twofold conclusion: (a) smoking reduction cannot be coherently monitored on the basis of CO and cotinine alone; and cotinine interpretation may be ambiguous in settings where supplementary nicotine substitutes are used.

**QUESTION 3: Are there smoking cessation services available in the country?**

| Screening, diagnosis, management and treatment services for tobacco use and dependence should be provided at various levels of health care. Essential health staff, equipment and supplies are needed to enable the delivery of these services. Formal smoking cessation clinics are available in the country, but currently limited in highly urbanized cities in the national capital region. |
Table 7 summarizes the minimum resources needed for smoking cessation services at various level of health care.

### Table 7. Resources Available for Smoking Cessation Services

<table>
<thead>
<tr>
<th>Level of Health Care</th>
<th>Services to be Provided</th>
<th>Health Personnel</th>
<th>Equipment/Facility</th>
<th>Supplies/Forms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Level: BHS, RHUs Health Centers Private Clinic</td>
<td>• Assessment/screening &lt;br&gt; • Brief advices &lt;br&gt; • Cessation Support &lt;br&gt; • Referral</td>
<td>RHM Nurse Physician Nutritionist</td>
<td>Clinic or space for consultation</td>
<td>Karl Fagerström Nicotine Tolerance Questionnaire</td>
</tr>
<tr>
<td>Smoking Cessation Clinics</td>
<td><strong>ABOVE Plus:</strong> &lt;br&gt; • Laboratory services: CO, cotinine &lt;br&gt; • Pharmacologic Management &lt;br&gt; • Referral for complications or other related diseases</td>
<td>Physician Specialists Nurse Psychologist Laboratory technician</td>
<td>Laboratory equipment Clinic</td>
<td>Karl Fagerström Nicotine Tolerance Questionnaire Medicines (NRT)</td>
</tr>
<tr>
<td>Provincial/Regional Hospitals</td>
<td><strong>ABOVE Plus:</strong> &lt;br&gt; • Management/treatment of co-morbidities and other complications</td>
<td>Physician Specialists Nurse Psychologist Laboratory technician</td>
<td>Laboratory equipment Clinic</td>
<td>Karl Fagerström Nicotine Tolerance Questionnaire Medicines (NRT)</td>
</tr>
</tbody>
</table>

Reference: [http://www.doh.gov.ph/smoking-cessation-program](http://www.doh.gov.ph/smoking-cessation-program)

There are also existing formal smoking cessation programs but are currently limited in highly urbanized cities in the national capital region. Please refer to Annex C for the complete directory of formal smoking cessation clinics in the country.
CHAPTER 4
Management and Treatment of Tobacco Use and Dependence
QUESTION 1: What is the role of the physician in tobacco control?

All physicians, especially primary care providers, are in the position in helping tobacco users. Helping patients quit tobacco use as part their routine practice takes them only 3-5 minutes, and is feasible, effective and efficient.

Health professionals have several roles to play in the comprehensive tobacco control efforts, including role model, clinician, educator, scientist, leader, opinion-builder, and alliance builder.

All health professionals should at least:
- Serve as tobacco-free role models for the general public
- Address tobacco dependence as routine or standard of care practice
- Assess exposure to secondhand smoke and provide information about avoiding all exposure

If all primary care providers routinely ask about tobacco use among their patients and routinely advise tobacco users to stop, they have the potential to reach more than 80% of all tobacco users per year, trigger 40% of cases to make a quit attempt, and help 2-3% of those receiving brief advice quit successfully (WHO Toolkit, 2014).

All health professionals should also promote smoke-free policies where medical services are delivered so patients are not exposed to secondhand smoke. Patients should also be advised to live in a smoke-free home and work in a smoke-free workplace.

QUESTION 2: How is Tobacco Dependence Managed?

The benefits of smoking cessation should be offered to all smokers in the general population. The comprehensive smoking cessation algorithm and interventions should be offered to patients who wish to quit tobacco use, specially cigarette smoking. The approach should always be patient-centered, whenever feasible. 

*Strong recommendation, moderate to high quality of evidence*

Summary of Evidence:

There are several smoking interventions that have been utilized in many countries which range from self-help materials, simple advise, counseling and behavioral support to the use of pharmacotherapy. The use of these interventions may vary according to the setting and according to the groups for which the intervention will be applied.

**Figure 4** summarizes the comprehensive smoking cessation algorithm and interventions that may be offered to patients who wish to quit tobacco use, specially cigarette smoking.
Figure 4. Smoking Cessation Algorithm

**Ask and document tobacco use status**

**Tobacco Use**

**Current User**

**Recent Quitter (<6 months)**

**Advice: Provide strong, personalized message**

**Readiness Status**

**Not Ready**

**Ready**

**Assess readiness to quit in next 30 days**

**Increase Motivation (5R’s)**
- Relevance to personal situation
- Risks: short and long-term, environment
- Roadblock: identify barrier and solutions
- Repetition: repeat motivational intervention
- Reassess readiness to quit

**Prevent Relapse**
- Congratulate successes
- Encourage
- Discuss benefits experienced by patient
- Address weight gain, negative mood, and lack of support

**Recent Quitter (<6 months)**

**Current User**

**Arrive** follow-up to check plan or adjust meds
- Call right before and after quit date
- Weekly follow-up x2 weeks, then monthly x 6 months
- Ask about difficulties (withdrawal, depressed mood)
- Build upon successes
- Seek commitment to stay tobacco-free

**Assist**
- Negotiate plan
  - STAR
    - Set quit date
    - Tell family, friends and co-workers
    - Anticipate challenges: withdrawal, breaks
    - Remove tobacco from the house, car, etc.
- Discuss pharmacotherapy
- Social Support
- Provide educational materials

Reference: WHO Toolkit for 5As and 5Rs, Brief Tobacco Intervention in Primary Care, 2014
Due to the addictive nature of tobacco addiction, one or more of these smoking cessation interventions are needed and must be tailored-fit based on provider assessment of individual patients needs and level of tobacco dependence:

1. Brief advice, particularly coming from health care professionals must be offered to prompt the smoker to think about quitting.

2. Counseling and behavioral support therapy is needed for specific situations to address the psychological and behavioral component of tobacco addiction

3. Use of pharmacologic interventions will help the smoker with significant level of nicotine dependence to be able to cope with the withdrawal symptoms associated with smoking cessation.

**Brief Interventions** – practices aimed at investigating a potential problem in a short interaction and motivating an individual to begin to do something about it.

Brief interventions for tobacco use should:

- Encourage tobacco users’ motivation to think of quitting
- Refer the patient to evidence-based resources to help make the next quit attempt a success
- Require personal interaction and must be incorporated at all levels of health care, including the primary care setting, by all medical and allied medical healthcare professionals.

The 5A’s approach is a brief, goal-directed step-by-step process to more effectively address tobacco use among patients with the goal of meeting tobacco users’ needs in terms of readiness to quit. It may take three to ten minutes, depending on a provider’s clinical setting and roles. It is strongly recommended in all clinical settings as soon as patients are assessed to use tobacco and clinically demonstrate tobacco dependence.

The following steps of 5A’s do not need to be applied in a rigid manner, and other allied medical health may be involved to support tobacco users.

1. **Ask** about tobacco use every time.
   
   a. This is essential for identifying the patient’s tobacco use and some settings.
   
   b. Inquire about tobacco use as part of vital signs like blood pressure.
   
   c. Ask patients about their current and past smoking patterns as well as exposure to second hand smoke.

2. **Advise** tobacco users to quit.
   
   a. Advise the patient to quit in a clear, strong, and personalized manner.
   
   b. Urge every tobacco user to quit.
   
   c. Expect ambivalence.
   
   d. Be willing to listen non-judgmentally to his/her concerns about quitting tobacco use.
3. **Assess willingness to make a quit attempt.**
   a. Assess how ready the patient currently is to quit tobacco use.
   b. Using readiness rulers (e.g. a scale of one to ten, where ten is very ready) ask patients to rate how ready they are to quit smoking.
   c. Use also stages of change assessments in addressing the extent to which a person is ready to change, which can change from visit to visit.

