11.1- CARDIOLOGY REFERRAL GUIDELINES
Contracted Group: Southwest Medical Associates

Adult Cardiology Patients (18 Years and Older)
Referral Guidelines

For Appointments:

888 S. Rancho
Las Vegas, NV 89109
Phone: (702) 877-8654
Fax: (702) 242-7998

NOTE: A Cardiologist is always available to discuss a case and make suggestions regarding work up.

The following diagnostics are needed prior to cardiology consultations:

Chest Pain
-ECG
- Chest x-ray
- Lab work: CBC, Chemistry Panel, Lipid and Thyroid Panel, Hemoglobin
- Treadmill Test (only if patient has no known history of CAD or if pain is "low risk.")
- Echocardiogram (if heart murmur present)

Congestive Heart Failure (CHF)
- Chest x-ray
- Lab work: CBC, Chemistry Panel, Lipid and Thyroid Panel, BNP
- EKG-if not done in past 6 months
- Echocardiogram

Arrhythmia
-Documentation of arrhythmia-ECG, Holter, etc.
- Lab work: CBC, Chemistry Panel, Lipid and Thyroid Panel
- Echocardiogram
- Holter Monitor-if not previously done

Heart Block
If high degree heart block and patient is symptomatic, send to emergency room.
Medication List
- Lab work: CBC, Chemistry Panel, Lipid and Thyroid Panel
- EKG
- Echocardiogram

- Holter Monitor

Evaluation of Coronary Artery Disease Guidelines

Identification of patients with Coronary Artery Disease. The initial screening and diagnostic work-up of patients suspected of having Coronary Artery Disease is to be performed by the Primary Care Physician (PCP). Cardiology consultation is to be obtained only after the screening and therapeutic measures below have been accomplished. (Telephone consultation is appropriate at any time with on-call cardiologist)

Evaluation for Cardiac Risk Factors without Established Disease

- Individual screening of patients by PCP for initial complete history and physical examination.
- Initial evaluation consists of ruling in or out the factors listed below:
  - Smoking
  - Hypertension
  - Diabetes mellitus
  - HDL <35mg.dl
  - LDL >130mg/dl
  - Family history: Male, first-degree relative, MI at age <55 years
    Female, first-degree relative, MI at age <65 years
    First degree relative = Birth Father or Mother, and siblings
  - Presence of atherosclerosis elsewhere (PVD)
- Diagnostic evaluations to include:
  - Yearly lipid panel evaluation
  - Referral for (screening) treadmill stress testing if indicated.
- Therapy:
  - Treatment of the positive treatable risk factors.
  - Cardiology referral is appropriate if the treadmill stress test is positive for ischemia or the patient's history is strongly suggestive of angina in the presence of a negative stress test.

Evaluation of Episodic Chest pain (not ongoing):

Initial history and physical examination to be performed by PCP. Evaluation to include the following:

- Evaluation of precipitating and relieving factors, presence or absence of aggravation by breathing or motion of ribs and/or shoulders.
- Evaluation of cardiac risk factors
- Presence or absence of atherosclerosis by history and physical exam.

Diagnostic evaluations to include (to be conducted and treated by PCP):

- Laboratory evaluation to include CBC, Renal Panel, TSH, Lipid Panel, Hemoglobin
- Current EKG
- Referral for non-invasive testing, if indicated, to include:

Evaluation of Episodic Chest pain (not ongoing) contd.:

- Appropriate Treadmill stress testing modality
- Echocardiography, if murmur or left ventricular dysfunction

Therapy:

- Treatment with Aspirin, beta-blockers, nitrates and ACE Inhibitors as indicated.
- Cardiology referral is appropriate at this point if the stress test is positive for ischemia.
- Referral **must** include copies of above-generated data, *except data previously generated by outside Cardiology group*.

Evaluation of Known Atherosclerosis:

- Routine follow up of patients with previous CABG, MI or PTCA or Stent >6 months old, if stable, is to be conducted by the PCP.
- PCP evaluation consists of:
  - Referral for appropriate stress test when indicated.
  - Yearly lipid panel.
- Therapy:
  - Treatment with Aspirin, beta-blockers, ACE-Inhibitors, nitrates and calcium channel blockers (patient's intolerant to beta-blockade) as indicated.
  - Treatment of lipids according to NCEP-2 guidelines (LDL <100mg/dl).
  - Treatment of hypertension according to JNC-VI guidelines (BP<140/90).
  - Cardiology referral is appropriate if clinical status changes.

