CASE MANAGEMENT: TOOLS AND COORDINATION METHODS

By Margot Phaneuf, R.N., Ph.D.
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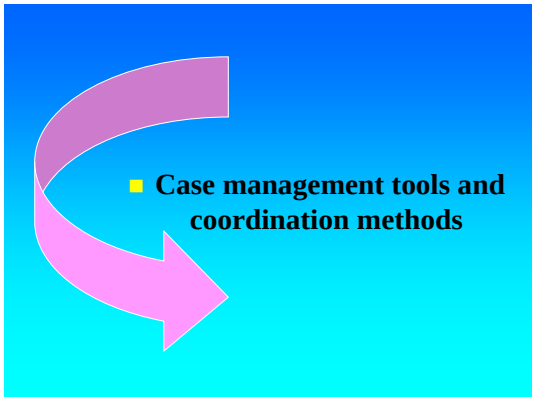
Case management is a care delivery system which is currently surfing on a wave of popularity as a result of its combined efficiency and effectiveness. Most health care institutions in Quebec have implemented a case management model. Case management is an integrated, complex system which is multidisciplinary by nature and which requires numerous tools to be effective. These tools can be classified into five main categories:



A. Clinical pathway plans (a.k.a. critical pathways or care maps);

B. Variance analysis and statement;

C. Interdepartmental transmissions;

D. Multidisciplinary clinical meetings;

E. Quality of care and appraisal reports.

These tools require multidisciplinary consensus. They are used to optimally achieve case management objectives.[1]

CLINICAL PATHWAY PLAN

Definition of a Clinical Pathway Plan

- **Intervention plan developed by the multidisciplinary team and implemented in a continuum divided into clearly defined stages which reflect the problems normally encountered for a specific pathology in case management.**
- **Treatments, medications and interventions are planned for each day of the patient's anticipated hospital stay and are subdivided by job category for the health care providers involved in the process.**

"The clinical pathway plan is one of the best known case management tools. In practice, it is a guide in which activities, which are to be completed within a predetermined period of time in order to achieve specific clinical outcomes for the patient or his family, are clearly identified. The plan groups planned, multidisciplinary interventions. Optimal solutions for each discipline involved are planned for strategic moments during an episode of care. The plan reflects

[1] For an introduction to case management, consult Margot Phaneuf, *Case Management: Client-Centred Care* (2005, revised 2008) available at: www.infiressources.ca.

the concern for delivering care and services at the right time, by the right people during an episode of care"[2]

A FEW CASE MANAGEMENT AND CLINICAL PATHWAY PLAN PROCEDURES

Many case management models exist. They can cover periods ranging from pre- to post-hospitalization. Such a range indicates an integrated case management system (ICMS). Case management may also focus exclusively on the duration of the hospitalization or treatment. The choice is left to the institution which implements the case management system.

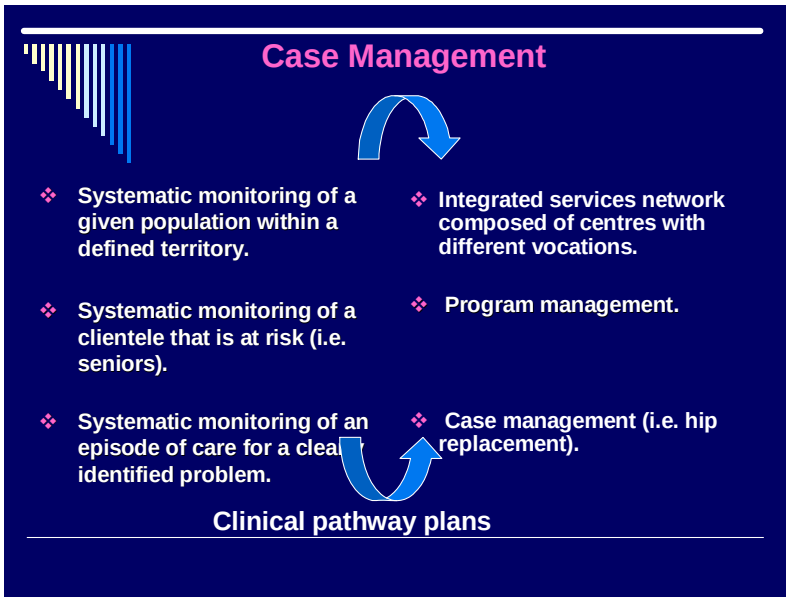
Acute care (cardiology, pneumology, orthopedics, gynecology, etc.) may be the darling of case management, but it is increasingly applied to chronic health problems as well as to community and mental health care.

A FEW HIGHLIGHTS

Client case management as a model can be applied to a variety of categories of individuals, depending on the clientele targeted.

Population Monitoring

Broadly speaking, case management can target a specific population in a neighbourhood, city or territory. Health centres with various missions (short-term care, long-term care, residential care, community health, CLSC) may be involved. This is referred to as organized cooperation.



Client Monitoring

Client monitoring is normally restricted to clients who make frequent use of health services. Client groups may include, for instance, seniors and people suffering from chronic obstructive pulmonary disease (COPD) or mental health problems. Prehospital services (day centres, outpatient clinics), hospital services (emergency room, pneumology, psychiatry) and post-hospital services (respite centres, community centres) may be involved in the systematic monitoring of clienteles. What remains constant is that regardless of the scope of the network, institutions and individuals involved, case management interveners work in synergy and complement each other.

[2] Unofficially translated from *Suivi systématique des clientèles* (2002) Régie régionale: Québec.

