Stroke, Heart Attack and Tobacco – May 4, 2010
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Smoking causes heart rate and blood pressure to increase
CO in tobacco products robs the heart and brain of oxygen
Smoking creates a shortage of oxygen in all your arteries effecting all organs and tissues
Toxic products from cigarettes damage the lining of every blood vessel making atherosclerosis worse throughout
Increases the stickiness of blood, making clots easier to form in arteries, leading to heart attack and stroke
Effects of smoking:
Causes 30% of heart attacks and strokes
80% of lung cancer due to smoking
Causes more bronchitis, emphysema, ulcers and vascular diseases
Cuts an average of 13 – 14 years off your life
Never to late to quit
If you quit after your first heart attack, your chances of another heart attack decrease by 50% after the first year you quit and each year thereafter
Dr. Clyde Yancy, President, American Heart Association

Smoking is the most preventable cause of premature death in the US (2.4 million annual deaths)
Surgeon General has called it, "the leading preventable cause of disease and deaths in the United States."
Decrease your tolerance for physical activity
Increase your tendency for blood to form a clot
Decrease HDL (good) cholesterol
Creates a sevenfold higher risk for peripheral artery disease- progressing to symptomatic disease within a decade, also twice the amputation rate
Increases the risk of aortic aneurysm – rises with number of cigarette smoked daily
Increase the risk of recurrent coronary heart disease after bypass surgery
Smokers have worse outcomes in less acute coronary settings, like after bypass surgery
Produces several effects that damage the cerebrovascular system
Women who take oral contraceptives and smoke increase their risk about 20-40% of developing coronary heart disease than female smokers not taking the pill
Chronic obstructive pulmonary disease
When smoking acts with other factors, it greatly increases risk
Negative effects of smoke, in small amounts, affect the cardiovascular system
Smoking 3 cigarettes or less had a 65% higher risk of cardiovascular disease
Most marked effect in young and middle-aged adults where smoking is responsible for approximately 50% of premature acute myocardial infarctions
Risk is higher in women than in men, which does NOT depend on age
Smokers have a fourfold risk of stroke compared with people who have never smoked
Cigarette smoking increases the risk of complications for hypertensives, including the development of nephrosclerosis and progression to malignant hypertension
Some smokers may smoke fewer cigarette, yet if they inhale deeply, they increase the exposure to harmful tobacco toxins

Nicotine releases catecholamine and other neurotransmitters acting centrally and peripherally-elevates heart rate, blood pressure and cardiac output
Increases lipolysis which causes increased levels of free fatty acids which leads a drive for more oxygen-the greater myocardial oxygen demand occurs without increase in organ blood flow including a constriction of the coronary blood vessels
Crucial role nicotine plays in cardiovascular disease is maintaining tobacco dependence which exposes the smoker to more hazardous components of tobacco smoke
Carbon monoxide binds swiftly to hemoglobin reducing its oxygen carrying capacity, but also ability to release oxygen from the hemoglobin-may damage inner arterial walls, increasing fat build-up
Compensating for the hypoxia, an increase in red cell mass occurs with increased blood viscosity and a hypercoagulable state leading to thrombosis, also enhancing platelet formation
The increase blood viscosity is the leading cause of sudden cardiac death
Smoking cessation almost completely reverses the risk of cardiovascular disease from smoking- 61% benefit on coronary heart disease and 42% benefit on stroke within 5 years

Cigars and pipes aren't 'safer' than cigarettes
People have a greater risk of death from coronary heart disease, although the risk isn't as great
Cigar smokers don't usually inhale
Avoid other people's smoke
Short exposure to ETS can cause blood platelets to become stickier, damage the lining of blood vessels, and decrease the coronary flow velocity
The connection to cardiovascular-related disability and death is clear-risk is 25-30%
The exposure to ETS (environmental tobacco stroke) also causes lung cancer in non-smoking adults-risk is 20-30%
Those exposed who already have heart disease are at especially high risk
Environmental smoke should be treated as an environmental toxin – ways need to be found to protect workers and the public from this health hazard
Smoking bans led to decrease in decrease in acute coronary events ranging from 6 – 47 % and the number of heart attacks keep decreasing with time
Breathing moderate to high levels of ETS, exposure less than 1 cigarette a day, yields increased risk of CVD death by 20 – 30% compared to those without exposure
Exposure of lungs to large amounts of fine particulate matter (doesn't require extreme exposure)
Standard for particulate matter smaller than 2.5(PPM2.5)
Passive exposure to ETS contributes to significant increase in cardiovascular mortality
Relative risk of coronary heart disease of 1.25 as compared to non-smokers
No safe levels of ETS- relatively low levels of smoke yield adverse biologic responses
Inflammation

Increased platelet activation
Altered cardiac function

Women, Heart Disease and Stroke

Coronary heart disease, which causes heart attack, is the single leading cause of death for American women

Smoking has an increased risk for ischemic stroke and subarachnoid hemorrhage

Cholesterol in women is higher than men's from age 55 on

Low levels of HDL cholesterol seem to be a stronger risk factor for women than men

The more young women smoke, the more their risk of stroke rises

Strong dose-response relationship between the daily quantity of cigarettes smoked and Ischemic stroke risk in young women

Researchers found for:1-10 cigarettes a day, stroke risk increased 2.2 times
11-20 cigarettes a day, stroke risk increased 2.5 times
21-30 cigarettes a day, stroke risk increased 4.3 times
40 or more cigarettes a day, stroke risk increased 9.1 times

