PPC3: Care Management

Element A: Guidelines for Important Conditions

We used our UDS report to determine that our 3 clinically significant conditions are hypertension, diabetes and asthma.

Table 6 - Selected Diagnosis and Services Rendered

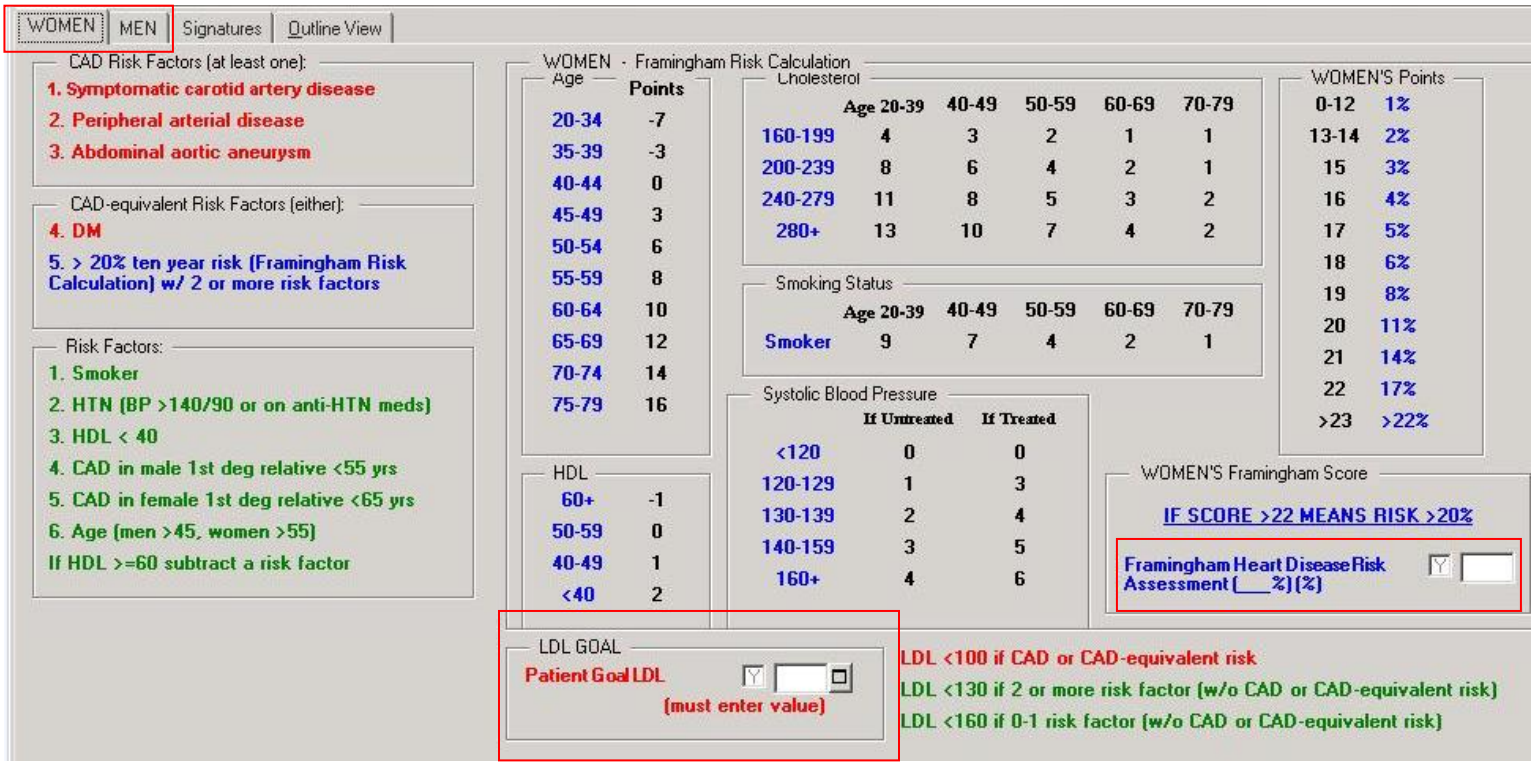
01/01/2009 12/31/2009

Diagnostic Category		Applicable ICD-9-CM Code	Number of Encounters by Primary Diagnosis	Number of Patients with Primary Diagnosis
Selected Infectious and Parasitic Diseases				
1.	Symptomatic HIV	042; 079.53	1	1
2.	Asymptomatic HIV	V08	0	0
3.	Tuberculosis	010.xx-018.xx	1	1
4.	Syphilis and other venereal diseases	090.xx-099.xx	7	6
Selected Diseases of the Respiratory System				
5.	Asthma	493.xx	801	424
6.	Chronic bronchitis and emphysema	490.xx-492.xx	42	34
Select Other Medical Conditions				
7.	Abnormal breast findings, female	174.xx; 198.81; 233.0x; 238.3; 793.8x	28	21
8.	Abnormal cervical findings	180.xx; 198.82; 233.1x; 795.0x	37	28
9.	Diabetes mellitus	250.xx; 648.0x; 775.1x	2010	632
10.	Heart disease (selected)	391.xx-392.0x; 410.xx-429.xx	708	205
11.	Hypertension	401.xx-405.xx	2064	897
12.	Contact dermatitis and other eczema	692.xx	105	94
13.	Dehydration	276.5x	19	10
14.	Exposure to heat or cold	991.xx-992.xx	0	0
14a.	Overweight and Obesity	278.0-278.02; V85.xx excluding V85.0; V85.1; V85.51 and V85.52	192	137

CHC-B adopted the clinical guidelines published by HealthTeamWorks for adult cardiovascular disease, diabetes, and asthma. (**These are uploaded into the document library**). We have utilized these guidelines to build patient alerts, clinical reminders, templates, and reports to manage these 3 patient populations.

1. **First clinically important condition - hypertension**

Here is the template we use to determine Framingham 10-year CVD Risk Assessment and LDL goal setting. There is a template for women and men.



Providers and staff review a patient's history, labs and medications to do an annual Framingham Risk and set and LDL goal with the patient. This would document in a patient's chart as follows:

Past medical/surgical history

Reported History:

Medications: Taking medication for high blood pressure.

Tests: Systolic blood pressure 124 mmHg, diastolic was 74 mmHg, and a cholesterol test was performed was 168.

Behavioral: Smoking.