EXAMPLE OF A PLAN FOR THE FIRST DAY OF A CLINICAL PATHWAY IN SURGERY[3]

Diagnosis/surgery: colostomy Duration of stay: 8 days							CMG: 148/149
Day 1/8	**Consul-tations**	**Tests**	**Activities**	**Medical care**	**Medica-tion**	**Nutri-tion**	**Signa-ture**
	Cardio	Electrolytes Complete blood count EEG	Leaving bed Breathing exercises Turn every 4 h	I.V. Nasogastric suction Urethral catheter	Analgesics Antibiotics*	Nothing orally	S.J.

- *See doctor's order.*

PREPARING CLINICAL PATHWAY PLANS

Case Management Plan Preparations

- **Form a multidisciplinary team composed of consultants and professionals who will be working with the patient needs.**
- **Appoint a medical and nursing coordinator for the integrated episode of care program.**
- **Develop a *clinical pathway plan*, which is to be completed by the professionals involved in the team.**

Clinical pathway plans can be developed for a variety of purposes. Some focus on ***expected outcomes*** while others are articulated around ***set targets, objectives*** and ***goals***. Other plans focus directly on interventions (medical, nursing or by other interveners).

The same applies to nursing plans, which are key organizational elements in case management. Some case managers refer directly to interventions; others use the ***nursing diagnosis***. It is always interesting, practical and functional to use nursing tools. The

[3] Adapted from Elaine L. Cohen and Toni G. Cesta, 1997

Please note that the examples provided in this document have been simplified deliberately. They are intended to give an idea of the overall organization and how the plans are applied. The examples should in no event be considered as a practical work tools.

nursing diagnosis remains the primary tool for achieving effectiveness and professional visibility. The tables below provide examples of clinical pathway plans.

EXAMPLE OF A SECTION OF A CLINICAL PATHWAY PLAN DESIGNED FOR INTERVENTIONS (2 FIRST DAYS).[4]

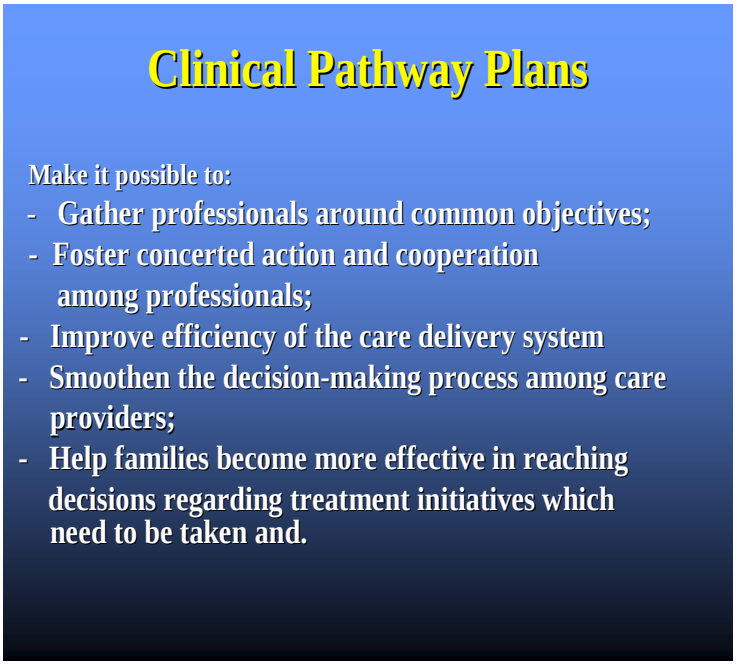
Acute edema Duration of stay: 6								
INTERVE NTIONS	**Day 1**	**N**	**S**	**J**	**Day 2**	**N**	**S**	**J**
Evaluation	Vital signs every 10 m. Edema, coloration Jugular distension Cardiac monitoring Daily weight Fluid balance				Vital signs/daily 4 h Cardiac monitoring			
Examina-tions and samples	Chest X-Ray ECG Digoxin concentration Electrolytes				Diagnostic ultrasound Electrolytes			

EXAMPLE OF A SECTION OF A NURSING PLAN REQUIRING A NURSING DIAGNOSIS

Problem or Nursing Diagnosis	**Day 1 Objectives**	**Interventions**	**N**	**S**	**J**
Impaired gas exchange A/R pain; fluid volume excess (Edema)	- Stabilize: Breathing to 20-22/min - Improve oxygenation - Reduce heat	Antalgic position Permanent O_2 Vital signs/daily 4 h Fluid restriction Ingest—excreta dosage Antalgic medication p.r.n. (Use a widely accepted scale to measure pain)			

[4] Adapted from a case managementcenter care card found in Flarey and Blancett (1996).

Nutritional deficit A/R, nausea, dyspnea	- Eat 1 serving from each major food group at each meal - Cease having nausea - Breath effortlessly	- Get patient to suck ice cubes - Explain why it is important to eat life-sustaining food			



The multidisciplinary clinical pathway plan is one of the most widely used tools in case management. It is prepared once in-depth information has been gathered from the patient and his family. The plan describes the care and treatment to be provided to a typical client who has a specific medical condition.[5]

The plan covers the entire episode of care. It may also cover prerequisite care and post-hospital care. The clinical pathway/plan of care sheds light on the main clinical events during the episode of care, including: diagnosis methods, monitoring parameters, maintenance care, treatments, medication, diet, education and preparations for client discharge.

"In such clinical pathways/plans of care, the activities and information are assigned throughout the expected duration of the hospital stay by treatment and type of disease. The plan serves as a guideline/reference for providing care which must be customized in accordance with the condition and needs of the client and his family. Only similar elements become systematic; however, individual needs are not to be dismissed."

Clinical pathways (aka critical pathways) "are usually based on a predefined model. That is the plan; however, information and data gathered throughout the episode of care reflect the reality observed. Any variances can thus be analyzed to improve existing models and clinical practices.

