

# ACCN Pulse

February 2010

Volume 3 Issue 2



## Special points of interest:

- \* Heat Month
- \* CE Offering
- \* HAC
- \* Recipe of the month
- \* Mission Statement

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## Houston Area Chapter Inaugural Meeting

It is with pleasure that the ACCN Board of Directors announces the formation of our newest Chapter: The Houston Area Chapter of the ACCN (HAC). The Westin Galleria sky ballroom, Houston Texas was the site of the HAC inaugural meeting on January 20, 2010. Attendees were treated to an appetizing array of hot and cold hours devours and refreshments, while browsing the vendor tables. Jonni Copper PhD gave an energetic presentation. The business meeting began with the appointment of HAC officers.

President: Kelly Weber, BSN, RN, CCRN

Secretary/Treasurer: Norman Cypiran, BSN, RN, CVRN, FACCN

Education Director/VP: Enrique Matias, Jr, BSN, RN, CVRN

Over the next several weeks the HAC board of directors will be working to complete their chapter charter application.

Please join the national board of directors in welcoming the HAC chapter and their newly appointed board of directors.

Any one interested in serving on the HAC board of directors or on an HAC committee can contact: Norman Cyprian at :

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@memorialhermann.org.

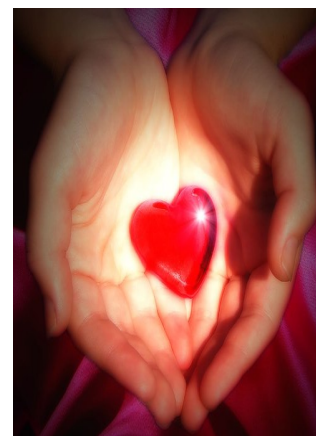
Watch the national website for updates related to the HAC chapter.

If you would like to form a local chapter of the ACCN please go to [www.accn.net](http://www.accn.net) for more information.

## Name the Newsletter Contest:

The winners of the name the newsletter contest are: first place; L. Anderson of Phoenix AZ, runners up are G. Raypoole, R. Koch, S. Khananisho. The winner will receive free admission into the 18th

Annual CVRN Symposium, and all will receive a free years membership. The National Board of Directors would like to thank all that participated. Congratulations to our winners!



## Presidents Message:

### February Is Heart Health Month

You ask what does this mean to me. As Cardiovascular Health Care Professionals we have dedicated our career to helping those with cardiovascular related illnesses. Many of these individuals have no idea what it means to be “Heart Smart” or “Heart Healthy” and it is up to us to instruct them and assist them in finding needed information and developing a Heart Healthy regime.

Heart disease is the leading cause of death in the United States, affecting men and women of all ages, and races. The impact of heart disease is felt not only by the afflicted person; it affects family, friends and the economy.

More than 64 million Americans suffer from one or more forms of cardiovascular disease. Even more alarming is the fact that many of the risk factors that can lead to heart disease, such as high blood pressure, high cholesterol, smoking and diabetes, can be prevented or controlled. In fact, research has shown that individuals that follow a “Heart Smart” or “Heart Healthy” lifestyle can significantly decrease their risk of heart disease. Below are some easy to follow guidelines to assist you in educating your patients, family, friends and self on how to maintain a “Heart Smart” or “Heart Healthy” lifestyle.

1. Eat a diet low in fat. Fat intake should be no more than 30% of your total calories for the day.
2. Eat a low-cholesterol diet. Limit cholesterol intake to less than 300 milligrams a day.
3. Chose a low-sodium diet. Many foods now come in a reduced salt or no salt variety.
4. When eating out learn to recognize menu items that are high in sodium such as: pickled, smoked, au jus, soy sauce, or broth. Also, watch for processed and prepared foods for their sodium content, often times these foods are super high in sodium due to the preservation process.
5. Consume more fiber, fruit and vegetables. It has been proven that fiber rich foods can help lower cholesterol. Fruits and vegetables contain many beneficial minerals and vitamins, such as the antioxidant beta-carotene, and vitamins A & C.
6. Consume alcoholic beverages in moderation. Heavy drinking can increase the risk for high blood pressure.
7. Maintain a healthy weight, exercise and eat in moderation to help reduce excess body fat that can increase the risk of heart disease.