Evaluation of Active Chest Pain:
Evaluation conducted by PCP reveals current symptoms with or without EKG changes (this is not an appropriate office-to-office outpatient referral).

- Diagnostic Evaluation

- Current EKG
- Therapy
  - Chest Pain (ongoing or resolved) with EKG changes
    - Arrange EMS transfer to Emergency Room.
    - Arrange for evaluation by HPN Hospitalist and/or covering cardiologist.
    - Protocol for starting medical regiment pending cardiology consultation to consist of Aspirin, Heparin, Tridil, SL NTG, beta blocker as indicated.
    - CPK/MB every eight (8) hours, three (3) times, or Troponin I every eight (8) hours, three (3) times.
    - Appropriate Stress Testing if first two (2) CPK/B or Troponin I determinations are normal.
    - Cardiology referral is appropriate for cardiac evaluation.

Evaluation of Active Chest Pain Contd.:

- Cardiac Catherization if high risk features (dynamic ECG changes, positive biomarkers, high risk non-invasive study).

- Chest pain (stable) with no EKG changes
  - Referral to Urgent Care (and/or ER) for work up and observation
  - Repeat EKG
  - Chest x-ray
  - CPK/MB or Troponin I every eight (8) hours, three (3) times.
  - If Bio Markers abnormal – arrange for admit to hospital – admit to HPN internist.
  - If Bio Markers are normal – arrange referral for appropriate stress test (arrange evaluation by PCP). If appropriate stress test abnormal, arrange Cardiology referral.
  - Therapeutic trial to include Aspirin, SL NTG, beta-blocker, ACE-Inhibitors and calcium channel blockers (patient's intolerant to beta-blockade) and/or nitrates as indicated.

Evaluation of Congestive Heart Failure Guidelines

Guideline

Identification of patients with Congestive Heart Failure. The initial screening and diagnostic work up of patients suspected of having the syndrome of Congestive Heart Failure is to be performed by the patient's primary care physician (PCP). Cardiology consultation is to be obtained only after the screening and therapeutic measures below have been accomplished, if the diagnosis of Congestive Heart Failure is substantiated. (Telephone consultation is appropriate at any time with on-call Cardiologist.)

Evaluation for Congestive Heart Failure

Patients presenting to PCP with signs and symptoms of new onset CHF should be transferred via EMS for inpatient work-up.

Patients with history of congestive heart failure with suspected exacerbation should undergo initial screening by PCP.

Individual screening of patients by PCP for initial history and physical examination, including: neck veins, carotids, lungs, heart with specific note of presence or absence of S3 or S4 gallops and murmurs, abdominal organ size and tenderness, check pulses all extremities, presence or absence of peripheral edema. Document physical examination at every visit.

Diagnostic evaluation to include:

- EKG
- Referral for Echocardiography (to evaluate segmental wall motion abnormality, left ventricular dysfunction and/or valvular heart disease).
- Chest x-ray.
- Laboratory testing: T4, TSH, CBC, Chemistry Panel and Urinalysis. Digoxin level if indicated and BNP.
- Referral for Holter monitor if indicated.
- Referral for stress testing if indicated (ischemia suspected).

Evaluation for Congestive Heart Failure Contd.:

- Therapy
  - In patient's with acute CHF exacerbation, stop all unnecessary medications and negative inotropes; i.e., diltiazem, verapamil. Decrease dosage of beta-blockers by half.
  - Control blood pressure aggressively. ACE-Inhibitors and ARBs are first line therapy.
  - Initiate triple prescription therapy: ACE inhibitors, diuretic (when not contraindicated).
    - ACE inhibitors to be titrated to highest dose tolerable for cardiac afterload reduction.
    - Diuretics to be utilized to control fluid overload ONLY. Carefully evaluate electrolyte and renal function. Note fluid depletion, as ACE inhibitors decrease need for diuresis.
    - Long acting nitrates if needed to further reduce afterload and preload.

  NOTE: Laboratory evaluations to be obtained at least every six (6) months to include: Electrolytes, Renal Panel (BUN, Creatinine), obtained one (1) week and one (1) month after change in chronic dose of diuretic.

- Potassium supplements replacement therapy as indicated.

- Ensure that all patients have anatomic diagnosis for their congestive heart failure.
- Patient educational program to include dietary, exercise, risk factor modification, heart failure management and monitoring techniques to be done by PCP or referral to appropriate specialist, i.e., Dietician).

♦ Referral Guideline (to Cardiology)

Referral to SMA cardiology for patient's with CHF exacerbation is appropriate if patient's symptoms are stable and oxygenation is appropriate.