5 O.I.I.Q., 1996.

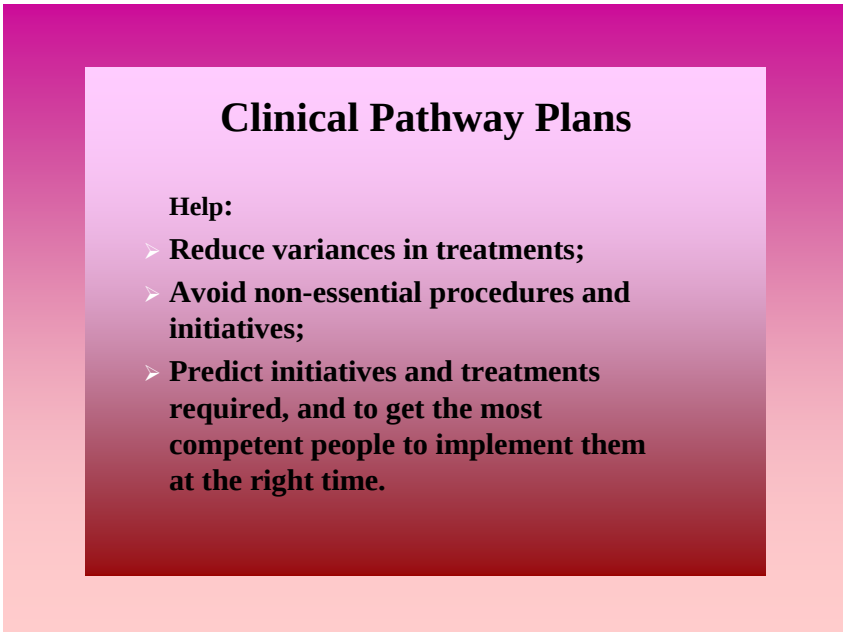
Clinical pathways make it possible to incorporate the following elements within a single document:

- Care delivery problems;
- Clinical outcomes;
- Planned and completed interventions (evaluation, observation, education and treatment) for each professional normally involved in an episode of care;
- Examinations, treatments and other necessary procedures;
- Variances within the treatment plan and duration of the stay.

Interdisciplinary teams prepare clinical pathway plans. As a result of the needs of the patient arising from his condition, it is necessary to gather all the necessary data. To achieve this, cooperation among all care providers involved, in every institution or department involved, is essential.

Other institutions may include the CLSC (local community service centre), rehabilitation centres and long-term care institutions."[6] (Régie régionale, Québec, 2002 : http://www.agencesss04.qc.ca/)

DEVELOPING CLINICAL PATHWAY PLANS



Writing a clinical pathway is a multi-step process. First, it requires knowledge and a conscious investment by team members. The framework developed must remain functional over an extended period of time. Only corrective measures and improvements must subsequently be implemented. The clinical pathway development process includes:

[6] Régie régionale de la santé et des services sociaux, 2002. Source available at http://www.rrsss04.gouv.qc.ca/ssc/projets_locaux.htm. Last consulted Nov. 7, 2008.

Caregiving Team

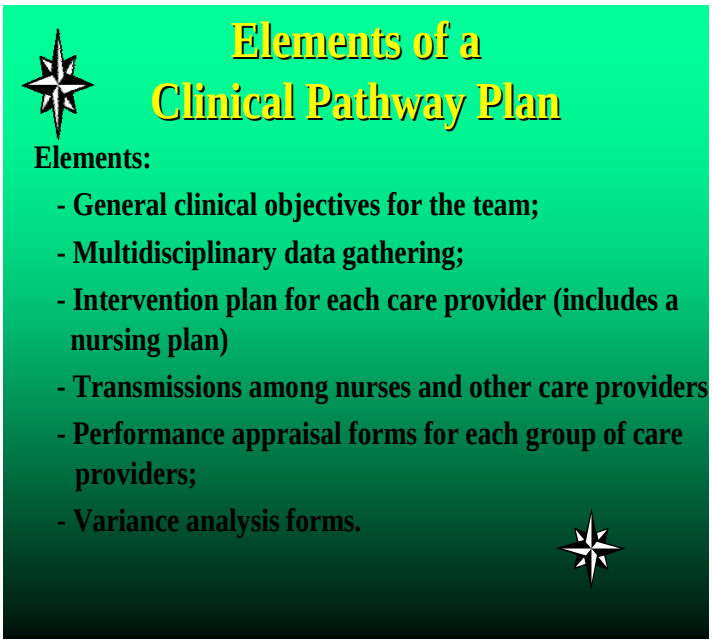
- The head physician needs to identify the clinical objectives and indicate the anticipated duration of patient care and monitoring throughout the episode of care. This estimate is based on statistics compiled by the institution.

- The elements covering examinations and treatments within the plan should be identified by the medical team involved.

- The treatment plan and its steps should be validated by all physicians involved.

Nursing Team

The nursing section of the clinical pathway requires the development of a draft which includes all prescribed elements. The case manager and the nurses on her team develop the plan.



- Nursing diagnosis problems, objectives and suggested interventions should be included in the nursing plan.

- The contents must be scientifically accurate, at the cutting edge of current knowledge, and focus on the patient. The pathway must also reflect the values of the institution and reflect best practices in nursing.

Other Professionals

In order to be complete, clinical pathways must identify any specialized intervention. For example, specialized interventions may fall under: dietetics, kinesitherapy, occupational therapy, psychology, social work and pharmacology. Even a pharmacist may be needed.

Interdisciplinary Team

Nurses and physicians are the first professionals involved in the development of clinical pathway plans. Other professionals also contribute to the plan of care. The overall treatment plan is subdivided into distinct categories by the group responsible. Categories which fit into the clinical pathway may include: pre-admission, sampling and examinations, medication, i.v. solutions, client needs (breathing, drinking, eating,

evacuating, sleeping, etc.). In addition to identifying categories, time for consultations and patient education (for post-discharge rehabilitation) is often necessary.