During the month of February I would like to encourage all health care professionals to make a conscious effort in improving not only your Heart Health but that of your patients, family and friends. There are several websites devoted to the education of Heart Health, the most well known and widely used one is the site hosted by the American Heart Association [www.americanheart.org](http://www.americanheart.org). February 1<sup>st</sup> is designated as National Women’s Heart Health Day and kicks off the Month of Heart Healthy living, please join millions of Americans in celebrating the Nations Heart Health by wearing red every Friday through the month of February.

Katrina Spradling, MSNL, MBA, BSN, CVRN



## THE LOST ART OF AUSCULTATION—PART II

### Third Heart Sounds (S3)

The third sound is normally heard in early diastole in children and young adults and is called a physiologic S3. If however it is heard in older adults, it is probably pathological and indicates disease, notably left ventricular failure. As the left ventricle becomes on-compliant, there is a rise in pressure within the ventricle causing turbulent blood flow from the increased resistance to ventricular filling. The pathological third sound is called a **ventricular gallop**.

It occurs during the rapid filling phase of the ventricle. Patients in failure usually have an elevated end-diastolic pressure, as well as decrease in cardiac output. Other conditions that might cause an increase in diastolic blood velocity and in flow across the mitral valve are anemia, thyrotoxicosis, and atrioventricular shunts. An S3 sound is low-pitched and therefore heard with the bell of the stethoscope placed over the apex and the patient turned on his left side.

If there is right-sided failure, S3 is best heard closer to the xiphoid process or left lower sterna border. A right ventricular gallop is louder during inspiration due to increased venous return to the right ventricle. The left ventricular gallop may remain unchanged by inspiration or may decrease in loudness. Sometimes it is better heard after the patient engages in physical activity which increases venous return. It can also be felt sometimes as an extra impulse over the apex. It is heard transiently in mitral insufficiency (MI), advanced congestive heart failure (CHF), tri-

cuspid insufficiency (TI), and in left-to-right shunts (see figure 2C for third sound).

### Fourth Heart Sound—Atrial (Presystolic or S4) Gallop

An S4 is caused by over distension of the left or right ventricle just before ventricular systole and is related to either right or left atrial contraction; it occurs after atrial but before ventricular systole during the late phase of ventricular filling. A decrease in left ventricular compliance causes the ventricular pressure to rise rapidly with atrial contraction. It is common in patients with hypertensive cardiovascular disease, myocardopathy, aortic or subaortic stenosis and in pulmonary stenosis. It is heard in most patients who suffer from myocardial infarction. It is also heard in chronic coronary artery disease, severe anemia's, hyperthyroidism, or with large peripheral A-V fistulas, which produce an increase in stroke volume without a decrease in ventricular compliance. It is audible with an elevated end-diastolic pressure. Patients under 40 with valvular aortic stenosis and an S4 exhibit a peak systolic gradient of 70 mm Hg or more. A right ventricular S4 is common in pulmonary hypertension with cor pulmonale (see figure 2C for fourth sound) .

It is sometimes hard to distinguish the fourth heart sound from splitting of the first, or from just the first and an ejection sound. The distinction can be made using the bell, because an S4 may be heard only with the lightly applied bell of the stethoscope, whereas S1 and ejection sounds are heard more easily with the diaphragm.

To listen for an S4, place the patient in

a left lateral decubitus position with the bell over the point of maximal impulse (PMI). Sometimes it is best heard somewhere between the apex and the xiphoid. Right-sided fourth sounds are heard best with the patient in a supine position with the bell to the left of the xiphoid. If the S4 is heard over the apex, it is probably left ventricular in origin; and if best heard over the left lower sterna boarder, it is probably right ventricular. Right-sided fourth sounds are usually loudest on inspiration and left-sided loudest on expiration.

### Summation Gallop

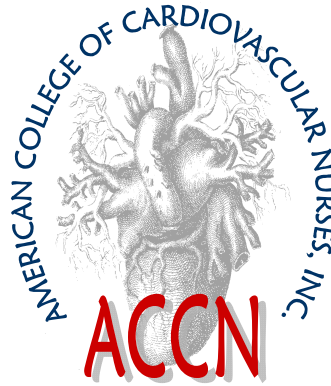
A summation gallop is a combination of an S3 and an S4 gallop, and is common in tachycardia's. The sound it creates may be louder than the normal first or second sound. It is heard in mid-diastole, and is commonly found in advanced heart failure.