- Patients with left ventricular dysfunction once evaluation has been completed as above and therapy with ACE inhibitors (if not contraindicated) is instituted. (Referral must include copies of all pertinent, generated data.)
- Patients with rest symptoms that may need immediate hospitalization, stabilization at Urgent Care Observation Unit or transfer to hospital via EMS.
- Referral of patients with normal left ventricular systolic function but abnormal diastolic function and hypertension and documented CHF is appropriate.
- Referral of patients without rest symptoms without work up as defined above is not appropriate.
- Referral of patients without documented CHF by methods above, normal left ventricular function and COPD is not appropriate.

Evaluation of Cardiac Dysrhythmias Guidelines

Identification of patients with Cardiac Dysrhythmias. The initial screening and diagnostic work up of patients suspected of having the syndrome of Cardiac Dysrhythmias is to be performed by the patient's primary care physician (PCP). Cardiology consultation is to be obtained only after the screening and therapeutic measures below have been accomplished, if the diagnosis of cardiac dysrhythmias is substantiated. (Telephone consultation is appropriate at any time.)

Evaluation for Palpitations

♦ Individual screening of patients for initial complete history and physical to be completed by PCP.

- Near syncope episodes
- Syncope episodes
- Arrhythmia

Diagnostic evaluation to include:

- EKG
- Holter Monitor
- CBC, Thyroid panel, Chemistry panel

- Echocardiogram if EKG abnormal and/or murmurs heard
- Treadmill stress test if history of atherosclerosis.

♦ Therapy

- Treatment of the positive treatable risk factors and/or symptomatology.
- Cardiology referral is appropriate for malignant arrhythmias only. Referral is not warranted for benign arrhythmias or palpitations unassociated with symptomatology.

♦ Referral guideline (to Cardiology)

- Patient with palpitation associated with syncopal episode and/or malignant arrhythmias is appropriate.
- APCs do not warrant treatment or referral.
- PVCs, whether unifocal or multifocal, couplets regardless of frequency in patients without atherosclerosis or left ventricular dysfunction (as defined by history, treadmill and/or echocardiography) are not generally treated and do not warrant referral.
- If no arrhythmias are seen, referral is not warranted, nor is treatment.

Evaluation for Atrial Fibrillation

♦ Individual screening of patients for initial complete history and physical to be conducted by PCP.

♦ Diagnostic evaluation to include:

- EKG

Evaluation for Atrial Fibrillation – Contd:

- Echocardiogram
- Thyroid Panel, Chemistry Panel

♦ Therapy

- Treatment of contributable underlying disease states
- Initiation of Beta-blocker or Channel Blocker to control rate.
- Initiation of Coumadin.
  - ➢ If patient has two or more predictors of increase stroke risk: advanced age (with no contraindications to coumadin therapy), hypertension, known CAD, etc.
  - ➢ If no contraindication exists.
  - ➢ If Echocardiogram shows left atrial enlargement, left ventricular dysfunction and/or mitral valvular disease.

- Cardiology referral is appropriate once evaluation has been completed as above and therapy initiated.
- Referral **must** include copies of all pertinent, generated data at the time of referral.

Evaluation for Paroxysmal AV Nodal Re-entry Tachycardia (PAT)

- Individual screening of patients for initial complete history and physical to be conducted by PCP.
- Diagnostic evaluation to include:
  - EKG and/or Holter monitor with documented arrhythmia
  - Referral for Echocardiogram
  - Thyroid Panel, Chemistry Panel
  - Referral for treadmill stress test if coronary risk factors present, or if patient complains of exercise-induced arrhythmias.
- Therapy
  - Treatment of contributable underlying disease states.
  - Initiation of calcium channel blockers (Verapamil or Diltiazem) or beta-blockers.
  - Cardiology referral is appropriate once evaluation has been completed as above and therapy initiated.
  - Referral **must** include copies of all pertinent, generated data at the time of referral. Referral Guidelines (to Cardiology)
  - Cardiology referral is appropriate when:
    - Recurrent episodes occur after treatment

Evaluation for Paroxysmal AV Nodal Re-entry Tachycardia (PAT) – Contd:

- Pre-excitation is present on EKG (refer prior to initiation of therapy).
- Left ventricular dysfunction is present.

Referral **must** include copies of all pertinent, generated data at the time of referral.