Each institution may decide on the best way to create the subdivisions based on its practices, local culture and type of clientele addressed. The committee is mandated to define criteria for patient admission and exclusion in the clinical pathway.

The committee must allocate the objectives to each day of the hospital stay or to each anticipated hospitalization period (pre-hospitalization, hospitalization, post-hospitalization). Achieving these objectives makes it possible to attain the clinical outcomes provided for in the case management plan. In chronic care, psychiatric care and elderly care, the objectives are spread out in stages which vary in duration, depending on the types of programs involved.

EXAMPLE OF A MULTI-STEP CLINICAL PATHWAY TEMPLATE

RESULTS								
Problems	**Acute phase: 72 hours**	**Subsequent phase: days 4 to 9**						**Discharge and outside monitoring**

The multidisciplinary team must also decide which elements are to be included in the clinical pathway. For example, should the pathway include a clinical evaluation form, information gathered by nurses, an additional medical prescription form, a comments section for professionals other than nurses and physicians? Which format should be adopted when nurses write their observation notes? Should they be chronological or targeted descriptions? Will a form be included to process analysis variances and patient and family education plans? In the end, it is up to the interdisciplinary team to make these decisions.

The nurse as a case manager

The nurse acting as case manager must develop a draft of the clinical pathway which contains all of the elements. She must then present it to those involved for approval. Corrections, if necessary, are subsequently made.

All interveners

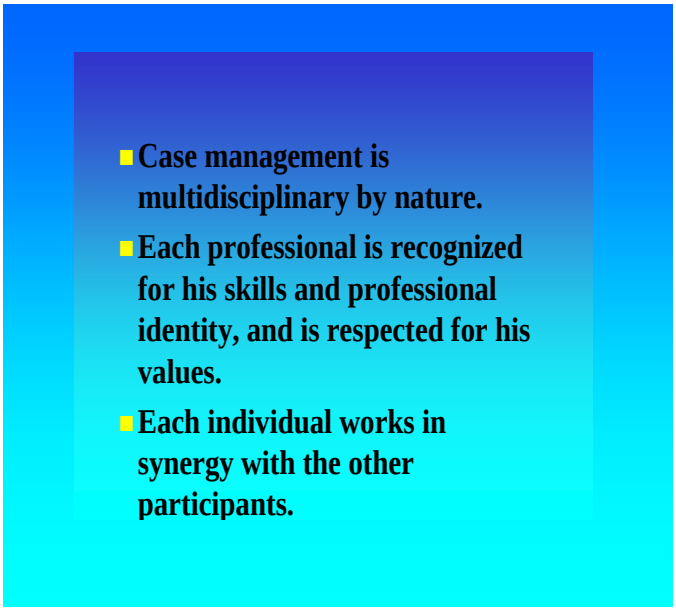
All parties involved in the clinical pathway must adhere to the plan. Consensus is required.

SUMMARY OF THE STEPS TO WRITE A CLINICAL PATHWAY PLAN

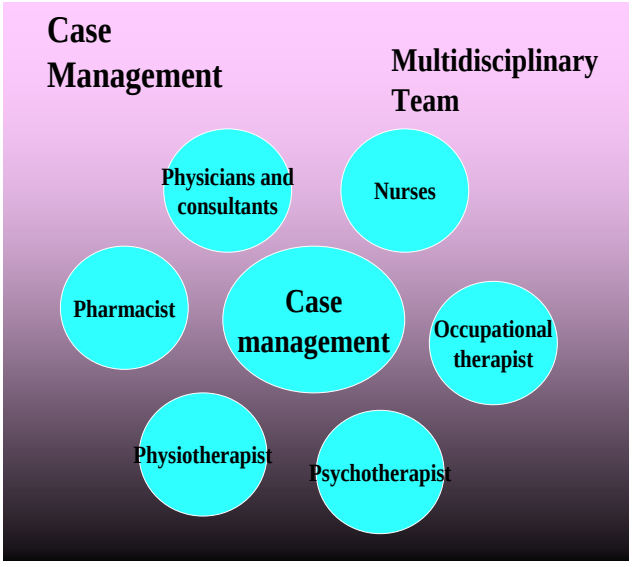
ELEMENTS DETERMINED BY PHYSICIANS	MULTIDISCIPLINARY ELEMENTS	ELEMENTS DETERMINED BY COORDINATOR	ELEMENTS DETERMINED BY OTHER PROFESSIONALS
Clinical objectives identified by head physician for specific clientele. Estimation of hospital stay and monitoring of client throughout an episode of care.	Treatment plan broken down into separate, functional units by interdisciplinary team (i.e. evaluation upon admission, examinations and sampling, medication, i.v. solutions, response to patient needs, oxygen therapy, consultations, client education, admission criteria, discharge criteria, exclusion criteria, etc.).	Preliminary draft of the clinical pathway for the nursing section, including delegation and responsibilities (i.e. nursing diagnosis, objectives, proposed interventions, medication, treatment, evaluation , etc).	Identification of specific interventions (i.e. dietetics, kinesitherapy, occupational therapy, psychotherapy, social work).
Identification of tests and examinations which might be required. Identification of treatment to be applied by medical team.	Draft of clinical pathway/plan of care which contains all elements to be prepared by nursing coordinator. Presentation of draft to all participants for approval or corrections.	Gathering of information which contains variances. Study of deviations and their causes. Suggestions for corrective measures. Compilation of variance data and drafting of reports to be presented during meetings to bring about corrective measures.	
Validation of treatment plan and its steps by all physicians involved.	Printing of final clinical pathway/plan of care document and approval by all interveners. Study on how to integrate clinical pathway to institutional model.	Evaluation of quality of care delivered. Evaluation of resources allocated and benefits. Evaluation of client, family and care provider satisfaction. Production of statistics.	