### Additional Sounds

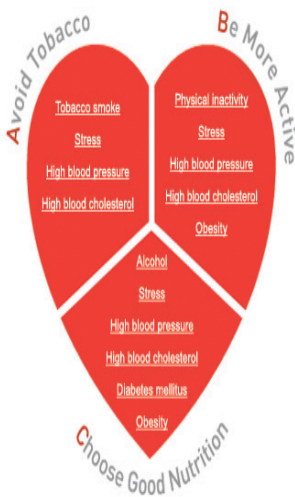
*Ejection clicks* occur when a partially stenotic aortic or pulmonic valve opens at the initiation of ventricular systole. They also may result from sudden expansion of the pulmonary artery or aortic wall at the beginning of systole. *Other systolic clicks* are heard in mid-systole and late systole; the best known is the mid-systolic click that initiates the late systolic murmur of mitral insufficiency caused by a prolapsed of a mitral valve leaflet. Clicks are best heard with the diaphragm at the apex of the heart and decrease in intensity

*2010 Membership Drive*

In honor of Heart Month the ACCN is sponsoring our annual Heart Month membership drive. Through the month of February new and renewed memberships are \$39.99. You can join or renew by logging onto accn.net and following the membership link or by printing the membership application and mailing it to ACCN Membership P.O. Box 2837 Peoria AZ 85380



The mission of the American College of Cardiovascular Nurses is to provide evidence-based practice standards through research and primary and secondary educational opportunities to assist all levels of Cardiac nurses in their preparation for Cardiovascular Nursing Board Certification



**Disclaimer**

The purpose of this newsletter is to communicate with the members of the ACCN in order to: 1) promote professionalism in nursing, 2) stimulate interest and participation in local and national chapters of the ACCN, and 3) to encourage continuing education and educational resources for readers.

By accepting advertisements for the newsletter does not imply endorsement of said product or service being advertised. Further information can be obtained by contacting: admin@vosaccn.com

## Pasta Primavera

- Pasta any shape
- 1 cup snow peas
- 1 cup asparagus cut into 2 inch sections
- 1 cup baby corn
- 1 cup baby carrots cut into 2 long halves
- 1 chopped red pepper
- 1 Green onions cut into thin strips
- 2/3 cup of low fat yogurt
- Add to taste salt and pepper
- 1 tsp lemon juice

1. Parboil the asparagus, green peas, and red peppers for about 2-4 minutes.
2. Parboil the carrots and baby corn until tender
3. In a large pasta cooker, boil the pastas until soft. Drain, and run briefly through cold water.
4. In a blender, mix the cheese, yogurt, lemon juice. Make sure the mixture is smooth. Thin the sauce with skimmed milk or water if needed.

0.4 grams of Sat Fat  
 3mg of Cholesterol  
 6 grams of Fiber  
 Makes 4 servings

In a large pot/pan, mix the veggies with the pasta, and add in the sauce. Also add salt and pepper.

Heat gently and then serve



*"The sovereign invigorator of the body is exercise, and of all the exercises walking is the best".*

*Thomas Jefferson*

as you near the base. Place the patient in a left lateral position if you cannot hear it with the patient supine. Late systolic clicks may be confused with wide splitting of S2; they are easily overlooked or may be misinterpreted as murmurs or friction rubs when they are multiple (Figure 2 A).

**Pericardial Rub:** The high frequency sounds of pericardial friction are a result of pericarditis. They have a scratchy quality much like that of a match striking sandpaper and may at times be heard only during systole. One needs to distinguish pericarditis from the short scratchy pulmonic ejection murmur. It is helpful to know that a rub will change within a matter of hours or days and may either develop a diastolic component or disappear completely.

It may be heard anywhere over the precordium but is best heard at the lower left sterna boarder where the pericardium lies in contact with the chest wall. One may need to sit the patient up, lean him or her forward and ask him or her to exhale while you listen (this same technique is used to detect the murmur of aortic insufficiency). The rub can sometimes be heard better when a patient is lying face down supported on his elbows.

**Mediastinal Crunches:** Mediastinal crunches occur when there is air in the mediastinum and are produced by movement of the heart against these small air pockets. The sounds are inconstant and are heard during ventricular systole. There may be crepitation in the neck due to subcutaneous collection of air. It is common in patients with chest tubes and in auto accident victims, especially if they have a rupture of the trachea.