4. **Assist the individual to move toward a successful quit attempt.**
   a. **Former Tobacco Users (Action/Maintenance)** – for those who have successfully quit using tobacco, focus on the action or maintenance by:
      - Assisting by affirming their success to support self-efficacy,
      - Discussing any challenges to staying quit, and
      - Discussing methods to prevent relapse.
   b. **Current Tobacco Users with High Readiness to Quit (Preparation of Plan)** – for those who are currently smoking but with high readiness to quit, personalized quit plan with a quit date need to be developed and offered an array of effective treatment options as follows:
      - Medications and Nicotine Replacement Therapy, when medically advisable (consider pregnancy, other medications, allergies, etc.)
      - Free telephone counseling if available
      - Local health department's cessation services programs, and
      - Individual or group smoking cessation programs.
   c. **Current Tobacco Users with Low Readiness to Quit (Pre-contemplation or Contemplation)** – for the current users but have low readiness to quit, enhance their willingness or motivation and ability or confidence through these methods:
      - Offer personalized, relevant feedback about the importance of quitting,
      - Explore the individuals’ perceived pros and cons of smoking and quitting, and;
      - Discuss the 5Rs of quitting tobacco use.

5. **Arrange follow-up contact.**
   a. Do a follow-up within the first week of a quit date as this most helpful
   b. You can follow-up either in person or via telephone.
   c. During this call, encourage the individual to remain quit.
   d. Discuss any obstacles and how to overcome them.
   e. Congratulate success for those who have been able to quit.
f. For those who continue to use tobacco, use the 5As and 5Rs repeatedly as they are important in supporting motivational changes over time to move toward Action for quitting tobacco

Table 8. The 5R’s of Smoking Cessation

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Help the individual identify why quitting tobacco is relevant to him/her.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk</td>
<td>Encourage the individual to verbalize possible negative outcomes of tobacco use.</td>
</tr>
<tr>
<td>Rewards</td>
<td>Help the individual identify the possible benefits of quitting tobacco use.</td>
</tr>
<tr>
<td>Roadblocks</td>
<td>Help the individual to identify possible obstacles to quitting, including those from his/her past quit attempts.</td>
</tr>
<tr>
<td>Repetition</td>
<td>It might take more than just one brief intervention before a tobacco user becomes ready to quit. Use the 5As at every visit!</td>
</tr>
</tbody>
</table>

Reference: Toolkit for delivering the 5A’s and 5R’s brief tobacco interventions in primary care, WHO 2014

QUESTION 2: How can patients be motivated to undergo smoking cessation?

On a case-by-case basis and depending on available resources, smoker’s clinical evaluation need to be completed by a psychological and a motivational interview. These working tools will provide additional elements about the patient’s psycho-behavioral profile, thus increasing the success rate with the motivational interview itself being part of the treatment.

1. One may assess the motivation of patients through direct questions. The following are examples of direct questions for assessment of quit motivation.

“Do you want to quit smoking now?”
“If you decide to quit smoking, do you think you would succeed?”
“What chances to succeed do you give yourself?”
“What are your reasons for wanting to give up smoking?”
“How important is it for you to quit smoking?”

2. Quantify motivation using the classic model (Prochaska and Di Clemente, 1991). Figure 5 shows the psychological process and Table 9 summarizes the stages of smoking cessation.

3. There are no precise instruments to measure motivation. A scale may be useful for patients to assess themselves exactly where they are, on a scale from one to ten, based on their own responses to questions about their cessation motivation.
Figure 5. The Psychosocial Process of Smoking Cessation


Table 9. Transtheoretical Model of Intentional Behavior Change

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-contemplation</td>
<td>Current smokers who are NOT planning on quitting within the next six months.</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Current smokers who are considering quitting within the next six months and have not made an attempt in the last year.</td>
</tr>
<tr>
<td>Preparation</td>
<td>Current smokers who have made quit attempts in the last year and are planning to quit within the next 30 days.</td>
</tr>
<tr>
<td>Action</td>
<td>Individuals who are not currently smoking and stopped within the past six months (recently quit).</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Individuals who are not currently smoking and stopped smoking for longer than six months but less than five years (former smokers).</td>
</tr>
</tbody>
</table>

Reference: Prochaska and Di Clemente, 1991
CHAPTER 5
Pharmacologic Treatment
Chapter 5
Pharmacologic Treatment

As summarized by Cahill et al published by the Cochrane Library 2013, the overall principles for pharmacologic treatment, although employing different mechanisms, are the following:

1. To mitigate the cravings and withdrawal symptoms often associated with the quit attempt; and/or
2. To reduce the reward derived from smoking by indirectly disrupting the release of dopamine or desensitizing nicotine receptors; and/or
3. To deliver some positive reinforcement other than cigarettes.

**QUESTION 1:** What are the available pharmacotherapy for smoking cessation in the Philippines?

Varenicline and nicotine replacement therapy (NRT) are the two forms of medicines that are licensed and available in the Philippines for smoking cessation.

Varenicline is a selective nicotinic-receptor partial agonist licensed in the Philippines as a prescription only medicine for smoking cessation since 2007. It maintains moderate levels of dopamine to counteract withdrawal symptoms and reduce smoking satisfaction.

NRTs serve as substitute nicotine from cigarettes at smaller doses to address the physiological and psychological withdrawal symptoms that often accompany a quit attempt, by reducing cravings. They were first developed in the 1970s but were made available only in the Philippines in the 21st century. The nicotine patch was withdrawn initially from the market because of quality issues with the change in climate in the Asia-Pacific region. Currently, only the nicotine pastille is locally available.

**QUESTION 2:** Should pharmacotherapy be offered to all smokers?

In the absence of any contraindications, pharmacotherapy should be offered to all motivated smokers with evidence of nicotine dependence; the choice depending on clinical suitability and patient preference. *(Strong recommendation, high quality of evidence)*

Government support is crucial to make pharmacotherapy available and affordable. *(Strong recommendation)*

Compliance with pharmacotherapy, especially duration of use, is an important determinant for the success rate of smoking cessation, with cost of pharmacotherapy as the biggest determinant. *(Strong recommendation, high quality of evidence)*

**QUESTION 3:** Is Varenicline effective in smoking cessation?
Varenicline is effective in smoking cessation. *(Strong recommendation, high quality of evidence)*

**Summary of Evidence:**

In a 2012 review article for the Cochrane Library (Cahill, 2013), 15 trials involving at least 6,000 motivated smokers, directly compared varenicline versus placebo, which showed prolonged, sustained or continuous abstinence with varenicline, increasing the odds of quitting smoking compared with placebo (OR 2.88, 95% CI 2.40, 3.47).

The main adverse event of Varenicline is mild to moderate nausea which usually subsides over time, and may be reduced with lower doses. There were also reports of raised levels of insomnia, abnormal dreams and headache.

**QUESTION 4: Is Nicotine Replacement Therapy (NRT) effective in smoking cessation?**

Nicotine Replacement Therapy is effective in smoking cessation, regardless of the form of NRT used. *(Strong recommendation, high quality of evidence)*

**Summary of Evidence:**

Twelve reviews covering 119 studies involving 101,804 participants were evaluated (Cahill, 2013) and published in the Cochrane Library, which showed that NRT was superior to placebo as an aid in smoking cessation (OR 1.84; 95% CI 1.71, 1.99).

Two meta-analyses (Silagy, 2003) published in the Cochrane Library and by the US Guidelines Panel (Fiore, 2000), reviewed 65 studies and both concluded that NRT is effective in smoking cessation based on the cessation rates at 12 months compared to placebo or no treatment, and regardless of form of NRT used (OR 1.71; 95% CI 1.60, 1.82). The effect size in the differences in abstinence rates between intervention and control groups for the various forms of NRT, ranged from 5-12% with no form significantly better than another. In the same review, 47 studies were evaluated (Fiore, 2000) and found a 7-17% abstinence rate at 6 months using NRT compared to placebo.