Other:

Plasma HDL cholesterol level 85 mg/dl

Diagnosis History:

No coronary artery disease.
Hypertension.
No aneurysm of the abdominal aorta.
No diabetes mellitus

Family history

No coronary artery disease 1st degree female relative <55 yo
No coronary artery disease 1st degree male relative <55 yo.

Assessment

- Framingham heart disease risk assessment 1% 8/10/2010

Plan

- Recommended cardiology goals 130 or less for LDL goal

II. **CLINICAL PROTOCOLS**

A. **Essential Hypertension**- (For complete details guideline use JNC 7 as a reference)
Hypertension affects approximately 50 million individuals in the United States and approximately 1 billion worldwide. The relationship between BP and risk of CVD events is continuous, consistent, and independent of other risk factors. The higher the BP, the greater is the chance of heart attack, heart failure, stroke and kidney disease. Table 1 provides a classification of BP for adults ages 18 and older. The classification is based on the average of two or more properly measured, seated BP readings on each of two or more office visits.

Table 1 Classification and management of blood pressure for adults*

BP Classification	SBP* mmHg	DBP* mmHg	Lifestyle Modification	Initial Drug Therapy	
				Without Compelling Indication	With Compelling Indications (See Table 8)
Normal	<120	And <80	Encourage	No antihypertensive drug indicated	Drug(s) for compelling indications. ***
Prehypertension	120-139	Or 80-90	Yes		
Stage 1 Hypertension	140-159	Or 90-99	Yes	Thiazide-type diuretiecs for most. May consider ACEI, ARB, BB, CCB or combination	Drug(s) for compelling indications.*** Other antihypertensive drugs (diuretics, ACEI, ARB, BB, CCB) as needed
Stage 2 Hypertension	>=160	Or >=100	Yes	Two-drug combinations for most.** (usually thiazide-type diuretic and ACEI or ARB or BB or CCB)	

DBP, diastolic blood pressure: SBP, systolic blood pressure
Drug abbreviations: ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BB, beta-blocker; CCB, calcium channel blocker

* Treatment determined by highest BP category
** Initial combined therapy should be used cautiously in those at risk for orthostatic hypotension
*** Treat patients with chronic kidney disease or diabetes to BP goal of <130/80 mmHg

1. Accurate Blood Pressure Measurement in the Office
The auscultatory method of BP measurement with a properly calibrated and validated instrument should be used. Person should be seated quietly for at least 5 minutes in a chair (rather than on an exam table), with feet on the floor and arm supported at heart level. Measurement of BP in the standing position is indicated periodically, especially in those at risk for postural hypotension. An appropriate-sized cuff (cuff bladder encircling at least 90% of the arm) should be used to ensure accuracy. At least two measurements should be made. SBP is the point at which the first of two or more sounds is heard (phase 1) and DBP is the point before the disappearance of sounds (phase 5). Clinicians should provide to patients, verbally and in writing, their specific BP numbers and BP goals.

2. Patient Evaluation
Evaluation of patients with documented hypertension has three objectives:

a. To access lifestyle and identify other cardiovascular risk factors or concomitant disorders that may affect prognosis and guide treatment (table 2)

b. To reveal identifiable cause of high BP (table 3)
c. To access the presence or absence of target organ damage and CVD

The data needed are acquired through medical history, physical examination, routine laboratory tests and other diagnostic procedures. The physical examination should include appropriate measurement of BP, with verification in the contralateral arm; examination of the optic fundi; calculation of BMI, auscultations of carotid, abdominal and femoral bruits; palpitation of the thyroid gland; thorough examination of the heart and lungs; examination of the abdomen for enlarged kidneys, masses and abnormal aortic pulsation; palpation of the lower extremities for edema and pulses; and neurological assessment.

Table 2 Cardiovascular Risk Factors

Major Risk Factors
Hypertension*
Cigarette smoking
Obesity * (BMI >=30 kg/m2)
Physical inactivity
Dyslipidemia
Diabetes Mellitus
Microalbuminuria or estimated GFR<60 mL/min
Age (older than 55 for men, 65 for women)
Family history of premature cardiovascular disease (men under age 55 or women under age 65)
Target Organ Damage
Heart ▪ Left ventricular hypertrophy ▪ Angina or prior myocardial infarction ▪ Prior coronary revascularization ▪ Heart failure Brain ▪ Stroke or transient ischemic attack Chronic kidney disease Peripheral arterial disease Retinopathy

Table 3 Identifiable Cause of Hypertension

Sleep Apnea
Drug-induced or related causes
Chronic kidney disease
Primary aldosteronism
Renovascular disease
Chronic steroid therapy and Cushing syndrome
Phechromocytoma
Coarctation of the aorta
Thyroid or parathyroid disease

3. Laboratory Tests and Other Diagnostic Procedures

Routine laboratory tests recommended before initiating therapy include an electrocardiogram; urinalysis; CBC, CMP and a lipid profile, after 9-12 hour fast.

4. Treatment
    a. Goals of therapy – Treating SBP and DBP to targets that are <140/90 mmHg is associated with decrease in CVD complications. In patients with hypertension and diabetes or renal disease, the BP goal is 130/80 mmHg.
    b. Lifestyle Modifications (Table 4) – Weight reduction in those individuals who are overweight or obese, adoption of the Dietary Approaches to Stop Hypertension (DASH) eating plan which is rich in potassium and calcium, dietary sodium reduction, physical activity and moderation of alcohol consumption. Lifestyle modifications reduce BP, enhance antihypertensive drug efficacy, and decrease cardiovascular risk.

Table 4 Lifestyle modifications to manage hypertension

Modification	Recommendation	Approximate SBP Reduction Range
Weight reduction	Maintain normal body weight (BMI 18.5-24.9)	5-20 mmHg/10 kg weight loss
Adopt DASH eating plan	Consume a diet rich in fruits, vegetables, and low fat dairy products with a reduced content of saturated and total fat.	8-14 mmHg
Dietary sodium reduction	Reduces dietary sodium intake to no more than 100 mmol per day (2.4 g sodium or 6 g sodium chloride)	2-8 mmHg
Physical activity	Engage in regular aerobic physical activity such as brisk walking (at least 30 min per day, most days of the week)	4-9 mmHg
Moderation of alcohol consumption	Limit consumption to no more than 2 drinks (1 oz or 30 mL ethanol; e.g 24 oz beer, 10 oz wine or 3 oz 80-proof whiskey) per day in most men and to no more than 1 drink per day in women and lighter weight persons	2-4 mmHg

    c. Pharmacologic Treatment- There are excellent clinical outcome trial data proving that lowering BP with several classes of drugs, including angiotensin converting enzyme inhibitors (ACEI), angiotensin receptor blockers (ARB), beta-blockers (BB) and thiazide-type diuretics, will all reduce the complications of hypertension. Thiazide-type diuretics should be used as initial therapy for most patients with hypertension, either alone or in combinations with one of the other classes (ACEI, ARB, BB, CCB) demonstrated to be beneficial in randomized controlled outcome trials. Most patients who are hypertensive will require two or more antihypertensive medications to achieve their BP goals. Addition of a second drug from a different class should be initiated when use of a singe drug in adequate doses fails to achieve the BP goal. When BP is more than 20/10 mmHg above goal, consideration should be given to initiating therapy with two drugs.