**Venous Hums:** Venous hums are benign murmurs that may be heard in the neck and transmitted to the precordium; they are often confused with organic heart murmurs. If in

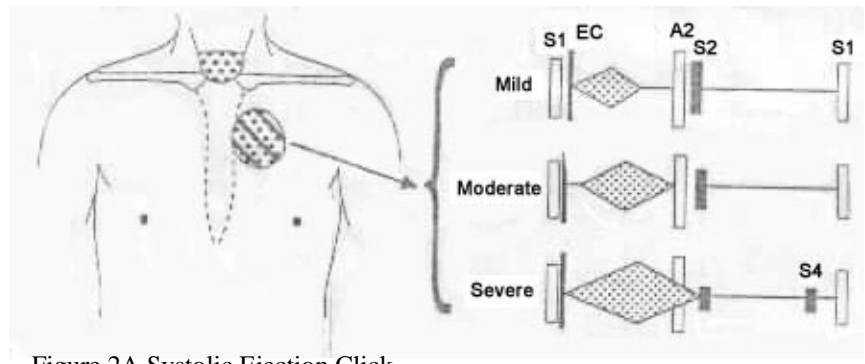


Figure 2A Systolic Ejection Click

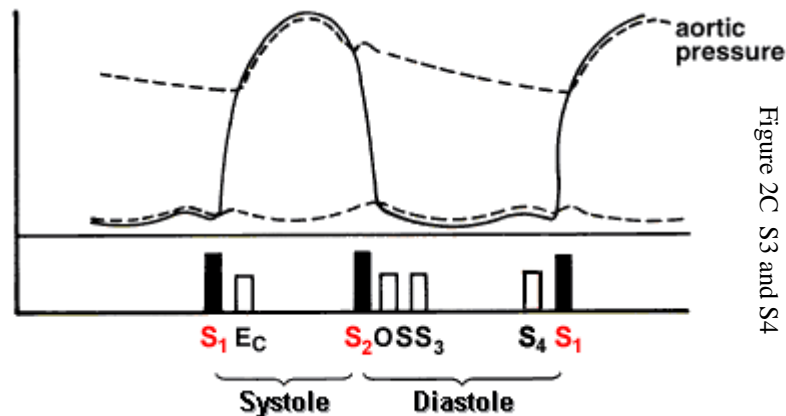


Figure 2C S3 and S4

doubt while listening to the heart., apply slight pressure to the internal jugular vein to stop the venous flow; if the murmur disappears, surly it cannot be caused by the heart.

**Murmurs:** Murmurs are produced during systole or diastole and are due to three main factors: 1) high rates of flow, regardless of the condition of the valves, 2) forward flow through a constricted or irregular valve, or into a dilated vessel, 3) backward flow through an incompetent valve, septal defect or patent ductus arteriosus. If a chorda ruptures it may vibrate producing a murmur. When listening to a murmur be sure to make note of its relationship to systole and diastole. Listen during systole in all areas of the precordium (Figure 2) then listen in diastole at all areas. Listen to murmurs with the bell and the diaphragm; some murmurs have low frequencies and therefore are better heard with the bell. Note the site of maximal intensity of the murmur,

and whether or not it radiates to any other area. If the murmur is heard throughout systole it is called pansystolic or holosystolic. Ejection murmurs start after S1 and end before S2. If the murmur appears in early diastole it is called protodiastolic (Gr. Protos, first + diastole, expansion) and if it occurs late in diastole it is presystolic.

Make note of the effect of breathing on the murmur: ask if it increases or decreases with inspiration or expiration? If the sound builds up, it is a crescendo murmur, and if it decreases in intensity it is a decrescendo murmur. Some murmurs are crescendo-decrescendo-the murmurs peak and then gradually decline.

#### How Murmurs are

**Graded:** Murmurs are graded according to their intensity on a 1-6 scale. Grade 1 is barely audible, 2 is just easily audible, 3-4 are intermediate, 5 is the loudest that requires a stethoscope, and 6 is loud enough that it can be heard

even with one side of the bell lifted off the skin. When grading, it is customary to put the grade you found over the number available to show the scale you are using (2/6). Listen for the quality of the murmur. Murmurs are described as blowing, musical and rough, and are either high or low pitched.

Innocent murmurs are benign and are not associated with cardiovascular disease: they are all systolic and are common in children, pregnant women, hyperthyroidism, and in anemic patients. The abnormal murmurs may be systolic or diastolic.

**Systolic Murmurs:** Mitral Regurgitation or Insufficiency (MI)

MI creates a murmur that is usually pansystolic, is loudest at the apex and is referred (transmitted) to the left axilla. Its intensity varies from grades 1-5, it has a harsh high-pitched voice and may be associated with a thrill at the apex and axilla.