NRT increases quit rates at 6 to 12 months compared to placebo, and that there are no significant differences in the various forms of NRT as effective aid in smoking cessation.

**QUESTION 5: What are the available forms of NRT? How are they used and how do they compare with each other?**

NRT comes in the form of nicotine gum, transdermal patch, lozenges or sublingual tablets, sprays, inhalers and pastilles. The choice of which form to use depends on availability, cost and personal preference.

Patients should use the nicotine patch for at least 16 hours a day daily for at least 8 weeks to be effective in smoking cessation. The 4mg nicotine gum is preferred over the 2mg preparation for patients who smoke more than 20 cigarettes a day. *(Strong recommendation, moderate quality of evidence)*
Combination NRT is more effective than single NRT for smoking cessation.  
(Strong recommendation, high quality of evidence)

Summary of Evidence

Various formulations of NRT, such as nicotine gum, transdermal patch, lozenges and other forms, are buffered to alkaline pH to facilitate absorption of nicotine through cell membranes. The absorption of nicotine from NRTs is relatively slower with a more gradual peak in nicotine blood levels compared to cigarette smoking. This slow peak in blood and especially in brain levels mainly results in low abuse liability of NRTs. (West, 2000). Table 10 compares the nicotine patch and gum.

Table 10. Comparison Between Nicotine Patch and Gum

<table>
<thead>
<tr>
<th>Features</th>
<th>Nicotine Transdermal Patch</th>
<th>Nicotine Transdermal Gum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanism of Action</td>
<td>Nicotine is well absorbed through the skin as basis for the transdermal delivery technology; It is simple to use (Raw, 1998); The 21mg patch produces approximately only half of the nicotine blood levels compared to those from smoking. (Benowitz, 1994)</td>
<td>Nicotine blood levels attained is only one-third (2mg) and two-thirds (4mg) compared to that of smoking (Mckendree, 1982); Correct chewing technique is important since nicotine is absorbed through the oral mucosa. Patients to chew the gum slowly until a peppery taste or a tingling sensation on the gum is noted until it disappears</td>
</tr>
<tr>
<td>Dosage</td>
<td>For &gt;10 sticks/day or &gt;45kg weight: 21 mg patch for 24h or 15 mg for 16h For &lt;10 sticks/day or &lt;45kg weight: 14 mg patch for 24h or 10 mg for 16h</td>
<td>For &gt;20 sticks/day: 4mg gum For &lt;20 sticks/day: 2mg gum 8-12 pieces of gum per day</td>
</tr>
<tr>
<td>Evidence</td>
<td>Should be used for at least 16 hours per day, daily for at least 8 weeks; There is no evidence that tapered therapy is better than abrupt withdrawal (Silay, 2003) (Fiore, 1994)</td>
<td>4mg gum results in higher cessation rates than the 2mg gum among higher levels of nicotine dependence (smoking &gt;20 cigarettes per day)</td>
</tr>
<tr>
<td>Side Effects</td>
<td>Most common: transient itching, mild burning/tingling sensation at the application site, rarely lead to withdrawal of patch use.9 Occasional: skin erythema usually &lt;24h, may use hydrocortisone cream (50%)</td>
<td>Gastrointestinal disturbances, dyspepsia, nausea, hiccups, occasionally headache if chewed too rapidly, jaw pain and dental problems (Fiore, 2013) (Palmer, 1992)</td>
</tr>
<tr>
<td></td>
<td>Allergic contact dermatitis in 2-3%, may require discontinuation of nicotine patch therapy. Must be applied over non-hairy areas above the waist below the clavicle on rotation basis to minimize likelihood of skin reactions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sleep disturbances including insomnia and vivid dreams have been reported. If it occurs, use patch for 16h and remove at night.</td>
<td></td>
</tr>
</tbody>
</table>
Nicotine lozenges were also found to be safe and effective but based on small RCTs using 1mg and 2mg nicotine bitartrate lozenges (Dautzenbero, 2007). Single dose studies consistently demonstrated 8-10% higher maximal plasma concentrations and 25-27% higher AUC (area under the concentration-time curve) values from lozenges compared with the nicotine gums at 2- and 4-mg dose levels, probably owing to the residual nicotine retained in the gum (Choi JH, 2003). These pharmacokinetic characteristics make nicotine lozenges safe therapeutic alternative for smoking cessation. It is not yet established as to the safe maximum dose for this preparation.

Nicotine soft gelatin pastille is the only NRT available locally; however, there is limited data on its efficacy except for the knowledge on the class effect of NRTs in general. There is one observational study involving 20 subjects comparing its use with nicotine lozenges where nicotine pastilles were shown to have better mouth-feel effect because of its soft, flexible and elastic preparation associated with less local irritation in the oral mucosa compared to the lozenges with hard edges (Google Patents, Nicotine containing soft gelatin pastilles).

QUESTION 6 : What is the recommended first line pharmacotherapy for smoking cessation in the Philippines?

<table>
<thead>
<tr>
<th>Varenicline is recommended as a safe first-line pharmacotherapy in smoking cessation under acceptable clinical conditions. Appropriate assessment of its suitability to individual patients must be done. <em>(Strong recommendation, high quality of evidence)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination NRT is recommended if available, if varenicline is contraindicated or not tolerated. <em>(Strong recommendation, high quality of evidence)</em></td>
</tr>
</tbody>
</table>

Summary of Evidence:

In a review article published by the Cochrane Collaboration (Cahill, 2013), varenicline was reported to be superior to any single form of NRT (OR 1.57; 95% CI 1.29,1.91) It is more effective than nicotine patch (OR 1.51; 95% CI 1.22,1.87), nicotine gum (OR 1.72; 95% CI 1.38, 2.13), and other forms of NRT (inhaler, spray, tablets, lozenges) (OR 1.42; 95% CI 1.12,1.79) *(Level 2)*. Varenicline is as effective as combination NRT as aid for smokers who wish to quit (OR 1.06; 95% CI 0.75-1.48). Meta-analysis of serious adverse events involving varenicline in 14 trials, found no difference between varenicline and placebo arms (RR 1.06; 95% CI 0.72, 1.55)

QUESTION 7: What other effective forms of pharmacotherapy can be used for smoking cessation?

<table>
<thead>
<tr>
<th>If available, Bupropion can be used as alternative to NRT as smoking cessation aid under acceptable clinical conditions. <em>(Strong recommendation, high quality of evidence)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clonidine, in combination with behavioral support therapy, may be considered as smoking cessation aid, but potential dose-dependent sedation and postural hypotension requires close supervision with its use. <em>(Weak recommendation, moderate quality of evidence)</em></td>
</tr>
</tbody>
</table>
Summary of Evidence:

Buproprion, a non-tricyclic anti-depressant medication used to treat major depressive disorder, is also presently indicated as an aid for smoking cessation. In a review article evaluating 82 trials (Cahill, 2013), buproprion was superior to placebo (OR 1.82; 95% CI 1.60, 2.06), but not when compared with Varenicline (OR 1.59; 95% CI 1.29, 1.96). Head-to-head comparison between buproprion and NRT showed equal efficacy (OR 0.99; 95% CI 0.86, 1.13). The non-availability of Bupropion in the local setting limits its routine use for smoking cessation. There were 6 seizure episodes in the buproprion arms versus none in the placebo arm, but this was lower than the expected rate of 1:1000. SAE meta-analysis demonstrated no excess of neuropsychiatric (RR 0.88; 95% CI 0.31, 2.50) or cardiovascular events (RR 0.77; 95% CI 0.37, 1.59).