4. Follow-up and Monitoring

Once antihypertensive drug therapy is initiated, most patients should return for follow-up and adjustment of medication at approximately monthly intervals until the BP goal is reached. More frequent visits will be necessary for patients with stage 2 hypertension or with complicating co-morbid conditions. Serum potassium and creatinine should be monitored al least 1-2 times/year. After BP is at goal and stable, follow-up visits can

usually be at 3- to 6-month intervals. Low-dose aspirin therapy should be considered only when BP is controlled, because the risk of hemorrhagic stroke is increased in patients with uncontrolled hypertension.

5. Special Considerations

The patient with hypertension and certain co-morbidities requires special attention and follow-up by the clinician.

Table 5 Clinical trial and guideline basis for compelling indications for individual drug classes

Compelling Indication	Recommended Drugs						Clinical Trial Basis
	Diuretic	BB	ACEI	ARB	CCB	Aldo ANT	
Heart failure	*	*	*	*		*	ACC/AHA Heart Failure Guideline, MERIT-HF COPERNICUS, CIBIS SOLVD, AIRE, TRACE, ValHEFT, RALES
Postmyocardial infarction		*	*			*	ACC/AHA PostOMI Guideline, BHAT, SAVE, Capricorn, EPHESUS
High coronary disease risk	*	*	*		*		ALLHAT, HOPE, ANBP2, LIFE, CONVINCE
Diabetes	*	*	*	*	*		NKF-ADA Guideline, UKPDE, ALLHAT
Chronic kidney disease			*	*			NFK Guideline, Captopril Trial, RENAAL, IDNT, REIN, AASK
Recurrent stroke prevention	*		*				PROGRESS

6. Resistant Hypertension

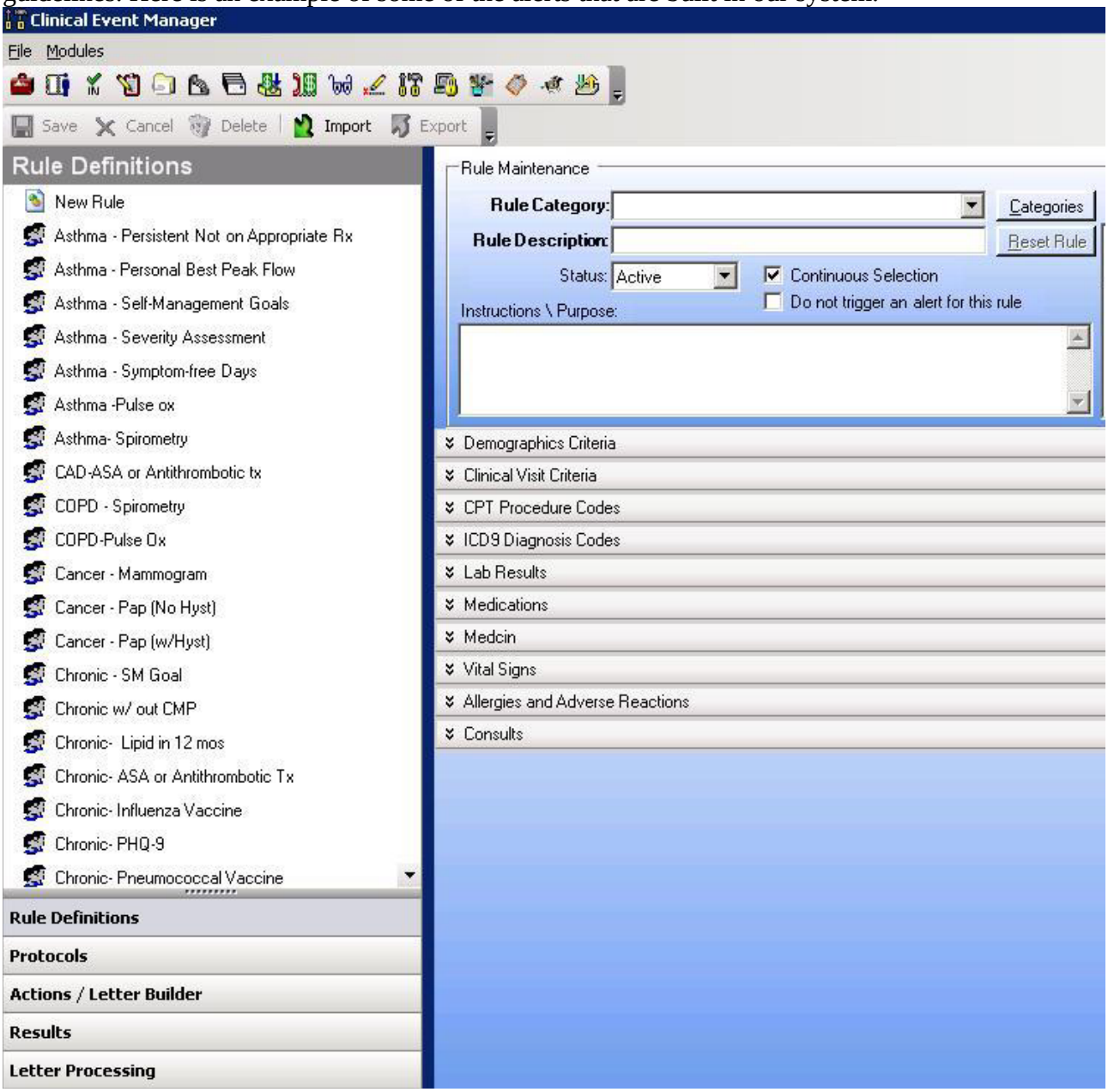
Resistant hypertension is the failure to reach goal BP in patients who are adhering to full doses of an appropriate three-drug regimen that includes a diuretic. After excluding potential identifiable hypertension, clinicians should carefully explore reasons why the patient is not at goal BP. Particular attention should be paid to diuretic type and dose in relation to renal function.

