Documenting Comprehensive Medication Management in Team-Based Models Using SNOMED CT Codes

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Pharmacy Health Information Technology Collaborative

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1. PURPOSE

This paper will provide guidance to pharmacists who provide medication therapy management (MTM) services in team-based models on how to use Systematized Nomenclature of Medicine–Clinical Terms Codes (SNOMED CT) to document their care and manage their practices. In order to illustrate the functionality of SNOMED CT codes, this guidance paper uses one team-based model of care, the Patient- Centered Primary Care Collaborative (PCPCC) model of the medical home, as the foundation for this discussion.

This guide will be useful to pharmacists who practice comprehensive medication management (CMM) in medical homes or in other team-based practices such as community-based teams, accountable care organizations (ACO) or as a part of any integrated care teams.

GOALS

1. Introduce pharmacists to the SNOMED CT codes.
2. Describe the MTM-specific SNOMED CT codes.
3. Illustrate how to document comprehensive medication management in a team-based model using SNOMED CT codes.
4. Demonstrate how the use of SNOMED CT codes can improve patient care.
5. Demonstrate how the use of SNOMED CT codes can advance pharmacy practice.
6. Demonstrate how the use of SNOMED CT codes can be used to provide evidence of pharmacist contributions to patient outcomes in a team-based model of care.

RECOMMENDATIONS FOR ACTION

- Encourage electronic health record (EHR) vendors to build necessary infrastructure that allows pharmacists to document patient care using SNOMED CT codes.
- Encourage pharmacists who practice CMM to begin using the SNOMED CT codes.
- Encourage EHR vendors to build the necessary infrastructure that allows for the extraction of MTM SNOMED CT codes from the EHR so that pharmacists can use this information to evaluate their practice and to evaluate their patient care on an individual patient level.
- Encourage EHR vendors to build necessary infrastructure that allows for the extraction of MTM SNOMED CT codes from the EHR for reporting and analytics.

2. Introduction

Health care is rapidly changing, with continued emphasis on team-based care, advancement of electronic health records, improved patient outcomes, and cost-containment strategies. It is imperative that pharmacists have the education and resources necessary to continue to practice within this new health care environment.

Pharmacists have been practicing and documenting medication therapy management for many years, documenting their care using a wide range of different paper and software applications. As patient care continues to move toward more team-based care models it is imperative for pharmacists to document their care in EHR, similar to other health care providers. With the advancement of the EHR applications and development of structured clinical coding systems, these clinical documents now have the potential to be documented using code instead of the traditional narrative format. This change will allow for easier extraction and analysis of the clinical data. These data will be useful in validating the contributions that pharmacists make to the patient in the team-based model.

Pharmacists' involvement in team-based care was well defined by the PCPCC in 2012 when the Collaborative developed a resource guide, The Patient-Centered Medical Home: Integrating Comprehensive Medication Management (CMM) to Optimize Patient Outcomes. (Source: http://www.accp.com/docs/positions/misc/cmm%20resource%20guide.pdf, accessed 7-22-14). The PCPCC defined CMM as a "standard of care that ensures each patient's medications are individually assessed to determine that each medication is appropriate for the patient, effective for the medical condition, safe given the comorbidities and other medications being taken, and able to be taken by the patient as intended. It includes an individualized care plan that achieves the intended goals of therapy with appropriate follow-up to determine actual patient outcomes." (Source: http://www.accp.com/docs/positions/misc/cmm%20resource%20guide.pdf, pg 5, accessed 7-22-14)

This paper will provide an introduction and guidance for use of a clinical coding system to pharmacists who practice CMM in a team-based model and will use the PCPCC model as the example. Extrapolating to other models of MTM is likely possible.

2.1. Introduction to SNOMED CT

SNOMED CT is a clinical coding nomenclature available for practitioners to use in documenting patient care. It is the clinical coding standard for the U.S. Government for the electronic exchange of health information and is a required standard in the interoperability specifications defined by the U.S. Healthcare Information Technology Panel. (Source: http://www.nlm.nih.gov/research/umls/Snomed/snomed_main.html, accessed 7-22-14)

SNOMED CT was developed in 1965 by the College of American Pathologists. Through multiple collaborations over many years, an international health terminology standards organization has been formed. The International Health Terminology Standards Development Organization (IHTSDO) now owns the intellectual property rights of SNOMED CT. As of January 2012, 18 countries were members of IHTSDO, and SNOMED CT had expanded its use to more than 50 countries. In the United States, the National Library of Medicine (NLM) provides the management for SNOMED CT.