Figure 7. Pharmacological Interventions for Smoking Cessation: Meta-Analysis

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Odds ratio (95% credible interval)</th>
<th>No. of studies (direct comparisons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRT Patch vs Placebo</td>
<td>1.91 (1.71, 2.14)</td>
<td>43</td>
</tr>
<tr>
<td>NRT Gum vs Placebo</td>
<td>1.68 (1.51, 1.88)</td>
<td>56</td>
</tr>
<tr>
<td>Other NRT vs Placebo</td>
<td>2.04 (1.75, 2.38)</td>
<td>16</td>
</tr>
<tr>
<td>Combination NRT vs Placebo</td>
<td>2.73 (2.07, 3.65)</td>
<td>2</td>
</tr>
<tr>
<td>Buproprion vs Placebo</td>
<td>1.05 (1.63, 2.1)</td>
<td>36</td>
</tr>
<tr>
<td>Varenicline vs Placebo</td>
<td>2.09 (2.4, 3.48)</td>
<td>15</td>
</tr>
<tr>
<td>NRT Gum vs NRT Patch</td>
<td>0.98 (0.75, 1.03)</td>
<td>0</td>
</tr>
<tr>
<td>Other NRT vs NRT Patch</td>
<td>1.07 (0.81, 1.35)</td>
<td>6</td>
</tr>
<tr>
<td>Combination NRT vs NRT Patch</td>
<td>1.43 (1.08, 1.91)</td>
<td>3</td>
</tr>
<tr>
<td>Buproprion vs NRT Patch</td>
<td>0.97 (0.63, 1.13)</td>
<td>6</td>
</tr>
<tr>
<td>Varenicline vs NRT Patch</td>
<td>1.51 (1.22, 1.87)</td>
<td>0</td>
</tr>
<tr>
<td>Other NRT vs NRT Gum</td>
<td>1.21 (1.01, 1.46)</td>
<td>0</td>
</tr>
<tr>
<td>Combination NRT vs NRT Gum</td>
<td>1.63 (1.21, 2.2)</td>
<td>1</td>
</tr>
<tr>
<td>Buproprion vs NRT Gum</td>
<td>1.1 (1.53, 1.3)</td>
<td>0</td>
</tr>
<tr>
<td>Varenicline vs NRT Gum</td>
<td>1.72 (1.38, 2.13)</td>
<td>0</td>
</tr>
<tr>
<td>Combination NRT vs Other NRT</td>
<td>1.34 (1.18)</td>
<td>1</td>
</tr>
<tr>
<td>Buproprion vs Other NRT</td>
<td>0.91 (0.75, 1.09)</td>
<td>2</td>
</tr>
<tr>
<td>Varenicline vs Other NRT</td>
<td>1.42 (1.12, 1.79)</td>
<td>0</td>
</tr>
<tr>
<td>Buproprion vs Combination NRT</td>
<td>0.69 (0.5, 0.91)</td>
<td>0</td>
</tr>
<tr>
<td>Varenicline vs Combination NRT</td>
<td>1.06 (0.75, 1.48)</td>
<td>0</td>
</tr>
<tr>
<td>Varenicline vs Buproprion</td>
<td>1.56 (1.26, 1.93)</td>
<td>3</td>
</tr>
</tbody>
</table>

Reference: Cochrane Database of Systematic Reviews. 31 May 2013. DOI 31 MAY 2013

Clonidine, a central-acting anti-hypertensive medication, may reduce withdrawal symptoms in various addictive behaviors including tobacco use. In the same review article (Cahill, 2013) 6 trials conducted in the community and hospital clinic setting compared transdermal clonidine 0.1 to 0.3mg/day or oral clonidine 0.15 to 0.45mg/day versus placebo, in combination with some form of behavioral support therapy, given for 4 to 12 weeks. Combined results suggested that clonidine is effective (pooled RR
1.63; 95% CI 1.22, 2.18), increasing the likelihood to quit smoking by 9% compared to placebo. However, this effectiveness was offset by the appearance of adverse events that included sedation and postural hypotension that occurred in a dose-dependent manner in parallel with efficacy.

QUESTION 8: Can E-cigarettes be used as a smoking cessation aid or agent?

<table>
<thead>
<tr>
<th>There is no sufficient evidence to support the efficacy of electronic cigarettes as an acceptable form of NRT for smoking cessation</th>
<th>(Strong recommendation, high quality of evidence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-cigarettes may promote nicotine addiction and unlikely to aid in smoking cessation particularly among the youth.</td>
<td>(Strong recommendation, high quality of evidence)</td>
</tr>
<tr>
<td>The use of e-cigarettes is not recommended as an alternative NRT.</td>
<td>(Strong recommendation, high quality of evidence)</td>
</tr>
</tbody>
</table>

Summary of Evidence:

E-cigarettes are the most common prototype of electronic nicotine delivery system (ENDS). They are promoted by its manufacturers as a safe alternative to tobacco products to deliver inhaled doses of nicotine (or non-nicotine) to the respiratory system from a vaporized solution without the need for combustion of tobacco. Most e-cigarettes are designed to resemble tobacco cigarettes or other tobacco smoking products, and can give a physical sensation similar to that of inhaled tobacco smoke, as well as flavored vapor.

However, literature review does not support this claim. Two recent studies showed a reduction in desire to smoke when using 16mg ENDS compared with placebo (0mg ENDS), but the 16mg ENDS was ineffective at reducing cravings associated with tobacco use (Cahill, 2013) (West, 2000).

There is insufficient evidence to support the effectiveness of e-cigarettes as a tool or aid to smoking cessation and may displace effective smoking cessation (Raw, 1998). A recent systematic review and meta-analysis (Kalkhoran and Glantz, 2016) showed that the odds of quitting cigarettes was 28% lower among those who used e-cigarettes when compared with those who did not use e-cigarettes (OR 0.72; 95% CI 0.57, 0.91).

There is limited evidence to show safety of e-cigarettes as a smoking cessation aid, especially its long term health effects with continued use. A 2014 WHO Report on ENDS showed that the aerosol from e-cigarettes contains some carcinogenic compounds and other toxicants found in tobacco smoke at average levels of 1-2 level orders of magnitude lower than in tobacco smoke, but higher than in a nicotine inhaler. For some brands, the level of some of these cancer causing agents, such as formaldehyde and other toxicants like acrolein, have been found to be as high as in the smoke produced by some cigarettes. (Goniewicz, 2012). A study in April 2012 identified the presence of the chemical (S)-N-nitrosonomocitine in e-cigarettes, a known oral carcinogen. Another prospective study involving 32 individuals of different smoking status including never smokers, with and without any known pulmonary and other health conditions at the University of Athens documented the immediate increase
in airway resistance among never smokers after smoking e-cigarettes, lasting for 10 minutes. (Gratziou, 2012)

The initiation of e-cigarette use among the youth is associated with subsequent nicotine dependence and tobacco use. Hence, the World Health Organization and the European Respiratory Society recommend strict regulatory framework in place to protect children and non-smokers from the use of e-cigarettes.

To date, E-cigarettes are not approved by the FDA as smoking cessation aids.
CHAPTER 6
Treatment and Management of Special Populations
Smoking cessation interventions need to be tailored-fit depending on the individual smoker with or without comorbidities and/or special clinical situation. This Chapter offers the most appropriate cessation intervention that can be applied to various clinical settings.

**QUESTION 1: What smoking cessation intervention/s will be appropriate to hospitalized patients?**

Where resources are available, behavioral support should be offered by trained health professionals to all hospitalized patients assessed with tobacco use and dependence. *(Strong recommendation, high quality evidence)*

NRT should be considered among hospitalized patients who are tobacco users who attempt to quit. *(Strong recommendation, moderate quality evidence)*

**Summary of Evidence**

Hospitalization represents an opportunity for patients who use tobacco to experience a period of abstinence. Patients, while admitted, need to comply with “no smoking” hospital cessation policies. During this time, patients can be assessed for appropriate smoking cessation interventions and hopefully sustain a smoke-free status.

Successful quit rates are higher among hospitalized patients compared to the general population, with a quit rate of 4% who remained abstinent one year after. (WHO Global Adult Tobacco Survey 2015).

Hospitalized patients offered routine tobacco cessation behavioral support were more likely to quit compared to those receiving brief advice only. In one meta-analysis of 33 studies (Rigotti, 2008), continuous 1-month behavioral support (telephone support) by a trained advisor increased the long-term quit rate by 65%.