Table 4 Causes of resistant hypertension

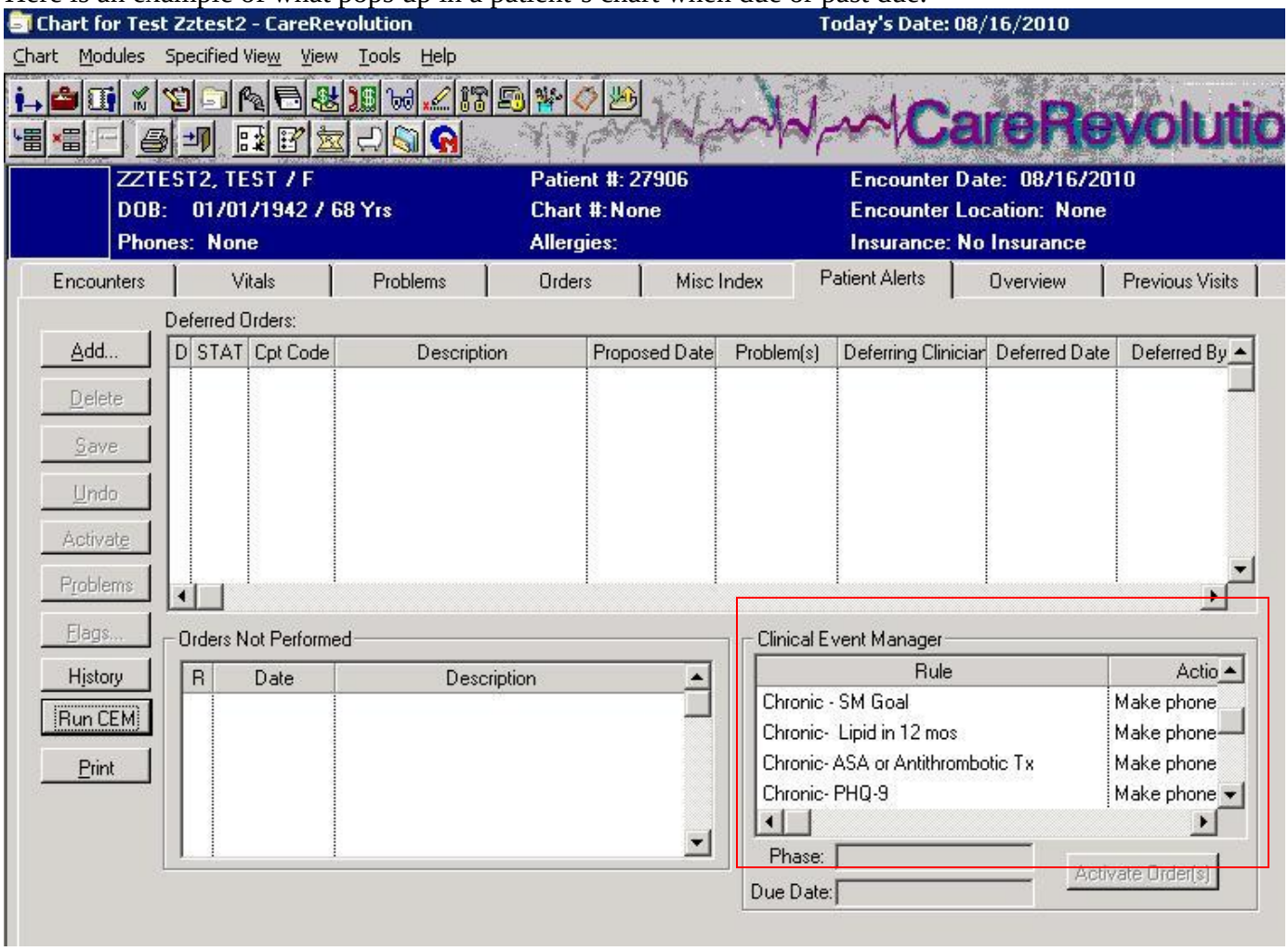
Improper BP Measurement
Volume Overload and Pseudotolerance ▪ Excess sodium intake ▪ Volume retention from kidney disease ▪ Inadequate diuretic therapy
Drug-induces or Other Causes ▪ Non-adherence ▪ Inadequate doses ▪ Inappropriate combinations ▪ Non-steroidal anti-inflammatory drugs; cyclooxygenase 2 inhibitors ▪ Cocaine, amphetamines, other illicit drugs ▪ Sympathomimetics (decongestants, anorectics) ▪ Oral contraceptives

▪ Adrenal steroids ▪ Cyclosporine and tacrolimus ▪ Erythropoietin ▪ Licorice (including some chewing tobacco) ▪ Selected over-the-counter dietary supplements and medicines (e.g. ephedra, ma haung, bitter orange)
Associated Conditions ▪ Obesity ▪ Excess alcohol intake
Identifiable causes of hypertension (See table 3)

We utilize the Clinical Event Manager in our EMR to build patient alerts based on the clinical guidelines. Here is an example of some of the alerts that are built in our system.



Here is an example of what pops up in a patient's chart when due or past due.



Another excerpt from our Medical Clinical Guidelines (last revised April 2009)