INTEGRATING THE CLINICAL PATHWAY PLAN TO THE INSTITUTIONAL FRAMEWORK

Special care needs to be taken when integrating the clinical pathway plan to the operating framework of the institution. Providing a care framework is insufficient: it must be possible to implement the plan within the boundaries imposed by the usual operating mode of the institution. Certain questions need to be addressed, such as:



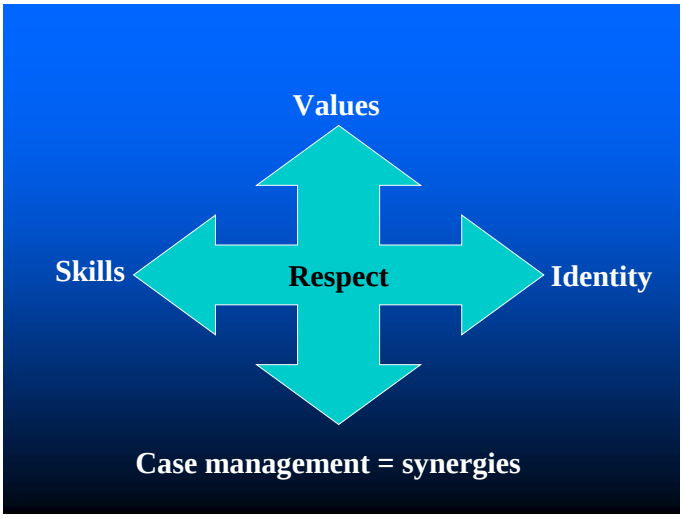
- Should the clinical pathway replace the care plans normally used in the care units concerned?
- Should the nursing observation notes section in the clinical pathway plan replace existing written transmission modes?
- Should the existing forms be kept and complement the plan (i.e. form in which i.v. solutions, medications and vital signs are recorded)?
- Can certain care protocols be added to the clinical pathway plan (i.e. care protocol for central intravenous procedures)



Choices and decisions must be made regarding the integration of the clinical pathway plan within the institutional operating mode. However, efforts should be made to avoid duplicating forms and to effectively reduce paperwork for nurses and other care providers.
The case management plan must also effectively integrate tools which are used to measure the cost of care and complete quality assessments - two essential components of care management.

ELEMENTS OF A MULTIDISCIPLINARY PLAN OF CARE

The underlying philosophy of case management is one of coooperation among the various professionals involved. The notion of group performance prevails as all participants seek to achieve the same objective – client well-being. Group effort creates a synergy rather than a sum of individual skills and contributions [7].



This truly cross-disciplinary system leaves room for competency recognition, the acknowledgement of professional identities and the integration of the values of all members.

The resulting clinical pathway is the foundation of the case management system. It contains many elements which can differ according to institution, author, program and application. The following section identifies the elements which the clinical pathway normally includes.

MAIN ELEMENTS OF A CLINICAL PATHWAY PLAN

1. Clinical objectives to be achieved through treatment and actions of all care providers, including nurses.

2. The treatment plan which includes: tests, examinations, calendars, medications, treatments, diets, consultations and interventions (preparation, post-intervention period, subsequent monitoring) etc.

3. Gathering of nursing data upon admission, within 1 to 24 hours (client condition, lifestyle habits) and subsequent monitoring of the client's condition.

4. Daily nursing plan (prescribed and autonomous) for each day of the planned hospital stay, for daily schedules (night and day separated in accordance with previously defined categories including: sampling, examinations, protocols, treatments, sign and symptom evaluations, client needs, etc.), autonomous interventions arising from nursing role (nursing process and nursing diagnosis).

[7] Jaquemet, 2004

5. Nurses' notes and document transmissions form used for unforeseen events not provided for in the clinical pathway and to document and monitor activities on a daily basis (i.e. fear of death, change to condition, complications, etc.).

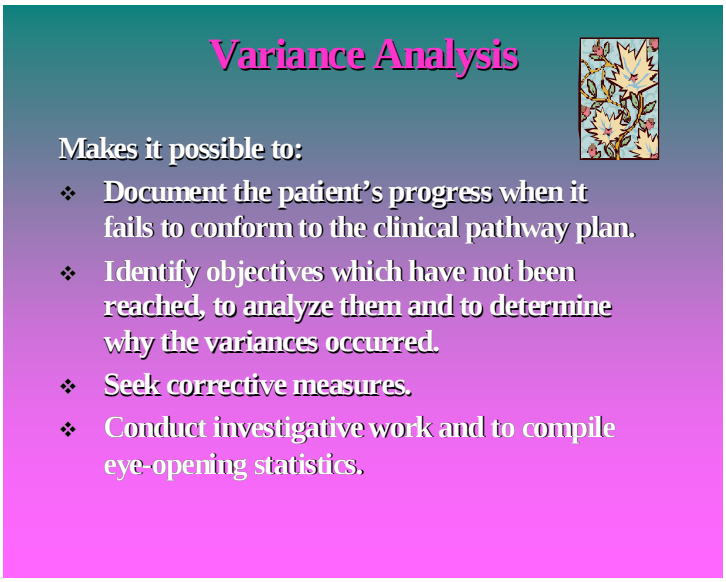
6. Multidisciplinary section for dietetics, occupational therapy, kinesitherapy, orthophony, social work and, if needed, the pharmacy. This section documents evaluations, proposed interventions and observation notes.

7. Evaluation form to be ticked off as (expected) results are achieved for each day of client monitoring by the professionals involved.

8. Performance and variance analysis form for objectives which have not been met and elements in clinical pathway which could not be completed.