In another randomized controlled trial, intensive behavioral support (Butler, 1999) and transdermal NRT (Ezzati, 2004) increased 1-year abstinence rate when compared to minimal behavioral support alone (29% vs. 20%). Five trials studied the addition of NRT to intensive behavioral support. (Molyneux, 2003) (Campbell, 1999) (Vial, 2002) When analyzed collectively, NRT increased the likelihood of sustained abstinence, although the results did not reach statistical significance. (Rigotti, 2008) The results of these trials were consistent with the broader literature on the effect of NRT on abstinence rates.

To date, Varenicline has not been systematically assessed among hospitalized patients. Nevertheless, given its efficacy in other settings, its expected effects are unlikely to differ

**QUESTION 2: When is the appropriate time to initiate smoking cessation in**
pre-operative patients?

If available, intensive behavioral support interventions for tobacco use and dependence, including the use of NRTs, should be offered to patients over a period of four to eight weeks prior to surgery. **(Strong recommendation, high quality evidence)**

Summary of Evidence

Five randomized controlled trials (Thomsen, 2011) reported the effectiveness of intensive weekly behavioral support for 4 to 8 weeks prior to surgery, increasing abstinence rate by 10-fold, and sustained up to 12-months follow-up. (Moller, 2002) (Lindstrom, 2008) Support included NRT use, self-help materials and additional telephone support when necessary. Likewise, intensive behavioral support was able to sustain quit rates at 12-month follow-up.

In a study among 118 patients (Lindstrom, 2008) who received 4 weeks of weekly face-to-face behavioral support together with NRT use prior to surgery, they reported a 39% abstinence rate at 12 months compared to 2% in the control group. Behavioral support sessions were conducted by trained nurses or assistants. In contrast, brief intervention consisting of a single face-to-face and/or telephone support session yielded substantially lower abstinence rates.

Peri-operative intensive smoking cessation interventions reduced post-operative morbidity (e.g. wound infection, re-operation, ICU stay) and mortality. For example, the post-operative complications were reduced by 3-fold among patients who received intensive behavioral support for 4-8 weeks prior to hip and knee replacement surgery (18% vs. 52%) (Moller, 2002) Brief support interventions for tobacco use and dependence, however, did not reduce post-operative complications. (Sorensen, 2003) (Sorensen, 2007)

The optimal period for quitting tobacco use prior to surgery is uncertain. In the same RCTs, tobacco-related impaired immune function may be reversed (Akrawi, 1997) and lung function improved within 6-8 weeks of tobacco abstinence. Initiating interventions 4-8 weeks prior to surgery may be reasonable.

**QUESTION 3: What are the acceptable tobacco use interventions among adolescent smokers?**

<table>
<thead>
<tr>
<th>Education, prevention, screening, and treatment of tobacco use and dependence should be offered to adolescent smokers. <strong>(Strong recommendation, high quality evidence)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacotherapy (varenicline, NRT) is not recommended for adolescent smokers due to insufficient long-term efficacy data. Counseling and behavioral interventions are recommended. <strong>(Conditional Recommendation, low quality evidence)</strong></td>
</tr>
<tr>
<td>Smoking cessation among adolescents requires individualized approach. <strong>(Strong recommendation)</strong></td>
</tr>
</tbody>
</table>
Summary of Evidence

Smoking prevalence among the youth has reached alarming levels. A survey among the youth (National Youth Smoking Cessation Survey, 2003) showed that 22.7% were current tobacco users, and 1 out of 3 Filipino adolescents have tried smoking at some point in their lives. 50% of these adolescents were exposed to second hand smoke. (Karpinski, 2000)

Tobacco use in adolescence present both physical and social consequences. Smoking at an early age would lead to nicotine addiction than at a later age. 25% will show symptoms of addiction in the first month.

The likelihood of suicide attempts, high-risk sexual behavior, use of alcohol and drugs were associated with smoking. (CDC, 1999) Thus, tobacco control measures for children and adolescents should be aimed both as primary prevention and smoking cessation programs.

12% of high school students were able to quit smoking, while 61% tried (Youth Risk Behavior Surveillance System, 2009) Table 11 summarizes the methods of both unassisted and assisted smoking methods from a survey of smokers aged 16-24 years old. (CDC, 2006)

Table 11. Methods of Smoking Cessation in Adolescents

<table>
<thead>
<tr>
<th>Unassisted Methods</th>
<th>Quitting Method</th>
<th>Overall %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut down on amount of cigarettes smoked</td>
<td>88.3</td>
<td></td>
</tr>
<tr>
<td>Stopped buying cigarettes</td>
<td>56.0</td>
<td></td>
</tr>
<tr>
<td>Exercised more</td>
<td>51.0</td>
<td></td>
</tr>
<tr>
<td>Tried to quit with a friend</td>
<td>47.5</td>
<td></td>
</tr>
<tr>
<td>Told others you no longer smoke</td>
<td>44.5</td>
<td></td>
</tr>
<tr>
<td>Switched to lighter cigarettes</td>
<td>36.1</td>
<td></td>
</tr>
<tr>
<td>Used pamphlets/videos</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td>Switched to chewing tobacco, snuff,</td>
<td>10.1</td>
<td></td>
</tr>
<tr>
<td>Stopped hanging out with friends who smoke</td>
<td>8.4</td>
<td></td>
</tr>
<tr>
<td>Attended events (e.g., health fairs, Great American Smoke Out)</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>Used herbal or alternative therapies</td>
<td>5.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assisted Methods</th>
<th>Quitting Method</th>
<th>Overall %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Professional</td>
<td>20.1</td>
<td></td>
</tr>
<tr>
<td>Nicotine gum</td>
<td>17.4</td>
<td></td>
</tr>
<tr>
<td>Nicotine patch</td>
<td>16.2</td>
<td></td>
</tr>
<tr>
<td>Bupropion</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td>Counselor</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>Program/Class</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Nicotine inhaler</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Nicotine lozenge</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Telephone helpline</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>Internet quit site</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Acupuncture/Hypnosis</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Support Group</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Nicotine spray</td>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>
A recent Cochrane review involving 12 trials that included some form of motivational enhancement gave an estimated RR of 1.60 (95% CI 1.28, 2.01).

There was no statistically significant effect for bupropion with or without NRT.

**QUESTION 4: What are the treatment options for smoking cessation among pregnant and lactating women?**

<table>
<thead>
<tr>
<th>All pregnant, lactating and post-partum women who smoke should be offered smoking cessation treatment. They should be encouraged to stop smoking completely through counselling as the first line treatment for smoking cessation. <em>(Strong recommendation, high quality evidence)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intense support and one-on-one counselling is preferred over telephone counselling during pregnancy and breastfeeding. <em>(Strong Recommendation)</em></td>
</tr>
<tr>
<td>If conservative interventions like counseling becomes ineffective, NRT use may be considered. Intermittent NRT (e.g. gum, lozenges) is preferred over nicotine patch based on risk-benefit analysis. Close monitoring while on NRT use is needed. Self-help materials may supplement advice and support. <em>(Weak Recommendation)</em></td>
</tr>
<tr>
<td>Smoking cessation interventions should be offered to partners, friends and family members. <em>(Strong recommendation)</em></td>
</tr>
</tbody>
</table>

**Summary of Evidence**

Cigarette smoking in pregnancy causes adverse fetal outcomes like stillbirth, spontaneous abortion, reduced fetal growth, premature low birth weight, placental abruption, sudden infant death, cleft palate, cleft lip and childhood cancers. (Fiore, 2008) It is necessary to ask all pregnant women about tobacco use and provide augmented, pregnancy-tailored counseling among those who smoke.

