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I. Requirements for a disease management program:

1) Determine at what level the program is going to be managed:
    a. Registry (usually at a state or regional level- could conceivably be utilized over a large health care system
    b. Institutional:
    c. Provider
2) Choose the conditions that will be included in the program. Considerations in choosing:
    a. Availability of treatment guidelines with consensus about what constitutes appropriate care.
    b. Presence of recognized problems in therapy that are well documented in the medical literature
        i. Foot ulcers and eye problems in diabetics
        ii. Overuse of "rescue inhalers" in asthmatics.
    c. Large practice variation and a range of drug treatment modalities available.
    d. Large numbers of patients for whom treatment could be improved.
    e. Preventable acute events (e.g. Hospitalizations) that could be avoided or minimized with improved care
    f. Outcomes that can be:
        i. measured and defined in standardized and objective ways
        ii. Modified by application of appropriate therapy
    g. Potential for significant cost savings.
3) Determine goals for program:
    a. Maintain lab values or other clinical parameters within certain limits.
    b. Compliance with designated preventive measures
4) Determine how data will be
    a. Recorded (within the record)
    b. Collected (will be influenced by the method of recording)
    c. Reported
        i. By patient
        ii. By Provider
        iii. By practice (Group/multispecialty) or institution.

II. Example conditions and measures:

1) Diabetes: Perhaps the most common condition that lends itself to this process
    a. Hgb A1C
    b. Serum HDL/LDL
    c. Serial blood sugars (reported by patient)
    d. Microprotienuria
    e. Renal function (electrolytes, BUN/CR)
    f. Foot examinations
    g. Examinations for peripheral neuropathy
    h. Results of eye exams (for retinopathy)
    i. BMI
2) COPD/Asthma:
    a. Peak Flow (reported by patient)
    b. FEV_1
3) Hypertension and Hyperlipidemia
    a. Total Cholesterol, Triglycerides, HDL/LDL
    b. Liver Function values (especially on statins)
    c. Renal Functions
    d. Vital signs
    e. BMI
    f. Serial EKG

III. Personnel

1. Physicians
    a. Provide overall supervision
    b. Ultimately responsible for patient care
    c. Provide leadership for quality improvement
2. Mid Level Practitioners- PA-C, ARNP
    a. Physician “extenders”
3. Nurses
    a. Education
    b. Counseling
    c. Data gathering
4. Allied Health Professionals- Pharmacists
    a. Education
    b. Medication advice
    c. Counseling

IV. Technology to support this system:

1) Electronic Medical Records
    a. Standardize recording of information by providers
    b. Facilitate extraction and reporting of data

c. Facilitate monitoring
d. Provide decision support to provider regarding best practices, evidenced based practices, pre-determined protocols.

2) Portals:
   a. Provide access to multiple providers' data regardless of EMR system used.
   b. Facilitate extraction of data
   c. Enable patient portals to allow patients to participate in monitoring and reporting their own care.
   d. Facilitate monitoring
3) Direct input by medical devices:
   a. Blood pressure monitors
   b. Glucometers
   c. Remote EKG

   These could be in the office or in the patient's home connected by internet to their record for direct reporting.

V. Funding and Support (Asheville Model)

1. Local employers:
   a. Have influence with insurance co, more so if self insured
   b. Have influence over work force to encourage participation
   c. Have incentive to provide support and funding to improve health and therefore productivity of the work force and control health care costs.
2. Pharmaceutical Companies
3. Technology Vendors
4. National, State & Local Quality Health Assurance Organizations
5. Health Quality Performance Management solutions
6. State & National Health Information Exchanges & Organizations
7. State & Local Stakeholders
8. Payers