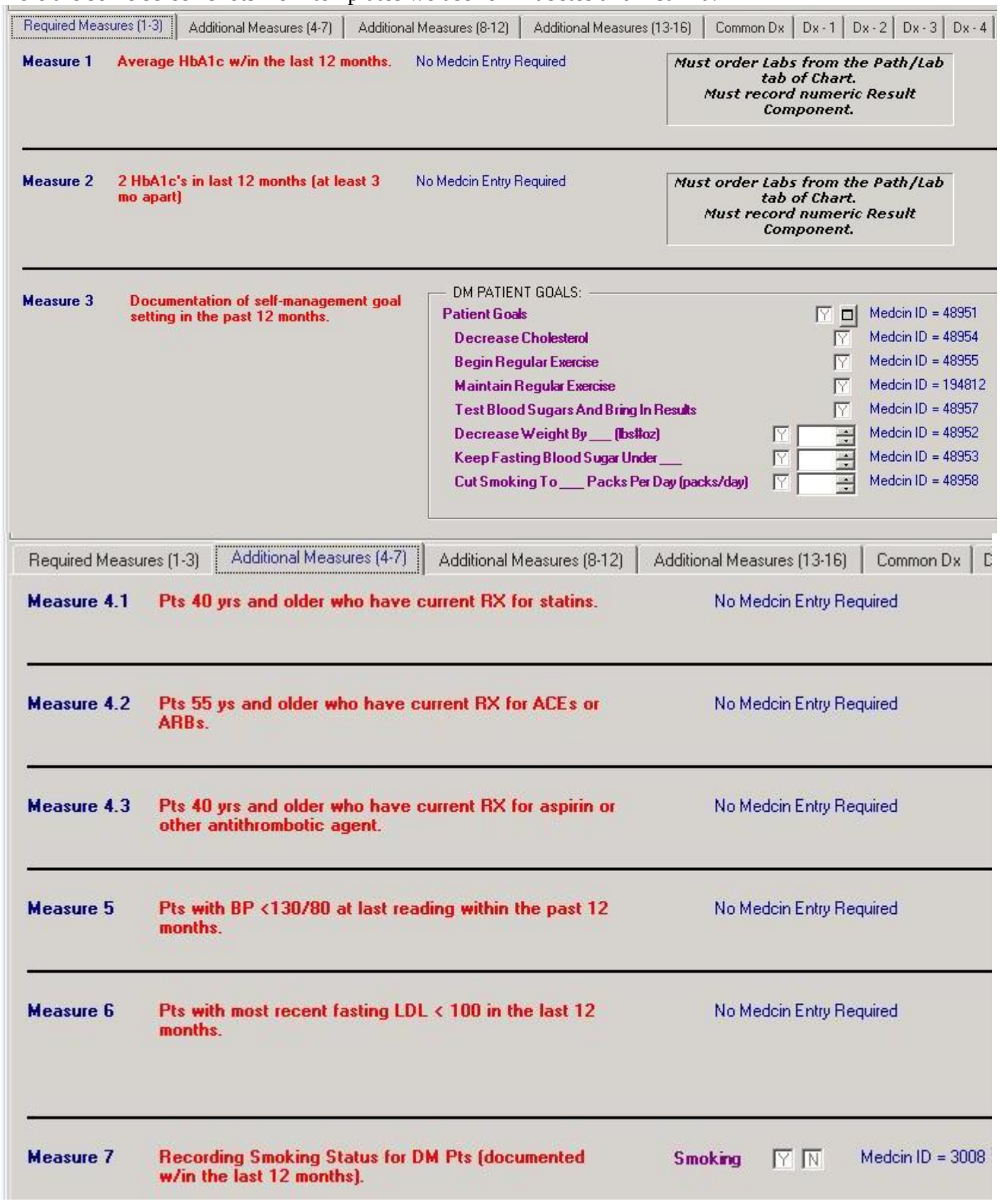
C. **Diabetes**

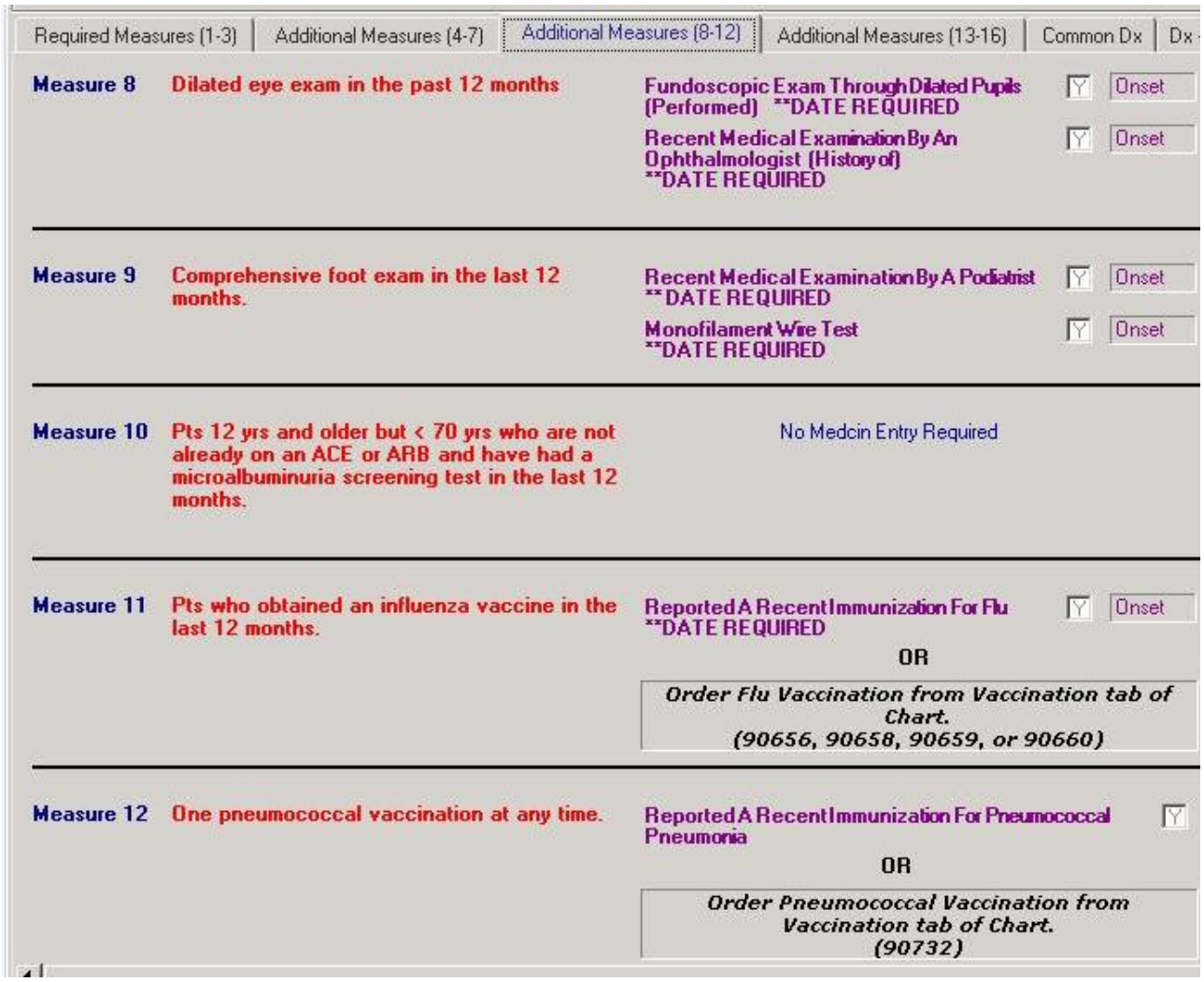
1. This plan applies to adult and elderly clients who have any form of diabetes with or without complications or other diagnosis. The treatment goal is long-term control of blood sugar levels.
2. A patient with diabetes will be placed on an appropriate regimen involving diet, exercise, and/or medications. Diabetic education will be strongly encouraged for every new diabetic family.
3. Once adequate control is achieved, the patient will be seen at least every three months. At each three-month visit, the following parameters will be assessed:
    a. Weight
    b. Blood pressure
        (1)Goal is less than 130/80
    c. Consider fundoscopic examination
    d. Blood glucose monitoring
    e. Hemoglobin A1c measurement
        (1) Goal is less than 7.0
    f. Annual Diabetic eye exam by an ophthalmologist
        (1) If unable may do retinal photography.
    g. Offer continuing diabetic education
    h. Annual urine dip for protein with microalbumin if negative for protein.
        (1)Alternatively microalbumin/creatinine ratio may be performed
        (2)If positive for proteinuria patient should be given an ACE or ARB and 24 hour urine for protein and creatinine clearance and/or nephrology referral should be considered.
    i. renal evaluation every 3-6 months (lab work)
    j. Annual dental exam
    k. Annual lipid evaluation if not on medication. Repeat lipids and LFT every 6 months if on medications to lower cholesterol. Needs to have baseline LFTs before starting pts on statin.
        (1)Follow treatment protocol under hypertension to meet goal of LDL.
    l. Success with Self Management goals/New Goal setting
5. See also Diabetes Collaborative Goals