SNOMED CT is a robust universal coding system, which, unlike other coding systems, is used by practitioners to document their care. It covers a broad range of health-related topics and provides the user with the ability to code the clinical situation at the appropriate level of detail for the clinical condition or situation of the patient.

Using SNOMED CT to document care ensures that the care provided is captured as structured data, which enables easy access and retrieval as well as sharing and exchange of health information. Coupling SNOMED-CT within a documentation note with other structured medical coding formats, such as RxNorm (for medication identification) and ICD-9/10 (for diagnosis classifications), will provide additional value to the users. (Source: http://www.pharmacyhit.org/pdfs/workshop-documents/WG2-Post-2014-02.pdf, accessed 7-22-14)

3. DISCUSSION

3.1. SNOMED CT in Medication Management

Within the past 2 years, specific MTM SNOMED-CT codes have been developed by the Pharmacy HIT Collaborative. IHTSDO and the NLM have approved these codes for use in the United States. The codes are available and ready for pharmacists to use when documenting their comprehensive MTM services. Ensuring that pharmacists establish the same clinical coding foundation as other health care providers will help ensure the integration of MTM services documentation into the EHR and the national health information technology (HIT) interoperable framework.

Pharmacists using SNOMED CT codes to document care will be provided lists with selection options for each component of their note. As will be shown, there are SNOMED CT codes to document the wide range of care that pharmacists provide in comprehensive medication management. For ease of use, pharmacists do not need to know SNOMED CT codes nor will they need to visualize the codes during the documentation process. Each of the documentation selection options available to the pharmacist will have a SNOMED CT code embedded as part of the computer programming, which allows the codes to be invisible to the pharmacist; this is accomplished through the electronic medical record or pharmacy system vendor interface. (Source: http://www.pharmacyhit.org/pdfs/workshop-documents/WG2-Post-2014-02.pdf, accessed 7-22-14)

Adoption of the use of SNOMED CT for CMM documentation is important for pharmacists. The use of SNOMED CT codes to document patient care, will allow for the following:

- CMM documentation to be captured using structured data that can be easily retrieved, sorted, and analyzed to guide individual patient care
- CMM documentation to be captured using structured data that can be easily retrieved, sorted, and analyzed for reports and quality improvement. Further, these data can be correlated to patient care outcomes affected by these pharmacist-provided services.
- CMM documentation to be captured in a format determined suitable for health information in order that patient data can be integrated into the EHR and be interoperable with other systems

As we move toward more team- based care delivery modes, it is vital for pharmacists to be able to demonstrate their ongoing contributions to patient care. Adopting and using MTM SNOMED CT codes will provide the needed infrastructure for pharmacists to capture their contribution and value.

As leaders advancing this new clinical documentation coding system, pharmacists will need to work with their EHR vendors to develop strategies for the efficient use of SNOMED CT codes to document and retrieve this information.

3.2. USING SNOMED CT TO DOCUMENT COMPREHENSIVE MEDICATION MANAGEMENT

In the PCPCC resource guide, Integrating Comprehensive Medication Management to Optimize Patient Outcomes, there is detailed information on how to provide and document CMM services in a team-based practice. The use of SNOMED CT codes to document CMM services using this widely accepted model will be illustrated below. (Source: http://www.accp.com/docs/positions/misc/cmm%20resource%20guide.pdf, accessed 7-22-14)

To begin a documentation note, it is important to document the type of care provided. MTM SNOMED CT codes are available for this. In this PCPCC model, the care provided is CMM. The SNOMED CT code for a comprehensive medication therapy review is 428911000124108. After completing the initial comprehensive review, the pharmacist will schedule a follow-up appointment with the patient. This follow-up appointment may again be comprehensive or have a targeted focus on one condition. For documenting targeted assessments, SNOMED CT codes are available. Below are some of the examples of SNOMED CT codes for targeted follow-up appointments.