Evidence showed cutting down helps reduce stroke risk, but quitting is unquestionably the best option

Stroke is the third leading cause of death, nationally, behind heart disease and cancer, but the leading cause of serious, long-term disability

Smoking potentiates the effects of other stroke factors, lime oral contraceptives

Smoking and High Blood Pressure

Smoking may exacerbate the contribution of systolic blood pressure to the risk of hemorrhagic stroke (intercerebral stroke)

Smoking and high blood pressure both increase the risk of hemorrhagic stroke
These two risk factors have a synergistic effect

For every 10 millimeters of mercury (mmHg) increase in systolic blood pressure,
Smokers face and additional 15 percentage point increase in risk of hemorrhagic stroke, compared with non-smokers

Hemorrhagic stroke is particularly debilitating stroke – about half the victims die of it
Survivors are left with paralysis or other debilitating effects

Together, high blood pressure and smoking contribute to more than one in five deaths worldwide

The effect of smoking on blood pressure was specific to hemorrhagic stroke as there was no evidence to indicate a similar effect on the risk of coronary heart disease or ischemic stroke

Smoking damages blood vessels in the brain that are already weakened by high blood pressure which are prone to rupture and bleed hence susceptible to hemorrhagic stroke

TIA – Not a 'Mini' Problem-warning sign of for an upcoming stroke

Transient ischemic attack (TIA) transient episode of neurological dysfunction caused by focal brain(an injury confined to one area of the brain), spinal cord or retinal ischemia without acute tissue death lasting less than 24 hours

(Tissue death (infarction) is the main distinction between TIA and stroke)

One third of people who have a TIA have a stroke within a year – don't take TIA lightly

- Four out of ten TIA and minor stroke patients may experience cognitive problems
- Symptoms of stroke and TIA are the same
- Smokers present with TIAs much earlier in life- make even modest plaque vulnerable to Injury and thrombus formation

Aneurysm – increase the risk in people with certain genes

- Smoking, the biggest risk factor for brain aneurysm, is five times more dangerous in people with these gene variant (blood vessel in the brain will weaken and balloon out, creating a life-threatening chance of rupture
- Intracranial aneurysm increased risk between 37 to 48% in those with gene variant
  - 70 to 80% of people with aneurysms are current or former smokers
- Ruptured intracranial aneurysm can create a subarachnoid hemorrhage, where 40% die and most others experience major disabilities
- Modify the risk by not smoking and keep the blood pressure under control
- Those who inherit brain aneurysm, their rupture may occur earlier in life, from one generation to the next

Proven tobacco control policies have a positive impact on reducing death

- These measures include decreasing the number of children and adults exposed to secondhand smoke
- Helping smokers to quit with cessation programs and motivation programs
- Programs to prevent children and adults alike from starting smoking
- Surveys repeatedly show that most tobacco smokers want to quit
  - Biggest obstacle to break the cycle of tobacco addiction is availability of cessation products
- Passage of the Family Smoking Prevention and Tobacco Control Act
  - Put this dangerous industry under watchful eye of government regulators
  - Legislation to stop misleading advertising campaigns
- Benefits of legislation: Help stop the addiction cycle /reduce healthcare costs
  - Force tobacco companies to educate consumers about health Hazards
  - Third of smoking related deaths linked to heart disease and stroke

Atherosclerosis risk in communities from active and passive smoking

- Current cigarette smoking was associated with a 50% increase in the progression of atherosclerosis
- Past smoking was associated with a 25% increase of atherosclerosis
- Exposure to ETS was associated with a 20% increase of atherosclerosis
- The impact of smoking on atherosclerosis progression was greater on those with diabetes and hypertension
- The more pack-years of exposure was independently associated with faster progression
  - After controlling the pack-years, the progression rate of current and past smokers did not differ

Heart Disease and Stroke Prevention Program

- Our program is strictly CDC funded, no state dollars
- Level I and Level II funded health districts and departments
  - Geographically spaced through out the Commonwealth

- Responsible for building an active regional coalition and have activities within their region

State Stroke Registry (SEQIP) of 16 hospitals within the state:

- Geographically placed
- 9 Primary Stroke Centers, 2 more potential
- Together they are addressing the Core Measures of stroke care

Stroke Rapid Response training

- Pre-hospital training for EMTs, paramedics, and medical dispatchers
- Stroke awareness programs – 'Suddens' and FAST
- First contact with 50% of stroke patients
- 'Brain Attack' with a 3 hour window of treatment
- Time saved is brain saved

Know Your Numbers

- Northern Kentucky Care Collaborative-OWH
- Blood pressure with an educational encounter and data collection tool
- Increase use of non-medical interventions
  - Lose excess body weight
  - Limit salt in the diet- highest in processed food and restaurant food
  - Limit how much alcohol you drink
  - Increase physical activity
  - Don't smoke
- Understanding of what the blood pressure is, range the BP should be

Firefighter Heart Module

- Heart attacks are the most frequent cause firefighter deaths on the job
- Increase awareness of a heart healthy diet
- Increase physical activity
- Lose excess body weight

HeartSafe community- strengthen the links of the Chain of Survival

- Encourage and promote community awareness of the potential for saving the lives of sudden cardiac arrest victims through the use of cardiopulmonary resuscitation (CPR) and increased public access to defibrillation