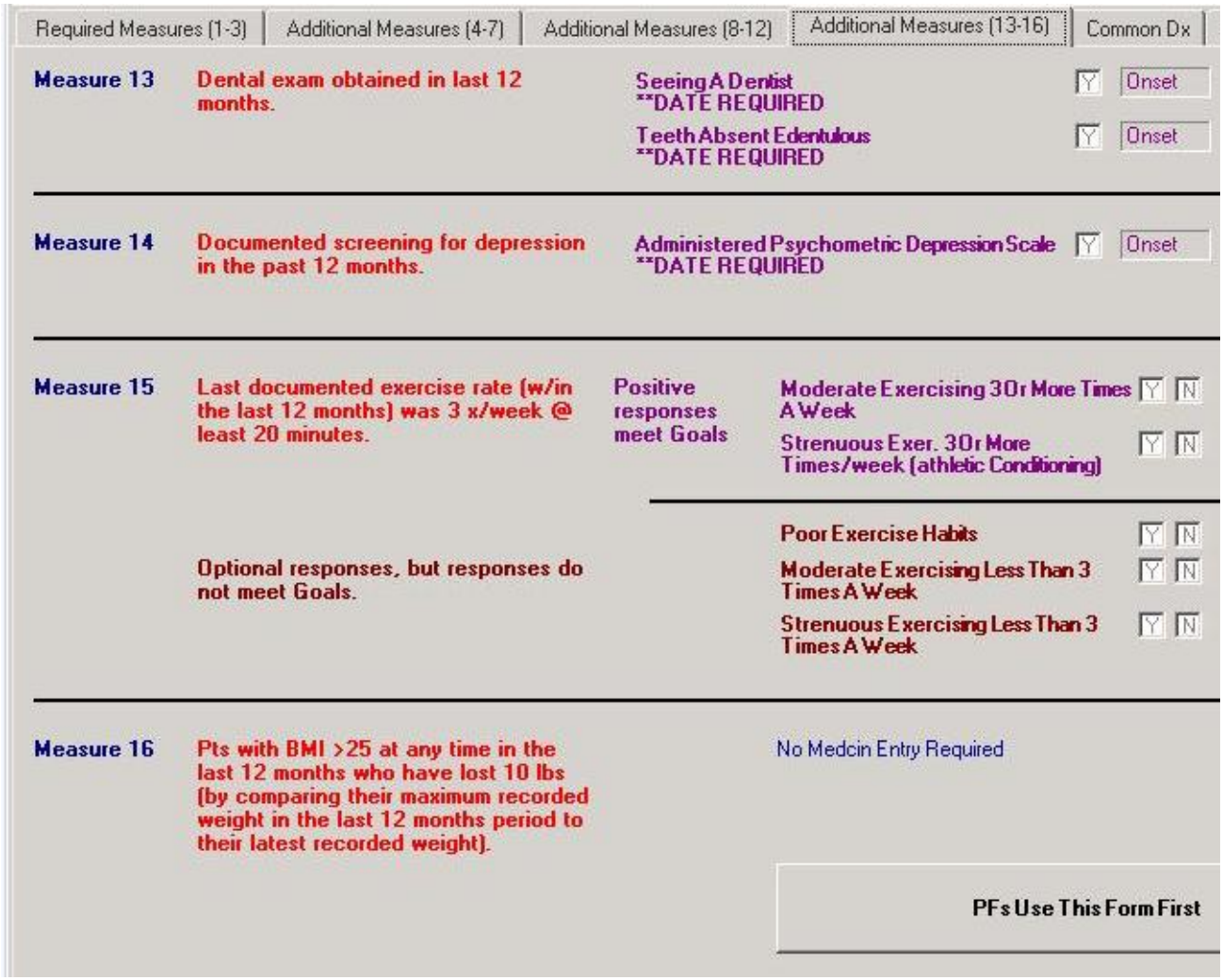
D. **Asthma**

1. Medical management should include treatment with appropriate anti-inflammatory therapy as well as beta-agonist agents if the patient uses rescue inhaler more than twice a week.
2. Patients will be followed at least 1-2 times a year for mild asthma and at least four times a year for moderate to severe disease.
3. Treatment of lifestyle issues will be a component of the therapeutic management and should include diet, exercise, and self-management issues such as peak flow meter use and avoidance of triggers.
4. Spirometry at baseline and 1-2 months after symptoms have stabilized and then annually.
5 Pulse ox and Peak flows on every visit for asthma.