Comprehensive medication therapy review	428911000124108
Targeted medication therapy review	6021000124103
Pulmonary disorder med review	473221002
a. Asthma medication review	394720003
b. Chronic obstructive pulmonary disease medication review	1611000124106
Endocrine disorder medication review	473235000
a. Diabetes medication review	394725008
Mental health medication review	413143000
a. Depression medication review	413974004
Cardiovascular disorder medication review (procedure)	473219007
a. Coronary heart disease medication review (procedure)	394724007
b. Heart failure medication review	473226007
c. Hypertension medication review	473225006
Infectious Disease	473232002
A. Human Immunodeficiency Virus	473233007
Oncologic Disorder	1701000124101
Hematologic Disorder	473220001
A. Anticoagulation	1801000124109

After documenting the type of care provided, pharmacists can use the SNOMED CT codes to document who referred the patient to them. A wide variety of SNOMED CT codes are available to assist in capturing the referral source. Patients who referred themselves, patients who were referred by their primary care provider, and patients who were referred by a specialist can all be captured using a SNOMED CT code; following are examples.

Referral Source	SNOMED CT Code
Referred by health care professional	2011000124105
Referred by nurse practitioner	2041000124109
Referred by physician assistant	2051000124106
Referred by primary care physician	2021000124102

With SNOMED CT, the pharmacist also has the ability to capture reasons that a pharmacist would be seeing a patient for CMM. Transitions of care tend to be a period in which medication problems develop. As a result, SNOMED CT has well-defined transition codes available to help capture what types of transition are occurring. Listed below are a few of the transition-of-care codes that are available.

Reason for Care	SNOMED CT Code
Transition of care	1861000124105
Transition from acute care to home health care	1871000124103
Transition from acute care to long-term care	1881000124100
Transition from acute care to hospice	1891000124102
Transition from home health care to acute care	1901000124103

Patients may be referred for CMM for many reasons, such as the patient is receiving care from multiple providers, has multiple chronic diseases, or is taking multiple medications for chronic diseases. SNOMED CT codes can capture these elements.

Reasons for Care	SNOMED CT Code
Under care of multiple providers	2091000124100
Multiple chronic diseases	2081000124103
Taking multiple medications for chronic disease	432341000124108

3.3. CRITICAL ELEMENTS IN THE PRACTICE OF CMM

The following four elements are critical in the practice of CMM in the patient-centered medical home (PCMH) as the pharmacist moves into the actual care of the patient:

3.3.1. Assessment of the patient's medication-related needs

3.3.2. Identification of the patient's medication-related problems

3.3.3. Development of a care plan with individualized therapy goals and personalized interventions

3.3.4. Follow-up evaluation to determine actual patient outcomes

3.3.1. ASSESSMENT

The assessment begins with understanding the patient's medication experience. This includes the patient's beliefs, concerns, understanding, and expectations about his or her medications.

The medication history is reviewed and recorded. Medication history and medication experience are areas that should be added in the future within the MTM SNOMED CT value set.

All of the patient's medications are reviewed, and the pharmacist records how the patient takes each of the medications, thus creating the patient's current medication record. Using SNOMED CT, the pharmacist will be able to document that a personal medication record was prepared for the patient and was given to the patient.

Patient's Medication Record	SNOMED CT Codes
Documentation of personal medication record	431551000124108
Provision of personal medication record	429131000124107

Last, the actual assessment of the medication therapy occurs. Each medication is assessed for the medical condition or indication for which it is being taken. It is important that each medication is linked to an indication. This assessment is completed to ensure that the medication is indicated, effective, and safe and that the patient is able to adhere to the therapy.

During the assessment of the drug therapy, the pharmacist may find it useful to use additional assessment tools to further evaluate the patient. Tools such as a health literacy assessment or a medication compliance assessment may be completed to help guide patient care. These specific assessment tools have SNOMED CT codes available and can be coded in a patient's documentation note when used.

Additional Assessment Completed	SNOMED CT Codes
Health literacy assessment	431531000124101
Functional assessment	12894003
Assessment of compliance with medication regimen	410122002

3.3.2. IDENTIFICATION OF THE PATIENT'S MEDICATION-RELATED PROBLEMS

During the assessment of a patient's medication therapy, the pharmacist and the patient work together to identify the medication-related problems (MRPs). MRPs are synonymous with drug-related problems (DRPs); however, DRP and MRP have not been well defined. Drug therapy problems (DTPs) relate to a patient problem that is either caused by a drug or may be treated or prevented by a drug (i.e., the patient's drug therapy is not effective for the patient, rather than is causing a problem). (Source: http://www.pharmacy.umn.edu/img/assets/10745/Quality_Assessment.pdf, accessed 7-22-14)

Following are the seven MRPs:

1. Is the medication appropriate for the medical condition being treated? If not, there would be a medication-related problem: Unnecessary Drug Therapy.
2. Does the patient have an indication for a medication that is not being treated or prevented? If not, there would be a medication-related problem: Needs Additional Therapy.
3. Is the most effective drug product being used for the medical condition? If not, there would be a medication-related problem: Ineffective Drug.
4. Is the dose appropriate and able to achieve the intended goals of therapy? If not, there would be a medication-related problem: Dosage Too Low.
5. Is the patient experiencing an adverse event from the medication? If so, there would be a medication-related problem: Adverse Drug Reaction.