Tricuspid Regurgitation or Insufficiency (TI): The murmurs of TI can be pansystolic and are the loudest at the left sterna border (LLSB). They are not usually accompanied by a palpable thrill. The voice of a TI is harsh; unlike others it increases on inspiration and radiates to the right sterna boarder.

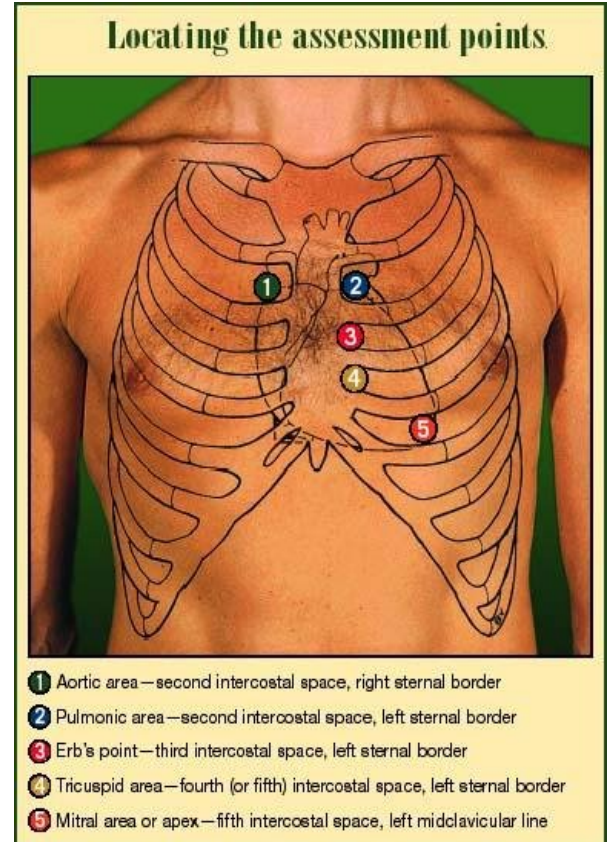
**Aortic Stenosis (AS):** AS is usually a valvular obstruction, but sometimes affects the tissue above the valve (supravalvular) and sometimes below it (subvalvular). Valvular obstructions are common in patients who have had rheumatic fever; those with congenital aortic valve disease; and elderly persons who

have calcific leaflets. The murmur of AS can be heard best at the first or second right intercostals space with patient sitting up and leaning forward; listen during a held expiration. It is a midsystolic murmur with harsh voice, and may be faint or loud. It is usually transmitted to the apex and neck. The murmur of AS is frequently accompanied by a thrill.

If the murmur is soft and short it is probably due to a mild obstruction, whereas the louder and longer murmurs are due to more severe obstruction of the aortic valve. Murmurs that peak late in systole are from severe obstruction. In persons with large chest walls, and those with emphysema, it is often better to listen for the murmur at the apex rather than at the base; it has sometimes been missed by listening at the base. It diminishes in intensity when patients are in shock, have certain arrhythmias or have heart failure. In AS one may hear paradoxical splitting of S2.

**Pulmonic Stenosis (PS):** The murmur of PS is loudest over the 2LSB and it radiates to the left side of the neck. A thrill can usually be palpated at the 2LSB. The voice of PS tends to be harsh and crescendo-decrescendo. It is usually loudest on inspiration and is graded as III-IV murmur. The more severe the stenosis, the more likely one will hear an expiratory splitting of S2.

**Diastolic Murmurs:** *Mitral Stenosis (MS)*, the murmur of MS is mid-diastolic and/or presystolic; it is often faint and can be heard only with the patient in the act of turning onto or on his or her left side. Its maximal intensity is over the apex and it is associated with an opening snap and an accentuated S1. If



this murmur is presystolic instead of mid-diastolic, it usually has a crescendo quality and it is important to note that the intensity has no bearing on severity and is not affected by inspiration. *Tricuspid Stenosis (TS)*: The murmur of TS is protodiastolic immediately following the second heart sound. Its maximal intensity is in the fourth intercostals space at the left sterna border (4LSB), and it radiates to the apex and xiphoid area; one may palpate a thrill at the 4LSB. The murmur may increase on inspiration and may have a rumbling decrescendo quality; there may be an opening snap.