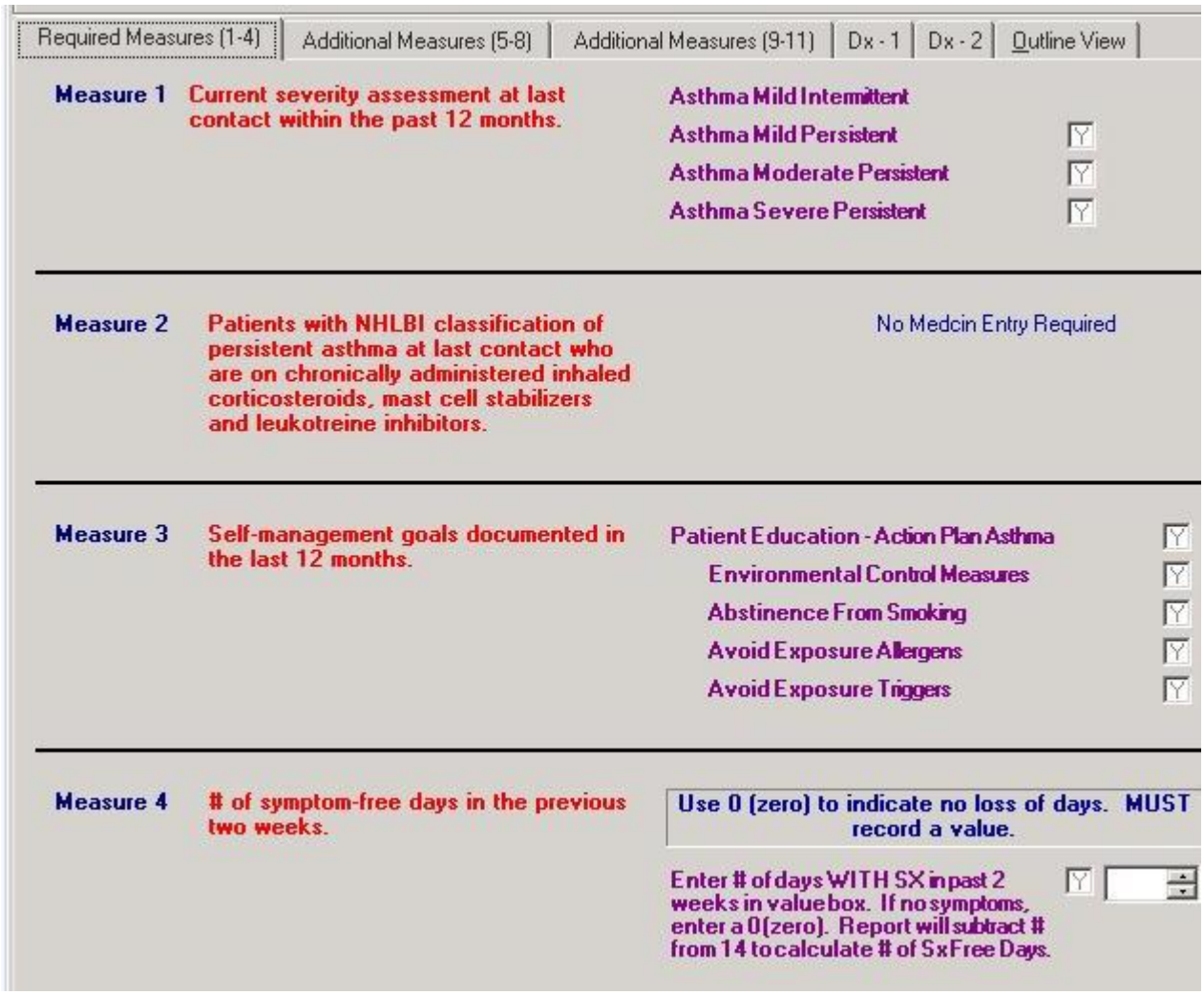
Here are some screen shots from templates we use for Diabetes and Asthma:

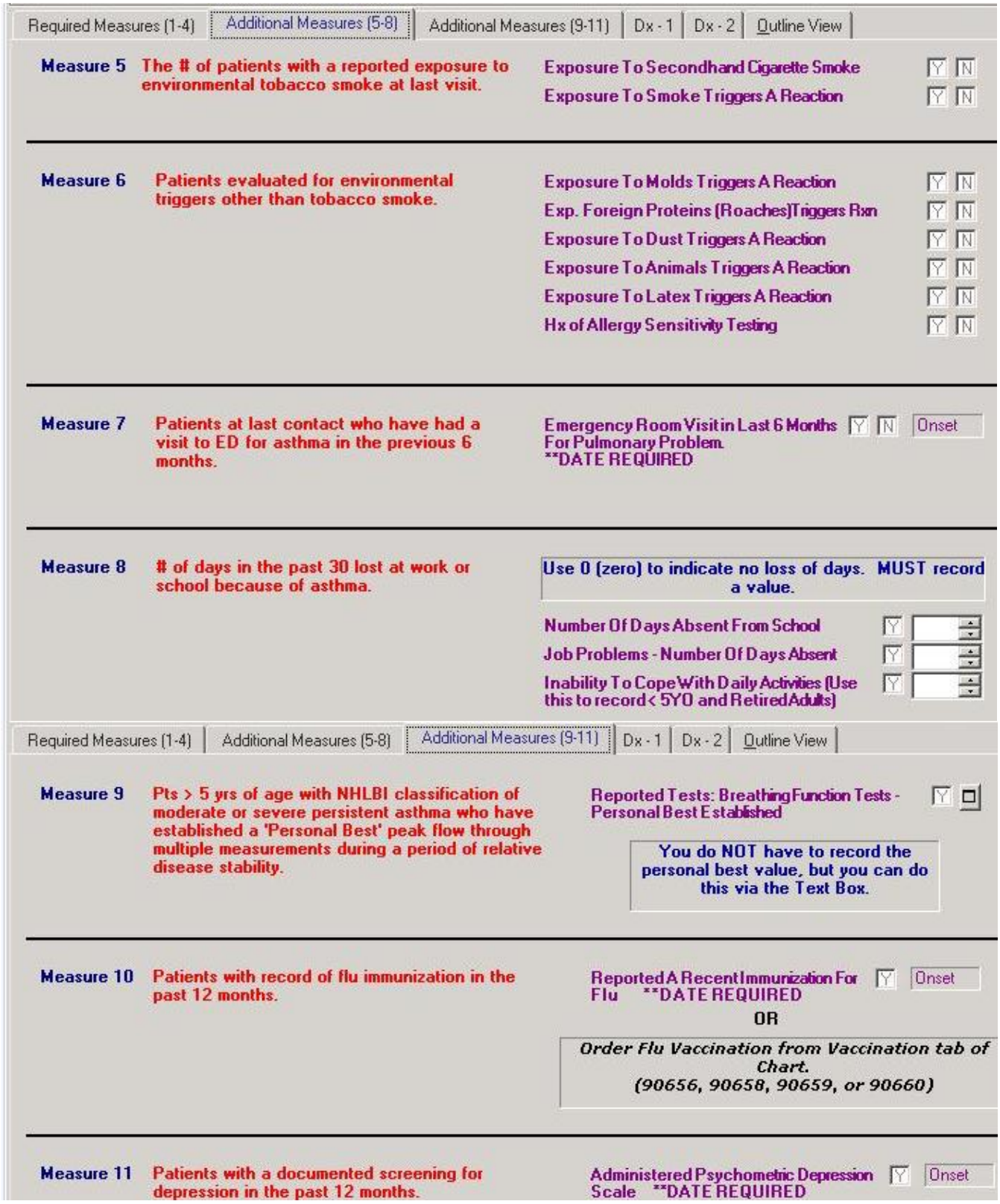



Required Measures (1-3)
Additional Measures (4-7)
Additional Measures (8-12)
Additional Measures (13-16)
Common Dx
Dx
Measure 8
Dilated eye exam in the past 12 months
Fundoscopic Exam Through Dilated Pupils (Performed) **DATE REQUIRED
Onset
Recent Medical Examination By An Ophthalmologist (History of) **DATE REQUIRED
Onset
Measure 9
Comprehensive foot exam in the last 12 months.
Recent Medical Examination By A Podiatrist ** DATE REQUIRED
Onset
Monofilament Wire Test **DATE REQUIRED
Onset
Measure 10
Pts 12 yrs and older but < 70 yrs who are not already on an ACE or ARB and have had a microalbuminuria screening test in the last 12 months.
No Medcin Entry Required
Measure 11
Pts who obtained an influenza vaccine in the last 12 months.
Reported A Recent Immunization For Flu **DATE REQUIRED
Onset
OR
Order Flu Vaccination from Vaccination tab of Chart.
(90656, 90658, 90659, or 90660)
Measure 12
One pneumococcal vaccination at any time.
Reported A Recent Immunization For Pneumococcal Pneumonia
OR
Order Pneumococcal Vaccination from Vaccination tab of Chart.
(90732)


Required Measures (1-3)
Additional Measures (4-7)
Additional Measures (8-12)
Additional Measures (13-16)
Common Dx
Measure 13
Dental exam obtained in last 12 months.
Seeing A Dentist **DATE REQUIRED
Y
Onset
Teeth Absent Edentulous **DATE REQUIRED
Y
Onset
Measure 14
Documented screening for depression in the past 12 months.
Administered Psychometric Depression Scale **DATE REQUIRED
Y
Onset
Measure 15
Last documented exercise rate (w/in the last 12 months) was 3 x/week @ least 20 minutes.
Positive responses meet Goals
Moderate Exercising 3Or More Times A Week
Y N
Strenuous Exer. 3Or More Times/week (athletic Conditioning)
Y N
Optional responses, but responses do not meet Goals.
Poor Exercise Habits
Y N
Moderate Exercising Less Than 3 Times A Week
Y N
Strenuous Exercising Less Than 3 Times A Week
Y N
Measure 16
Pts with BMI >25 at any time in the last 12 months who have lost 10 lbs (by comparing their maximum recorded weight in the last 12 months period to their latest recorded weight).
No Medcin Entry Required
PFs Use This Form First

Asthma


Required Measures (1-4)
Additional Measures (5-8)
Additional Measures (9-11)
Dx - 1
Dx - 2
Outline View
Measure 1
Current severity assessment at last contact within the past 12 months.
Asthma Mild Intermittent
Asthma Mild Persistent
Asthma Moderate Persistent
Asthma Severe Persistent
Measure 2
Patients with NHLBI classification of persistent asthma at last contact who are on chronically administered inhaled corticosteroids, mast cell stabilizers and leukotreine inhibitors.
No Medcin Entry Required
Measure 3
Self-management goals documented in the last 12 months.
Patient Education - Action Plan Asthma
Environmental Control Measures
Abstinence From Smoking
Avoid Exposure Allergens
Avoid Exposure Triggers
Measure 4
# of symptom-free days in the previous two weeks.
Use 0 (zero) to indicate no loss of days. MUST record a value.
Enter # of days WITH SX in past 2 weeks in value box. If no symptoms, enter a 0(zero). Report will subtract # from 14 to calculate # of Sx Free Days.


Required Measures (1-4)
Additional Measures (5-8)
Additional Measures (9-11)
Dx - 1
Dx - 2
Outline View
Measure 5
The # of patients with a reported exposure to environmental tobacco smoke at last visit.
Exposure To Secondhand Cigarette Smoke
Exposure To Smoke Triggers A Reaction
Measure 6
Patients evaluated for environmental triggers other than tobacco smoke.
Exposure To Molds Triggers A Reaction
Exp. Foreign Proteins (Roaches)Triggers Rxn
Exposure To Dust Triggers A Reaction
Exposure To Animals Triggers A Reaction
Exposure To Latex Triggers A Reaction
Hx of Allergy Sensitivity Testing
Measure 7
Patients at last contact who have had a visit to ED for asthma in the previous 6 months.
Emergency Room Visit in Last 6 Months For Pulmonary Problem. **DATE REQUIRED
Onset
Measure 8
# of days in the past 30 lost at work or school because of asthma.
Use 0 (zero) to indicate no loss of days. MUST record a value.
Number Of Days Absent From School
Job Problems - Number Of Days Absent
Inability To Cope With Daily Activities (Use this to record < 5YO and Retired Adults)
Required Measures (1-4)
Additional Measures (5-8)
Additional Measures (9-11)
Dx - 1
Dx - 2
Outline View
Measure 9
Pts > 5 yrs of age with NHLBI classification of moderate or severe persistent asthma who have established a 'Personal Best' peak flow through multiple measurements during a period of relative disease stability.
Reported Tests: Breathing Function Tests - Personal Best Established
You do NOT have to record the personal best value, but you can do this via the Text Box.
Measure 10
Patients with record of flu immunization in the past 12 months.
Reported A Recent Immunization For Flu **DATE REQUIRED
Onset
OR
Order Flu Vaccination from Vaccination tab of Chart.
(90656, 90658, 90659, or 90660)
Measure 11
Patients with a documented screening for depression in the past 12 months.
Administered Psychometric Depression Scale **DATE REQUIRED
Onset