One large global demographic and health survey on tobacco use among pregnant women in low to middle-income countries from 2001-2012 (Lancet, 2014) reported highest tobacco use in South East Asia (5.1%, 1.3-10.9) and lowest in Africa (2.0%, 1.2-2.9) with a pooled prevalence of 2.6% (95% CI, 1.8-3.6). There were 729 Filipino respondents in the survey (2008), with mean age of 27.2 years, were urban dwellers (46.3%), jobless (50.9%), belonged to the lowest household wealth quintile (26.5%) and no formal education (1.4%). Protecting both maternal and child health is imperative at all cost by prevention of smoking among all pregnant women through education and counselling, or avoiding secondhand smoke exposure in pregnancy.

In review of studies, pregnant women are more likely to quit smoking during pregnancy or continue to smoke but consume lesser amount (Cnattingius, 2004) (Schneider, 2010). In the Philippines, 71.1% (1.3% active; 69.8% passive) of pregnant or lactating women continue to smoke. Although 20-30% of women quit when they become pregnant, about 70% relapse either during pregnancy or after delivery. Thus, they comprise a special group that need to be identified due to a previous quit attempt and are likely motivated. The greatest challenge in this special population is still nicotine addiction since nicotine metabolism is relatively faster during pregnancy which directly increases the cycle of nicotine dependence (Dempsey, 2002)
A Cochrane database (Lumley, 2009) systematically reviewed 56 out of 72 RCTs conducted between January 2003 to June 2008, involving 25,000 pregnant women, which showed the following outcome of smoking cessation during pregnancy: (1) there was significant decrease in smoking during late compared to early pregnancy following an intervention (RR 0.94, 95% CI 0.93 to 0.96); and (2) there was reduction in low birth weight (RR 0.83, 95% CI 10.44 0.73 to 0.95; preterm birth (RR 0.86 95% CI 0.74 to 0.98) and mean increase in birth weight (95% CI 10.44 grams to 95.38 grams), all in favor of smoking cessation intervention. This strongly supports that smoking cessation intervention need to be implemented in all maternity care settings. In this review, heterogeneity among trials was considered and subgroup analysis done to address risk of bias in some trials, possibly arising from degree of smoking exposure to receiving different forms of interventions like cognitive behavioral therapy, NRT, motivational interview, reward system and combinations thereof.

Quitting at any point during pregnancy in addition to healthy lifestyle has the greatest benefit to both mother and the fetus. Smoking cessation should be offered as early as the first trimester. Smoking cessation interventions have been shown to be effective during pregnancy by approximately 6%. (Lumley, 2009)

There is high relapse rate in the post-partum period; however, there is evidence that this can be reduced by smoking interventions if offered at this time, but the difference is not significant at longer follow-up clinic visit.

The following 5A Framework remains useful in counseling pregnant women, similar to the general population:
- Ask about tobacco use,
- Advise to quit through clear personalized messages,
- Assess willingness to quit,
- Assist to quit, and
- Arrange follow-up and support.

Health professionals need to be creative in improving disclosure of smoking status among pregnant and lactating women. Health professionals should encourage pregnant smokers to attempt cessation through brief advice, counseling and behavioral support interventions before using pharmacological approaches since the efficacy and safety of these approaches during pregnancy are not well documented. Total tobacco abstinence is preferred over mere reduction in the number of cigarettes per day.

Pharmacotherapy should be considered for pregnant women only if conservative strategies become ineffective. Although there is limited evidence showing the effectiveness of NRT use among pregnant women (Scolio, 2008), the main benefits are due to removal of exposure to toxins in tobacco smoke and the lower dose of nicotine delivered by the NRT compared to tobacco smoke (New Zealand Ministry of Health, 2007). The risk and benefits of NRT use compared to continued smoking should be explained carefully to patients in consultation with their attending physician supervising the pregnancy. (Zwar, 2004, 2011) (US Department of Health, 2010)

In countries where NRT use is authorized among pregnant women, the 16-hour patch is preferred over the 24-hour patch because of the long clearance rate of nicotine in the fetus. Oral nicotine may be used in addition to patches or after cessation in case of cravings.
Bupropion and Varenicline have not been shown to be effective or safe for smoking cessation treatment in pregnant and lactating women. If patients become pregnant while on these drugs, treatment should be withheld.

All women of child-bearing age should be encouraged to stop smoking. Smoking cessation policy hopes to minimize the effects of passive smoking among women. The long term reduction in nicotine exposure during pregnancy can be achieved only by encouraging adolescent girls and young women not to start smoking. (US Department of Health, 2010)

It is important to advise partners of pregnant women not to smoke around them and to encourage them to quit, as this can improve quit rates.

**Question 5: What is the treatment approach to smoking cessation for patients with mental health disorders?**

Smoking cessation interventions for smokers with mental health disorders is the same as the general population. *(Strong recommendation, high quality evidence)*

**Summary of Evidence**

Although the prevalence of smoking is 2 to 4 times higher among those with mental disorders compared to the general population (Meltzer, 1996); they are as motivated to quit as their normal counterparts (85% vs 75%), with more than half contemplating on quitting within 6 months (Brown, 2000). Smokers with mental disorders generally have lower quit rates (Piper, 2010).

Smoking cessation does not exacerbate symptoms of mental disorders (Prochaska, 2010), and which may improve symptoms in the longer term. However, they will likely die from smoking-related disease than from the mental disorder (Colton, 2006)

Smoking cessation interventions that combine behavioral support and cessation pharmacotherapy are also likely to be effective among smokers with mental disorders as the general population (George, 2000) (Baker, 2006) *(Level I)*

The dose of clozapine, which is used to treat mental disorders, need to be reduced once smokers with mental disorders quit, and increased during relapse since its metabolism is reduced by smoking cessation pharmacotherapy (Wilhelm, 2004). *(Level I)*

**Question 6: Does smoking cessation affect effort to curb alcohol dependence?**

All smokers who are alcohol-dependent, whether undergoing alcohol addiction treatment programs or not, should be offered smoking cessation interventions. *(Strong recommendation, low moderate quality of evidence)*

Smoking cessation does not disrupt alcohol abstinence and may actually enhance the likelihood of long term sobriety. In a 15-month follow-up study (Friend, 2005), smoking
cessation has been shown to improve drinking outcomes. Individuals in treatment for alcohol use disorders who are motivated to stop smoking can safely be encouraged to do so without jeopardizing their sobriety (Hughes, 2006).

Cigarette smoking and nicotine dependence commonly co-exist with alcohol dependence. About 80% alcoholics smoke cigarettes and become nicotine dependent (Hughes, 1996). Hence, NRT may be particularly useful in this population.

Addressing alcoholism and nicotine dependence simultaneously may be challenging. Restricting smoking during treatment for alcoholism poses frustration for the patient and would adversely affect recovery from alcoholism.

However, research shows that in a 15-month follow-up study (Friend, 2005), smoking cessation has been shown to improve drinking outcomes. Individuals in treatment for alcohol use disorders who are motivated to stop smoking can safely be encouraged to do so without jeopardizing their sobriety (Hughes, 2006).

Few previous studies have examined nicotine replacement in alcoholics in the early stages of their alcohol treatment. However, two studies demonstrated that NRT use among alcoholics in early alcohol treatment resulted in 14.1% cigarette abstinence at six months (Joseph, 1996) and 19% at four months (Hughes, 2006). Study participation, increased awareness of cigarette smoking, and/or the nicotine patch may have all played a role in the 6-month outcomes.

**QUESTION 7: Will smoking cessation affect treatment for substance abuse?**

| Smoking cessation interventions will not affect treatment for substance abuse. Concurrent smoking cessation intervention and treatment for substance abuse is recommended. (*Strong recommendation, moderate quality of evidence*) |

**Summary of Evidence**

Patients with substance abuse disorder are more likely to have nicotine dependence compared to the general population (Substance Abuse and Mental Administration, 2011). Concurrent substance abuse is a negative predictor of successful quit attempts during smoking cessation treatment (Hughes, 1996). There is low long-term quit rates of smokers in early recovery from substance use disorders at approximately 12% (Sussman, 2002).