**Aortic Regurgitation or Insufficiency (AI):** Maximal intensity of the murmur of AI is best appreciated at the 3-4LSB and in the 2RSB. The murmur has a blowing quality; it is usually faint (grade I-II) and radiates to the apex; a thrill is uncommon. The murmur is pantiastolic, which means that it is heard throughout diastole, and it is both decrescendo and high-pitched.

**Pulmonic Insufficiency (PI):** The murmur of PI is best appreciated at the 2LSB and typically radiates toward the apex. The murmur has a blowing quality; is high-pitched, and decrescendo. It

may increase with inspiration.

**Patient Ductus Arteriosus (PDA):** The murmur of the PDA is best appreciated at the 2LSB and often radiates to the neck and is sometimes associated with a palpable thrill. The murmur is usually “continuous,” meaning that it continues through S2 into diastole. Its intensity varies and it has a harsh voice.

**Abnormal Sounds Due to Arrhythmias:** Right bundle branch block causes an abnormal expiratory split of S2 and there is a wider-than-normal split on inspiration. Left bundle branch block produces a paradoxical splitting of S2 on expiration which narrows on inspiration. The split is best appreciated at the 3 LSB. Complete heart block causes S1 to vary in intensity, because of the varying relationship of atrial to ventricular contractions. There is often an associated systolic ejection murmur and you may hear the independent “thuds” produced by atrial activation between the long escape cycles, representing independent atrial contractions.

## THE LOST ART OF AUSCULTATION—PART II: Post Test

You will receive 1 (one) credit upon successful completion of the post test. The CE is FREDD for members of the ACCN and non-members. Complete the below CE application form and submit via email to ACCN P.O. Box 2837 Peoria, AZ 85380 or ed@vosaccn.com. Your CE certificate will be mailed within 15 business days of receipt. You must pass the post-test with an 80% or higher.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

License Number & State of Issue (required for CE): \_\_\_\_\_

Email: \_\_\_\_\_, ACCN Member Number: \_\_\_\_\_

Title: RN BSN MSN ARNP PhD CNS CCRN CVRN: \_\_\_\_\_

Provider approved by the California State Board of Registered Nursing Provider # CEP15129 for 1.0 (one) contact hours. This CE offering is good for 90 days from the date of this newsletter.

1. In the diseased heart a third heart sound probably indicates: (a) an S3 gallop, (b) presence of cardiomyopathy, (c) organic disease producing left ventricular failure, (d) incompetent AV valves
2. The presence of a fourth heart sound probably indicates: (a) over distention of right ventricle, (b) over distention of left and Right ventricle just before ventricular systole.
3. A summation gallop is a combination of: (a) an S2, S4 gallop and seen in bradycardia, (b) an S2, S3 gallop seen in tachycardia's, (c) an S4, S1 gallop seen in bradycardias, (d) S3, S4 and seen in tachycardia's.
4. Clicks occur when a partially stenotic \_ or \_ valve open at the initiation of ventricular systole: (a) mitral or tricuspid valve (b) aortic or pulmonic, (c) aortic or mitral, (d) pulmonic and tricuspid.
5. High frequency sounds of friction rubs are a result of: (a) pressure in the thoracic cavity, (b) pericarditis, (c) cardiomyopathy, (d) pulmonary embolism
6. Mediastinal crunches occur when there is air in the: (a) mediastinum, (b) pleural cavity, (c) small airways,
7. The murmur of mitral regurgitation is best heard at the \_ and is \_ pitched: (a) RSLB and low, (b) LLSB and low (c) apex and high pitched, (d) base and high pitched
8. The murmur of tricuspid regurgitation is best heard at the: (a) RSLB, (b) LLSB, (c) left midaxillary line, (d) apex
9. The murmur of \_\_\_ can best be heard at the first or second right intercostals space with the patient sitting up and leaning forward. (a) mitral stenosis, (b) tricuspid stenosis, (c) aortic stenosis, (d) pulmonic stenosis
10. The murmur of \_\_\_\_\_ is the loudest over the 2LSB and it radiates to the left side of the neck: (a) pulmonic stenosis (b) mitral stenosis, (c) aortic stenosis, (d) tricuspid stenosis
11. The more severe cases of pulmonic stenosis may produce: (a) inspiratory splitting of S2, (b) expiratory splitting of S1 (c) inspiratory splitting of S2, (d) expiratory splitting of S2
12. This CE offering was pertinent to my job Yes or No,
13. The content was easy to follow Yes or No

References per part I