The elements in the above table seem numerous, yet they are essential to effectively monitor the condition of the client and the completion of the clinical pathway as well as to guarantee that the set objectives are being met.

OUTCOME EVALUATION AND VARIANCE ASSESSMENT



Any functional system must contain evaluation mechanisms to analyze outcomes and the attainment of objectives (or not) as well to identify problems encountered and their causes.

Evaluation is an important step in case management. Forms must be developed for evaluations. The coordinator carries out this task and cooperates with other care providers to validate the forms, fill them out and analyze them. Operating reports are subsequently prepared. Deviations and variances are identified and analyzed. Variances shed light on elements which require completion or corrective action.

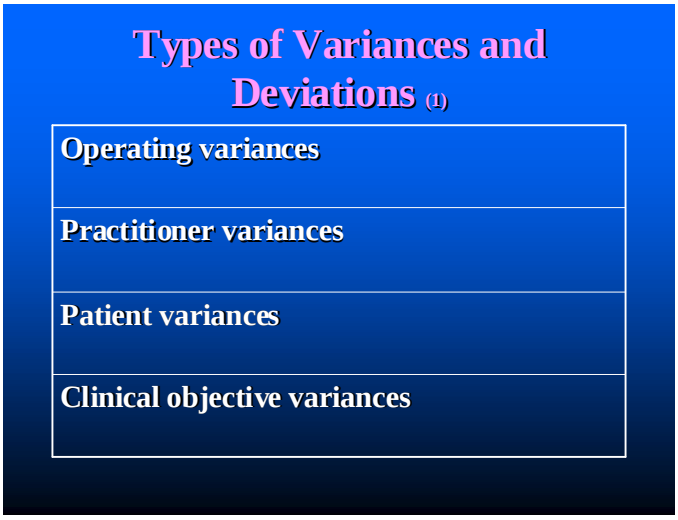
The identification of variances and deviations makes it possible to compile statistics on the effectiveness of the case management system. The systematic analysis of deviations and variances is at the heart of the scientific method. Information gathering need not be complex. As the example below illustrates, only a check mark is required on a standardized form to gather information.

CLINICAL OBJECTIVES EVALUATION FORM

For coronary unit discharge	For home discharge
__Care history completed __Echography completed __Coronography completed __Stable cardiac rhythm __No major arrythmia __No retrosternal pain for 24 hours __Hemodynamic stability __Eupneic __Clear lungs __Discharge prescription form __Continuity of planned stay	__Client and family notified of anticipated date of discharge __Thallium-effort passed __Stable cardiac rhythm __No major arrythmia __TA within normal limits __No shortness of breath and no exertional or nocturnal dyspnea __No orthopnea __Can move without retrosternal pain __Shows less anxiety

EXCEPTION REPORT

In order to implement continuous improvement initiatives and to determine the cost of care delivery for an episode of care, the interventions and results of clinical pathways must be subjected to assessment. Each professional who records notes throughout the clinical pathway is asked to cooperate in the preparation of the exception report. As soon as a complication or a delay arises which may lead to a deviation from the care plan, the case must be documented in order to bring about the necessary changes. The case manager is responsible for variance analysis, the process which makes it possible to prepare the exception report.



VARIANCE ANALYSIS

Variance analysis indicates any differences between planned and actual clinical results. Variance analysis statements are essential in case management. They make it possible to determine whether the clinical pathway was carried out as planned. Variances have an impact on the allocation of resources, on the quality of clinical outcomes and on the duration of patient monitoring. Variance analysis encourages care providers to gather the information that will help bring about improvements in

clinical pathways beginning with quality of care.

This exercise makes it possible to analyze the reasons why a given clinical pathway is not working as planned, why there are deviations. It also helps care planners bring about corrective measures if necessary.

TYPES OF VARIANCES

Variances from set objectives can be classified into four groups:

- **Operating variances** arising from malfunctioning equipment, delays in interdepartmental communications, staff shortages and lack of beds in the department where the patient needs to be transferred.

- **Care provider variances** arising from changes to surgical or treatment procedures as well as from lack of experience.

- **Patient variances** which result from client non-cooperation, declining treatment and failing to properly adhere to prescribed treatments.

- **Variances in clinical objectives** slow down the clinical pathway and arise from changes to the condition of the client and complications (i.e. infection, optimal electrolyte balance not being achieved, abnormal urinary evacuation) which prolong the patient's stay.

The variances must be compiled for statistical purposes. The nurse coordinator is responsible for compiling statistics, drafting reports and presenting them during multidisciplinary meetings. Participants discuss the reports and decide whether to bring corrective measures (Cohen and Cesta, 1997).

Types of Variances/Deviations (2)

Variances may be:
Operating variances arising from delays in inter-departmental communications, staff and bed shortages, and the inability to schedule more appointments.
Care provider variances arising from changes to the treatment or from lack of experience.

STAGES OF VARIANCE ANALYSIS

Types of Variances/Deviations
(3)

They may be:

Patient variances resulting from the patient's refusal or non-compliance with the treatment, lack of cooperation or a failure in his support network.

Clinical variances which may arise, among other causes, from a hydro-electrolytic imbalance or a failure to connect emotionally, a reaction to medication or complications which prolong the duration of the hospital stay.

Variance analysis is carried out in four stages. All professionals involved in the multidisciplinary team participate in the process; however, it is the case manager who initiates the procedure. The four stages are:

- **1. Data gathering and compilation**

All information containing variances is gathered and classified by client type and type of variance.

- **2. Analysis**

The data compiled is analyzed to understand past events. This analysis makes it possible to establish a client profile and to identify patterns among certain client groups. In the end, this stage makes it possible to identify problematic elements.