Evaluation for Atrial Flutter

- Individual screening of patients for initial complete history and physical to be conducted by PCP.
- Diagnostic evaluation to include:
  - EKG and/or Holter monitor documenting pre-excitation or arrhythmia
  - Echocardiogram
  - Thyroid Panel, Chemistry Panel
- Therapy

- Treatment of contributable underlying disease states.
- Initiation of Beta-Blockers or Ca 2+ Channel Blockers to Control Rate (refer pre-excitation to cardiology prior to initiating therapy if symptoms are minor)
- Cardiology referral is appropriate once evaluation has been completed as above and therapy initiated.
- Referral **must** include copies of all pertinent, generated data at the time of referral.

Evaluation for Ventricular Tachycardia

- ♦ Patients found in Ventricular Tachycardia need Hospitalization and cardiology consultation as inpatients.
- ♦ Individual screening of patients for initial complete history and physical to be conducted by ER physician once patient stabilized.
- ♦ Diagnostic evaluation to include:
  - EKG
  - Echocardiogram
  - Thyroid Panel, Chemistry Panel
  - Treadmill stress testing or angiography depending on presentation.
- ♦ Therapy
  - Treatment of contributable underlying disease states (revascularization if ischemic, correction of metabolic derangements, etc.)

Evaluation for Ventricular Tachycardia – Contd:

- Outpatient referral (after inpatient treatment and stabilization) must include copies of all pertinent, generated data at the time of referral.

Evaluation for Heart Block

- ♦ Individual screening of patients for initial complete history and physical to be conducted by PCP.
- ♦ Diagnostic evaluation to include:
  - EKG and/or Holter monitor documenting arrhythmia
  - Medication list
  - Referral for Echocardiogram.
  - Thyroid Panel, Chemistry Panel.
- ♦ Therapy
  - First (1st) Degree Heart Block

  - Asymptomatic 1st degree block is not a valid cardiology referral.
- Second (2nd) Degree Heart Block
  - Discontinue contributing medications if possible: Digoxin, verapamil, diltiazem, nifedipine, beta-blockers.
  - Cardiology referral is appropriate if discontinuation of contributing medication does not correct problem.

♦ Referral **must** include copies of pertinent, generated data relevant to evaluation.

♦ Third (3rd) Degree Heart Block Referral

- Discontinue contributing medications if possible: Digoxin, verapamil, diltiazem, nifedipine, beta-blockers.
- Cardiology referral is appropriate. If patient is symptomatic (syncope, lightheadedness, low blood pressure) immediate EMS transfer to the ER is appropriate.
- Arrange admit to hospital.
- Arrange for evaluation by covering cardiologist.
- Permanent pacemaker insertion.

Evaluation for Right Bundle Branch Block (Complete)

♦ Individual screening of patients for initial complete history and physical to be conducted by Primary Care Physician (PCP). Initial evaluation consists of the following:

- Evaluation of coronary risk factors
- History of pulmonary disease
- History of congenital heart disease
- Examination of neck veins, lungs, cardiac examination to include presence or absence of murmurs.
- Abdominal examination including liver size.
- Evaluation of extremities including pedal pulses and presence or absence of edema.

♦ Diagnostic evaluation to include:

- EKG
- Chest x-ray
- Referral for Echocardiogram
- Referral for treadmill stress test if ischemia is suspected.

- Referral Guidelines
  - Cardiology referral warranted if atrial septal defect or positive treadmill for ischemia found.
  - Referral **must** include copies of all pertinent, generated data with referral, *except data previously generated by CCN.*

Evaluation of Left Bundle Branch Block

- Individual screening of patients for initial complete history and physical to be conducted by PCP. Initial evaluation consists of the following:
  - Evaluation of coronary risk factors.
  - History of pulmonary disease.
  - History of congenital heart disease
  - Examination of neck veins, lungs, cardiac examination to include presence or absence of murmurs.
  - Abdominal examination including liver size.
  - Evaluation of extremities including pedal pulses and presence or absence of edema.
- Diagnostic evaluation to include:
  - EKG
  - Chest x-ray

Evaluation of Left Bundle Branch Block – Contd:

  - Referral for Echocardiogram
  - Referral for Persantine Cardiolite if ischemia is suspected.
- Referral guidelines (Cardiology)
  - Cardiology referral warranted if left ventricular ejection fraction <45% or if ischemia diagnosed by non-invasive testing.
  - Referral **must** include copies of all pertinent, generated data with referral. .
  - Patients presenting with chest pain and new LBBB should be treated as acute MI until proven otherwise. Transfer of patients with ongoing chest pain and new LBBB via EMS to ER is appropriate.