6. Is the dose so high it could cause toxicity in the patient? If so, there would be a medication-related problem: Dosage Too High.

7. Is the patient able and willing to take the medication as intended? If not, there would be a medication-related problem: Adherence.

(Source: Cipolle RJ, Strand LM, Morley PC. Pharmaceutical Care Practice: The Clinician's Guide. 2nd ed. New York, NY: McGraw-Hill; 2004. pp.119–70)

Drug Therapy Problem	SNOMED CT Code
1. Unnecessary drug therapy	429621000124102
2. Needs additional therapy	428981000124101
3. Medication not effective	435501000124106
4. Dose too low	448152000
5. Adverse drug interaction	448177004
6. Dose too high	448089004
7. Noncompliance with medication regimen	129834002

If a patient is taking a medication and no longer has an indication to take it, the medication-related problem would be classified "unnecessary drug therapy" and could be coded using the SNOMED CT code 429621000124102.

If a patient is taking a low-dose blood pressure medication and his or her blood pressure remains elevated, the medication-related problem would be classified "dosage too low" and could be coded using the SNOMED CT code 448152000. In order to capture the complete picture, it is important to identify the condition and the medication involved. To do this, one can couple an ICD-9/ICD-10 and RxNorm code along with the SNOMED CT code to define the patient's clinical situation (e.g., hypertension [ICD-9 code=401.9], Lisinopril 10-mg oral tablet [RxNorm code=314076], medication-related problem: dose too low=448152000).

3.3.3. DEVELOPMENT OF THE CARE PLAN

After the patient assessment is completed and the drug therapy problems have been identified, the pharmacist, patient, and other health care team members work to develop the care plan. The purpose of the care plan is to capture the interventions that will be carried out by the patient and/or the pharmacist/health care team to help meet goals of therapy, to resolve any drug therapy problems, and to prevent the need for new drug therapy. There should be a plan for each condition and there are SNOMED CT codes available to document this plan.

The care plan allows the providers and patient to do the following:

1. Develop and document the interventions that will be done to resolve the medication-related problems.

2. Develop and document the individualized treatment goals for each medical condition.

3. Develop and document the personalized education and interventions that will be done to help the patient meet his or her goals of therapy.

4. Develop and document measurable outcomes that will be monitored and evaluated at

follow up to determine impact.

5. Determine and document the plan for follow-up appointments.

(Source: Cipolle RJ, Strand LM, Morley PC. Pharmaceutical Care Practice: The Clinician's Guide. 2nd ed. New York, NY: McGraw-Hill; 2004.)

A. DOCUMENTING INTERVENTIONS TO RESOLVE MEDICATION-RELATED PROBLEMS.

If a patient is taking a blood pressure medication at maximum dose and the blood pressure is reduced but remains elevated, the medication-related problem would be classified "needs additional therapy."

In the care plan for this drug therapy problem, the pharmacist and patient decide to add another agent. SNOMED CT codes can be used to capture this intervention. A wide range of interventions are being developed within SNOMED CT. A selection of future intervention options are listed below.

INTERVENTIONS To Resolve Medication-Related Problems	SNOMED CT Code
Start drug therapy	Pending
Start prescription medication	Pending
Start over-the-counter medication	Pending
Start dietary supplement	Pending
Start herbal supplement	Pending
Stop drug therapy	Pending
Change drug product	Pending
Change medication dose	Pending
Increase dose	Pending
Decrease dose	Pending
Change to different dosage form	Pending
Change length of therapy	
Lengthen course	Pending
Shorten course	Pending
Alter dosing interval	Pending
Increase medication dosing interval	Pending
Decrease medication dosing interval	Pending

To capture the complete picture in the care plan, the complete documentation would be represented as follows: Hypertension (ICD-9/ICD 10 code), medication-related problem=needs additional therapy (SNOMED CT code), Intervention: start drug therapy. Lisinopril 10-mg oral tablet (RxNorm code= 314076)

The SNOMED CT codes marked "Pending" have been submitted by the Pharmacy HIT Collaborative to NLM for addition to the SNOMED CT database and are pending approval.