- **3. Proposal of Corrective Measures**

Once problems have been identified in case management, the coordinator cooperates with the team to prepare the variance analysis and to determine which corrective measures need to be implemented. These can be in the clinical pathway plan or in human relations within the team or with other care providers in the system.

Stages of Variance Analysis

- Data gathering and compilation
- Analysis
- Proposal of corrective measures
- Development of subsequent action plan

- **4. Development of Subsequent Action Plan**

This is the logical step arising from variance analysis and aims to improve clinical pathways and procedures. When a clinical pathway plan fails to match expectations, corrective measures must be implemented.

Human factors must also be taken into account. Professional rivalries which can create disagreements and delays occasionally abound within multidisciplinary teams. The coordinator is at the heart of any disputes and must try to instill harmony in the communications among the care providers in order to guarantee the patient and his family the best quality care possible and effective case management.

EXAMPLE OF VARIANCE PROCESSING[8]

Name: Diagnosis:
Expected duration of stay: Total duration
Date of discharge:

PRESENTATION OF FACTS	EXPLANATIONS	CORRECTIVE MEASURES	INITIALS AND DATES
Phlebitis on the left leg appeared on the day following the intervention.	Important presence of varicosed veins.	Plan for surgical socks and an anticoagulant treatment prn.	M.C.P. 08/09.
Four-day wait for a bed in the rehabilitation centre.	Insufficient beds in this sector.	Meet directors if this scenario repeats itself.	M.C.P. le 10/09.

INTERDEPARTMENTAL REPORTS AND DOCUMENT TRANSMISSIONS

Departmental reports are an excellent means to guarantee continuity of care. They are prepared using the clinical pathway plan as a guideline. The reports include demographic data, a summary of care delivery in the department concerned, a brief description of the client's condition, the results obtained and any variances observed. These reports are transmitted to other team members, especially during multidisciplinary meetings.

MULTIDISCIPLINARY CLINICAL MEETINGS

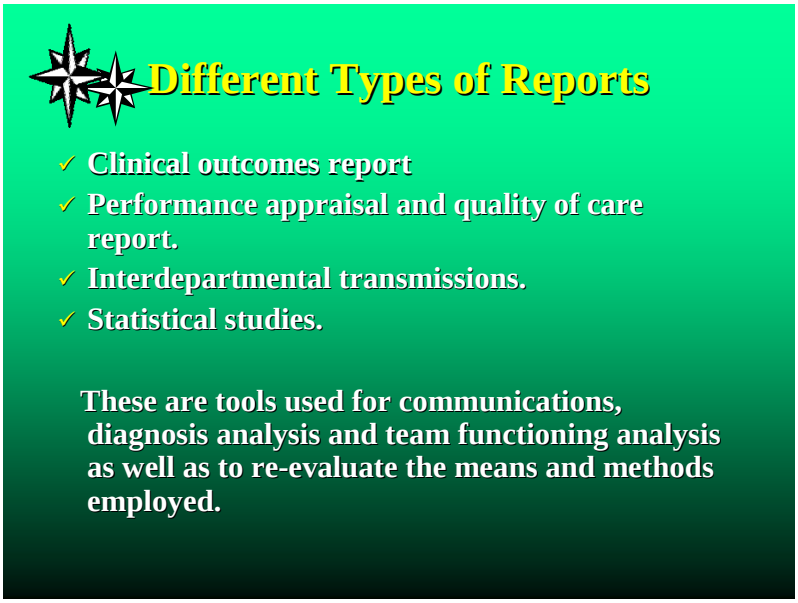
Inter-departmental and multidisciplinary team meetings are essential work tools in case management. Meetings are the ideal time to share information, to gather the required resources, to build cooperation, to evaluate the clinical pathway plan, and to

[8] Adapted from an information document on client case management, Hôpital Maisonneuve-Rosememont: Montreal, 1995.

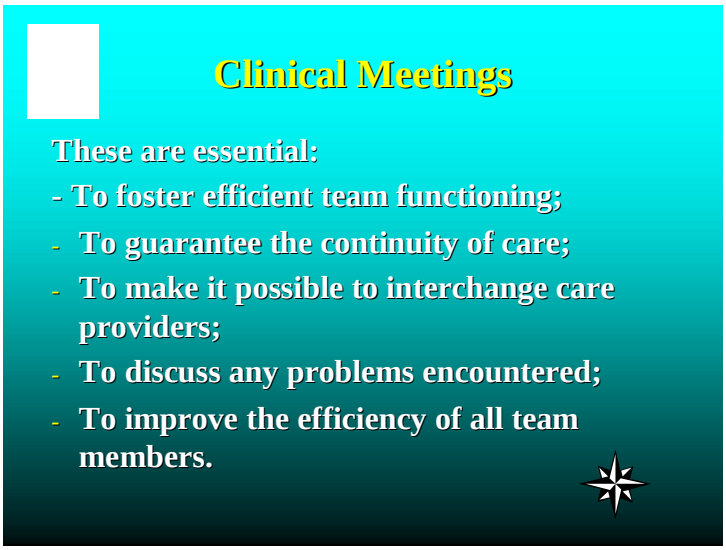
bring about corrective measures. The nurse coordinator is responsible for planning, organizing and preparing the minutes of the meetings.

QUALITY OF CARE AND APPRAISAL REPORT

Decision-makers in the current economic context tend to impose budgetary limits (especially for hospitals). The need for appraisal therefore becomes a standard procedure for all care departments (Brun, 1996). The case management quality evaluation process is therefore even more significant in this context.