Incorporating smoking cessation in treatment for substance abuse does not jeopardize recovery (Baca, 2009). The combined effects of nicotine dependence and substance abuse behaviors appear to significantly influence the high rates of smoking cessation treatment failure (Weinberger, 2006). There are few studies evaluating smoking cessation pharmacotherapy among smokers with substance abuse, which suggest that NRT and behavioral approaches are effective (Burling,1996).

Treatment for nicotine dependence requires screening, assessment for readiness to change tobacco use behavior, and intervention. Patients who smoke or use other tobacco products should be asked about their interest in quitting while in substance abuse treatment (Fiore, 2008). A review of tobacco cessation studies among substance abuse users found that quit rates ranged from 7 to 60% directly after treatment and from 13 to 27% at 12 months, which are comparable to those in non-
treatment populations (El-Guebaly 2002). Majority of smoking cessation interventions used a combination of medication, educational and cognitive-behavioral approaches.

The best time to introduce tobacco treatment for substance abuse users remain unclear. Eliminating tobacco use is associated with decreased use of other abused substances (Baca, 2009). Some studies found that concurrent treatment for smoking and other drugs is not associated with increased use of alcohol or other drugs (Burling, 1996). Incorporating smoking cessation interventions in substance abuse treatment is associated with a 25% increase in the likelihood of maintaining long-term alcohol and drug abstinence (Prochaska, 2004).
SUMMARY STATEMENTS
**Summary Statements on Behavioral and Pharmacotherapy Interventions for Tobacco Smoking Cessation in Adults 2017**

<table>
<thead>
<tr>
<th>Population</th>
<th>Non-Pregnant Aged 18 years</th>
<th>Pregnant Adults Aged 18 years</th>
<th>Pregnant Adults Aged 18 years</th>
<th>All Adults Aged 18 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommendation</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Behavioral Counseling</td>
<td>Pharmacotherapy and</td>
<td>Behavioral interventions</td>
<td>Pharmacotherapy interventions:</td>
<td>Electronic nicotine</td>
</tr>
<tr>
<td></td>
<td>behavioral interventions</td>
<td>Grade A Recommendation</td>
<td>No Recommendation</td>
<td>delivery system (ENDS)</td>
</tr>
<tr>
<td></td>
<td>Grade A</td>
<td></td>
<td></td>
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<tr>
<td><strong>Assessment</strong></td>
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<td>The 5 A’s framework is a</td>
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<td></td>
<td>useful strategy for</td>
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<td></td>
<td>engaging patients in</td>
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<td>smoking discussions. The</td>
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<td>5 A’s include asking</td>
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<td>every patient about</td>
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<td>tobacco use, advising</td>
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<td></td>
<td>all tobacco users to quit,</td>
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<td>assessing the willingness</td>
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<td>of all tobacco users to</td>
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<td></td>
<td>make an attempt to quit</td>
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<td></td>
<td>assisting tobacco</td>
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<td>users with their attempt</td>
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<td>to quit, and arranging</td>
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<td>follow-up. Good Practice</td>
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<td>Points</td>
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<td><strong>Behavioral Counseling</strong></td>
<td>Behavioral interventions</td>
<td>Behavioral interventions</td>
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<td>alone (face-to-face</td>
<td>substantially improve</td>
<td>evidence on the</td>
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<td>behavioral support,</td>
<td>achievement of tobacco</td>
<td>benefits of NRT,</td>
<td>benefits of ENDS to</td>
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<td>counseling, self-help</td>
<td>smoking abstinence,</td>
<td>bupropion SR and</td>
<td>achieve tobacco</td>
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<td>materials) or combined</td>
<td>improve infant</td>
<td>varenicline to</td>
<td>cessation or improve</td>
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<td>with pharmacotherapy</td>
<td>birth weight and</td>
<td>achieve tobacco</td>
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<td>reduce risk for</td>
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<td>preterm birth.</td>
<td>perinatal outcomes in</td>
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<td>tobacco cessation</td>
<td>Grade A</td>
<td>infants. No Recommendation</td>
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<td>Grade A</td>
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<td><strong>Pharmacotherapy</strong></td>
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<td>There is inadequate</td>
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<td>bupropion SR and</td>
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<td>interventions</td>
<td>tobacco cessation or</td>
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<td>substantially improve</td>
<td>improve perinatal</td>
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<td>achievement of</td>
<td>outcomes in infants.</td>
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<td>tobacco cessation</td>
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<td>Grade A</td>
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<td>benefit of behavioral</td>
<td>benefit of behavioral</td>
<td>on pharmacotherapy</td>
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<td>interventions and</td>
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<td>interventions for</td>
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<td>smoking abstinence is</td>
<td>balance of benefits and</td>
<td>benefits and harms</td>
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<td>substantial. Grade A</td>
<td>harms cannot be</td>
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<td>substantial. Grade A</td>
<td>Recommendation</td>
<td>determined. No Recommendation</td>
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<td>Recommendation</td>
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<td><strong>Other Relevant</strong></td>
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<td>primary care physicians</td>
<td>on pharmacotherapy</td>
<td>on the use of ENDS for</td>
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<td>provide interventions,</td>
<td>interventions for</td>
<td>tobacco cessation is</td>
<td>ENDS for tobacco</td>
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<td>including education or</td>
<td>tobacco cessation is</td>
<td>insufficient, and the</td>
<td>cessation is insufficient,</td>
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<td>brief counseling, to</td>
<td>substantial, and the</td>
<td>balance of benefits and</td>
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<td>prevent the initiation of</td>
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<td>harms cannot be</td>
<td>benefits and harms</td>
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<td>Recommendation</td>
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<td>1. A system must be in</td>
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<td>place to monitor</td>
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<td>medications advice to be</td>
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<td>taken for smoking</td>
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<td>cessation. Check for the</td>
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<td>effectiveness of the</td>
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<td>interventions. It may be</td>
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<td>such interventions in a</td>
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<td>community-based or</td>
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<td>workplace-based setting</td>
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<td>to make it accessible,</td>
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<td>less costly, and less</td>
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<td>time-consuming for these</td>
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<td>patients. 3. Quit-lines</td>
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<td>can be established and</td>
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<td>they must be linked to</td>
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<td>these quit lines. 4.</td>
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<td>Emphasize and correct</td>
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<td>misconceptions about</td>
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<td>effective cessation</td>
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<td>treatment, which are</td>
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<td>common in these patients.</td>
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<td>5. Engage these patients</td>
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<td>actively in reaching out</td>
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<td>to others in their</td>
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<td>community or workplace.</td>
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<td>6. Emphasize that tobacco</td>
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<td>dependence is a long-standing condition that warrants continuous</td>
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<td>active attention.</td>
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ANNEXES
Annex A. Brief Tobacco Cessation Intervention Training Workshop

Did you

ASK:
  ■ Ask about tobacco use
  ■ Documents tobacco use status
Let the person know why you are asking about tobacco use and that you care

ADVISE:
Quitting tobacco use is the best thing you can do for your health!
  ■ Advise person to quit using tobacco
  ■ Make advice relevant
  ■ Mention risks
  ■ Mention rewards
  ■ Mention roadblocks

ASSESS:
  ■ Ask: "Are you willing to set a quit date within 30 days?"

ASSIST:
  ■ Offer self-help materials
  ■ Avoid pressuring the person who is not ready to quit

ARRANGE:
  ■ Let the tobacco user know that you are available when he or she is ready to quit.