B. DEVELOP AND DOCUMENT THE INDIVIDUALIZED TREATMENT GOALS FOR EACH MEDICAL CONDITION.

The process of developing individualized goals for each medical condition is under way at this time. The pharmacy profession needs further discussion to define these treatment goals for medical conditions. Once defined, the Pharmacy HIT Collaborative will work with NLM to develop these treatment goals and add them to the MTM SNOMED CT value set.

C. DEVELOP AND DOCUMENT THE PERSONALIZED EDUCATION AND INTERVENTIONS THAT WILL BE DONE TO HELP THE PATIENT MEET HIS OR HER GOALS OF THERAPY.

This is an important part of the care plan. Often, multiple interventions will be done to assist the patient to help them meet his or her goals. SNOMED CT codes have been designed to enable pharmacists to capture what they are doing within a team-based practice to benefit their patients. Examples of these interventions follow.

INTERVENTIONS	SNOMED CT Codes
Consultation with health care provider	11429006
Patient education	311401005
Medication education	967006
Medication equipment or device education	362978005
Chronic disease education	423167009
Medication reminder device set-up	435441000124107

D. DEVELOP AND DOCUMENT MEASURABLE OUTCOMES THAT WILL BE MONITORED AND EVALUATED AT FOLLOW UP TO DETERMINE IMPACT.

Measurable outcomes (goals of therapy) to be monitored and evaluated at follow up are being developed. The pharmacy profession needs further discussion to define these measurable outcomes. Once defined, the Pharmacy HIT Collaborative will work with NLM to develop these measurable outcomes and add them to the MTM SNOMED CT value set.

E. DETERMINE AND DOCUMENT THE PLAN FOR FOLLOW-UP APPOINTMENTS.

The pharmacy profession needs further discussion to define the documentation for follow-up appointments. Once defined, the Pharmacy HIT Collaborative will work with NLM to develop the documentation for follow-up appointments and add them to the MTM SNOMED CT value set.

SNOMED CT codes are available to capture the development of the care plan and medication-related action plan. Another code is available to document each time the medication-related action plan is provided to the patient.

Documentation of Care Plan	SNOMED CT Codes
Development of care plan	399684003
Documentation of medication-related action plan	432351000124105
Provision of medication-related action plan	429141000124102

3.3.4. FOLLOW-UP EVALUATION

The follow-up evaluation is the final step in CMM in PCMH; its purpose is to determine and document if the patient is making progress toward meeting goals of therapy or have reached them and if any medication-related problems have now been resolved. There is also a re-evaluation, which looks for possible new medication-related problems.

SNOMED CT codes are available to assist with documenting the follow-up evaluation. For documenting the outcomes of each medical condition, SNOMED CT outcome codes are available. To date, some of the SNOMED CT outcome codes that exist include "patient condition resolved," "patient condition improved," "patient condition stable," "patient condition unstable," and "patient condition worsened."

In the example above, at follow up the patient's hypertension is now at goal; it could be defined as "patient condition stable." The pharmacy profession needs further discussion to define the documentation for additional outcome codes. Once defined, the Pharmacy HIT Collaborative will work with NLM to develop the documentation for additional outcomes codes and add them to the MTM SNOMED CT value set.

Outcomes	SNOMED CT Codes
Patient condition resolved	370996005
Patient cured	371001000
Patient condition improved	268910001
Patient condition poor	162667001
Patient condition satisfactory	162669003
Patient condition stable	359746009

4. SUMMARY

In this documentation guide, it was noted that several elements of CMM do not yet have SNOMED CT codes developed. SNOMED CT has been designed to allow for continued growth and evolution of health care. Work will continue today and into the future to ensure that all necessary codes are available to capture the patient care that pharmacists provide.