OTHER:
  ■ Keep it brief! Limit the intervention to 3 minutes or less.
  ■ Stay focused on the task at hand

Score needed to pass: 11/14
Score: ____________________________
Instructor: __________________________
Annex B. Pharmacotherapy

<table>
<thead>
<tr>
<th>Medication</th>
<th>Nicotine Replacement Therapy</th>
<th>Bupropion</th>
<th>Varenicline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment length&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Gum: 8-12 weeks (up to 1 year)&lt;br&gt;Lozenge: 8-12 weeks (up to 1 year)&lt;br&gt;Patch: 8-12 weeks (up to 1 year)&lt;br&gt;Inhaler: 8-12 weeks (up to 1 year)</td>
<td>8 (up to 1 year)</td>
<td>12 weeks (up to 24 weeks)</td>
</tr>
<tr>
<td>Main side effects&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Dizziness&lt;br&gt;Diarrhea&lt;br&gt;Disturbed Sleep (insomnia, normal/abnormal dreams)&lt;br&gt;Coughing&lt;br&gt;Disturbed Sleep&lt;br&gt;Dry Mouth&lt;br&gt;Bad Taste</td>
<td>Nausea&lt;br&gt;Heartburn&lt;br&gt;Mouth Irritation&lt;br&gt;Sore Jaw&lt;br&gt;Insomnia&lt;br&gt;Headache&lt;br&gt;GI Disturbance&lt;br&gt;Constipation</td>
<td>Hiccups&lt;br&gt;Flatulence&lt;br&gt;Mouth Irritation&lt;br&gt;Nausea&lt;br&gt;Stomatitis&lt;br&gt;Insomnia&lt;br&gt;Seizure&lt;br&gt;Sleep disturbances</td>
</tr>
<tr>
<td>Dosage</td>
<td>2mg&lt;br&gt;4mg</td>
<td>5, 10, 1mg or 7, 14, 21mg</td>
<td>150-300 mg/day</td>
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<tr>
<td>Efficacy at six months or later (RR [95%CI])[3-5]</td>
<td>1.43 [1.33-1.53] (53 trials)</td>
<td>1.66 [1.53 to 1.81] (41 trials)</td>
<td>1.90 [1.36 to 2.67] (4 trials)</td>
</tr>
</tbody>
</table>

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ANNEX C: SMOKING CESSATION CLINICS IN THE PHILIPPINES

LUNG CENTER OF THE PHILIPPINES
Quezon Avenue, Quezon City
Contact Person: Ms. Riza San Juan
Tel: (02) 924-6101 local 267

ST. LUKE’S MEDICAL CENTER
E. Rodriguez Avenue, Quezon City
Institute of Pulmonary Medicine
Contact Person: Dr. Windfield Tan
Tel: (02) 723-0101 local 4127

PHILIPPINE HEART CENTER
East Avenue, Quezon City
Contact Person: Dr. Ma. Encarnita Limpin
Tel: (02) 925 2401 local 3805 and 3806; 0917-6283502

PHILIPPINE GENERAL HOSPITAL - NATIONAL UNIVERSITY HOSPITAL
Brgy. 670, Zone 72, Taft Avenue Ermita, Manila
Contact Person: Dr. Lenora Fernandez; Ms. Leyden Sempio
Tel: (02) 554-8400 local 5118
Email: pgh@yahoo.com

SANTO TOMAS UNIVERSITY HOSPITAL
España Blvd, Sampaloc, Manila, Metro Manila
Smoking Cessation Clinic Center for Respiratory Medicine
Contact Person: Dr. Irene Salve Joson-Vergara
Tel: (02) 749-9760

Other Medical Facilities with Trained Personnel on Smoking Cessation:

CALOOCAN CITY NORTH MEDICAL CENTER
Susano Road, Brgy. 177, Camarin, Caloocan City North
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Adriano V. Gapoy Jr.
Tel: 0917-8909053; 0909-9633302; 0922-8143753; 0914-89909053
Email: adrianogapoy@gmail.com

DR. JOSE N. RODRIGUEZ MEMORIAL HOSPITAL
St. Joseph Avenue, Tala, Caloocan City
Monday to Friday 8:00 AM – 5:00 PM; Quitline: 24/7
Contact Person: Liam Justin B. Rabanillo; Madel Kho
Tel: 0927-4425479; 0916-4331925; 0925-8281925
Email: liamjustinrabanillo@gmail.com

EAST AVENUE MEDICAL CENTER
East Avenue Medical Center, East Ave, Diliman. Quezon City
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Ma. Kasmira Maramag; Maria Bonita Marbela Tolentino
Tel: (02) 9280611 local 372, 288; 0915-5826802; 0995-1429862
Email: phu.eamc@gmail.com; eamc.pulmo@gmail.com; kasmira.maramag@gmail.com
JUSTICE JOSE ABAD SANTOS GENERAL HOSPITAL
Numancia St., Binondo, Manila
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Vincent Paul Villegas; Dr. Lorena Purisima
Tel: 0915-1132959; 09159078420
Email: vincentpaul_villegas@yahoo.com; yen10lt@yahoo.com

LAS PINAS GENERAL HOSPITAL AND SATELLITE TRAUMA CENTER
Bernabe Compound, Pulang Lupa, Las Pinas, Metro Manila
Monday to Friday 8:00 AM – 5:00 PM; Weekends 24/7 (telephone only)
Contact Person: Dr. Helen Rose Miñoza
Tel: (02) 8730557; (02) 8730556 local 243 or 378; 0998-5769945
Email: lpghstc@gmail.com; hrmiinzam@gmail.com

OSPITAL NG MAKATI
1216 Sampaguita St., Brgy. Pembo, Makati City
Monday to Friday 8:00 AM – 5:00 PM; Saturday 8:00 AM – 3:00 PM
Contact Person: Dr. Lualhati Macalintal
Tel: (02) 8826316 local 423
Email: luamacalintal@gmail.com

OSPITAL NG MAKATI - FAMILY & COMMUNITY MEDICARE
1216 Sampaguita St. Brgy Pembo, Makati City, Metro Manila
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Rene Angodung
Tel: 0923-1288326
Email: reneangodung_md@yahoo.com

OSPITAL NG MALABON
Maya-maya St. cor. Dagat- Dagatan Longos, Malabon City, Metro Manila
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Ronaldo Cantilang; Benjamin de Guzman
Tel: (02) 518-8602; 0917-5586350; 0916-3458982
Email: pagamutangbayannngmalabon@yahoo.com

OSPITAL NG MAYNILA MEDICAL CENTER
Roxas Blvd, cor. Quirino Ave., Manila
Tuesday 1:00 PM – 4:00 PM
Contact Person: Mark Andrew E. Perez
Tel: 0933-4951822

OSPITAL NG MUNTINLUPA
Civic Drive, Filinvest Center, Brgy. Alabang, Muntinlupa City
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Nicanor Echavez
Tel: 0977-2724402; (02) 771-0457
Email: nicanor.echavez@yahoo.com

PHILHEALTH PRO – NCR
10A, Sunnymed IT Bldg., Quezon Ave., Quezon City
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Aniceta Certeza
Tel: 09175007736
Email: cro@philhealth.gov.ph
PHILHEALTH PRO – NCR SOUTH BRANCH
12TH City State Center Bldg., 709 Shaw Blvd., Blvd., Barangay Orambo, Pasig City
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Manny A. Lampitoc
Tel: 0932-2808009
Email: mlampitocmd@yahoo.com

RIZAL MEDICAL CENTER
Pasig Blvd, Pasig City
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Marileen Castillo
Tel: 0917-8280622 RMC Smoking Cessation Hotline: 0915-6515995
Email: Marileen26castillo@gmail.com

SAN JUAN MEDICAL CENTER
N. Domingo St. Brgy. Balongbao, San Juan City, Metro Manila
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Joie Merriel V. Madrid
Tel: 0925-6555643
Email: sanjuanmedicalcenter@yahoo.com

SAN LAZARO HOSPITAL
Quiricada St. Sta. Cruz, Manila
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Nimfa Putong, Jecery De Guzman
Tel: (02) 310-1979; 0918-2432537
Email: jecery.deguzman85@gmail.com; nmputongmd@yahoo.com.ph

SAN LORENZO RUIZ WOMEN’S HOSPITAL
O. Reyes St. Santulan Malabon City
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Hansen Jerrel F. Pamilar
Tel: 0919-8499731
Email: jerrel17@yahoo.com

TONDO MEDICAL CENTER
Honorio Lopez Balut, Tondo, Manila, District II
Monday to Friday 8:00 AM – 5:00 PM
Contact Person: Dr. Alberto D. Diaz; Dr. Jeffrey T. Castillo
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