The adoption and use of SNOMED CT in EHRs will benefit individuals and society. (Reference: IHTSDO SNOMED CT Starter Guide)

For the patient and provider, using SNOMED CT will help improve patient care by—

- Facilitating the accurate recording of patients' health record information using consistent format
- Allowing more information to be available quickly to help providers with real-time decision-making support. Sorting of patient data can occur quickly, which increases the availability of relevant information.
- Allowing for searches to help identify patients whose conditions are not at goal and require follow up
- Supporting the appropriate sharing of patient care data

For population care, using SNOMED CT will benefit populations by—

- Allowing for evaluation of medication regimens at a societal level
- Facilitating early identification of potential medication-related problems

- Enabling the delivery of clinical data to contribute to the development of treatment guidelines
- Reducing costs of inappropriate and duplicative testing and treatments
- Enhancing care delivery by evaluating care to investigate outliers
- Improving the cost-effectiveness and quality of care delivered

In team-based care models, the use of SNOMED CT codes will help identify the contributions to the patients' outcomes by each health care provider on the team. Pharmacists are relatively new members of team-based care models, so it is important that the evidence of their value is identified. As pharmacists work to implement SNOMED CT codes in their practice, leading other care team members in the use of structured coding could be of great benefit to the health care team.

Pharmacists who want to use SNOMED CT codes to document care should contact their pharmacy management system or electronic medical record vendor. Ask if the SNOMED CT new Release Format (RF2) codes are available for use and if not; request that they be made available to your facility.

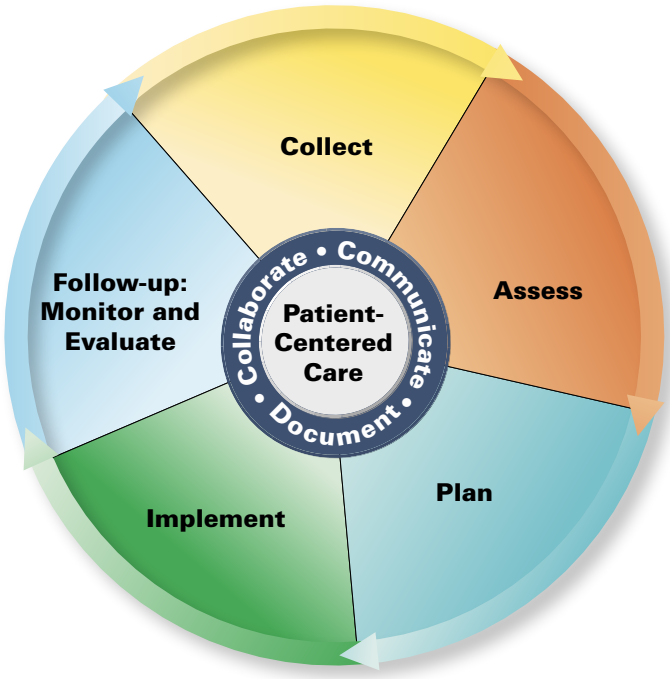
5. Appendix: Diagram of a Standardized Pharmacist Patient-Centered Collaborative Care Process

Figure 1 depicts a proposed standardized pharmacist patient-centered collaborative care process for pharmacists providing medication therapy management (MTM) services. The pharmacists' patient care process described in this illustration was developed by examining

FIGURE 1

Pharmacists' Patient Care Process

The Joint Commission of Pharmacy Practitioners, a coalition of national pharmacy associations that includes APhA, recently adopted the Pharmacists' Patient Care Process to promote consistency in patient care delivery within the profession.



Pharmacists' Patient Care Process
Pharmacists use a patient-centered approach in collaboration with other providers on the health care team to optimize patient health and medication outcomes.

Using principles of evidence-based practice, pharmacists:

Collect
The pharmacist assures the collection of the necessary subjective and objective information about the patient in order to understand the relevant medical/medication history and clinical status of the patient.

Assess
The pharmacist assesses the information collected and analyzes the clinical effects of the patient's therapy in the context of the patient's overall health goals in order to identify and prioritize problems and achieve optimal care.

Plan
The pharmacist develops an individualized patient-centered care plan, in collaboration with other health care professionals and the patient or caregiver that is evidence-based and cost-effective.

Implement
The pharmacist implements the care plan in collaboration with other health care professionals and the patient or caregiver.

Follow-up: Monitor and Evaluate
The pharmacist monitors and evaluates the effectiveness of the care plan and modifies the plan in collaboration with other health care professionals and the patient or caregiver as needed.

Source: http://www.pharmacist.com/sites/default/files/JCPP_Pharmacists_Patient_Care_Process.pdf

a number of key source documents on pharmaceutical care and MTM. Patient care process components in each of these resources were catalogued and compared to create the following process that encompasses a contemporary and comprehensive approach to patient-centered care that is delivered in collaboration with other members of the health care team. (Source: Pharmacists' Patient Care Process, May 29, 2014. http://www.pharmacist.com/sites/default/files/JCPP_Pharmacists_ Patient_Care_Process.pdf)

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