Decision-makers are guided by the objective of profitability at any cost, which poses a risk of having Taylorist ideals adopted with the aim of maximizing results while simultaneously cutting back on resources. Client case management aims for both efficiency and effectiveness, but not at the cost of sacrificing quality and humane care. Case management lies on the opposite spectrum: the person is at the heart of the system and quality appraisal is the mechanism which protects this ideal. Experienced administrators are not given full sway to evaluate the quality of care. The appraisal is carried out on the field by using pre-established criteria, guidelines and evaluation grids developed by the nurse coordinator (sometimes in partnership with other professionals). The nurse is in a sense a quality control expert. By presenting evidence and assessing organizational, technological and relational factors in care, the nurse coordinator plays a pivotal role in upholding excellence.



The quality assessment process is an integral part of the hospital framework. Standardized tools and guidelines are used to determine whether hospitals can be accredited; however, hospitals may opt out of this process. In any case, the accreditation process is part of the total quality management (TQM) movement which aims to develop a patient-centred system, the adherence of health care professionals to cost efficiency and to balanced budgeting, and to raise awareness among care providers of their role and influence in delivering quality care and limiting resource waste.

The established guidelines may refer directly to ISO 9000 standards or other evaluation systems. They may even be developed on site for the clinical pathway plan. Evaluation does not spring out of the blue. It needs to be carefully considered and planned in advance along with the clinical pathway plan. Like any quality appraisal process, the planning stage must:

- Outline the set objectives in writing;
- Detail the mechanisms to be used to implement the plan;
- Provide for mechanisms to monitor and evaluate what has been implemented;
- Leave room for evolution, improvement and corrective measures.[9]

EXAMPLE OF VARIOUS EVALUATION CRITERIA

CRITERIA			
The clinical pathway plan encompasses: All categories provided for in the development plan (initial evaluation, tests, examinations, consultations, medications, etc.). A clear and functional presentation of all categories. Global clinical objectives to guide the actions of the multidisciplinary team. Interventions and care activities logically sequenced for each day and phase of the duration of the treatment or hospital stay. A section for nursing interventions. A section for interventions by other care providers. A section for team reports. A section for variances. A section to evaluate the achievement of clinical objectives.			

[9] Shewart, from Cohen and Cesta, 1997.

The evaluation process is an integral part of case management and is in accordance with the *Programme de médicalisation du système d'Information* (PMSI or program to medicalize information systems) via case-mix groups and other statistically meaningful indicators used to quantify activities and which play a significant role in budget allocations.[10]

The head nurse and the multidisciplinary team are responsible for registering and analyzing variances on a daily basis as well as for overseeing the global evaluation of episodes of care. This stage of case management is based on evaluation grids and client satisfaction questionnaires answered by patients and their families.

A broad range of criteria is taken into consideration when evaluating case management. They all cover a global, exhaustive appraisal following the analysis of each clinical pathway plan. For example, the absence of concepts in nursing such as the nursing diagnosis or lack of nursing interventions may be noted in the evaluation. The evaluation may also focus on teaching plans, on variance processing, on the effectiveness of inter-departmental coordination, and on outcomes. The improvements and corrective measures which are subsequently proposed and implemented are in turn evaluated. This is the vector for ensuring quality of care within the system.

Example of an appraisal report form. It must show that upon discharge:

- The patient no longer suffers from respiratory obstruction.
- He can walk without increasing his vital signs.
- There is no exudation from the wound.
- Pain is under effective control.
- Vital signs are normal or under control.
- The patient suffers from no other complication.
- The patient knows how to pursue his treatment and/or take his medication.
- The patient knows when to consult and why to consult.
- Patient and family satisfaction have been evaluated.
- The projection for the duration of the stay has been respected.

NURSING DOCUMENTS

Nursing plays a significant role in case management. A nurse usually assumes the role of coordinator. Furthermore, the nursing department oversees the overall case management process such as building relationships between families and care providers, attending the patient and administering drug prescriptions.

The nursing treatment plan is the basis for the functioning of the nursing team. This plan is part of the general monitoring plan and guarantees its implementation.

[10] Paulette Houssard, *Objectif Soins*, October 1998.

The nurse is in direct contact with the patient. She is well positioned to know his needs, to observe his reactions and to notice any problems. This confers upon the nurse a role in preventing variances and in implementing corrective measures whenever possible.

NOTES TO THE RECORD

The nurse is professionally and legally bound to record her observations in the user's record. It is essential in case management and in care delivery in general. The observations, regardless of how they are written, help in monitoring care activities and in assessing their quality.

Elements of the Nursing Section

- **Standard care plans vary by type of monitoring or follow-up.**
- **In general, they make it possible to identify:**
  - **The overall problem;**
  - **Its expression among patients;**
  - **Its likely causes;**
  - **The nursing diagnosis;**
  - **The objectives which need to be pursued;**
  - **The interventions which need to be proposed.**

Observation, client progress and evaluation notes.

EXAMPLE OF A FORM TO RECORD THE NURSE'S OBSERVATIONS

DAY 4		
Time date	**TARGETS**	**NURSING REPORT**
6/10 10:00	Appetite	D. Eats little. Says he has no appetite. A. Added a snack in the afternoon. R. Eats his entire snack.

These observation notes are fundamental in variance analysis and in effective case management. The nurse's observations are a record of medical complications, delays and the functioning of the case management system. The records also help attribute accountibility.

NURSING ACTIVITY EVALUATION IN CASE MANAGEMENT

The nursing section makes it possible to: - **Include a nursing treatment plan** which takes the role of the nurse into consideration. - Identify a nursing diagnosis			

- Have protocols and adapted intervention plans available. - Have relevant teaching plans available. - Document pain assessment. - Register nursing observation notes. - Develop a clinical pathway discharge plan. - Evaluate existing activities and care delivery. - Highlight and document the problematic elements which may cause variances. - Indicate any updates or corrective measures taken.			

Each type of program must contain specific evaluation criteria. Programs which are intended for patients suffering from chronic diseases, for patients suffering from mental health problems or for seniors and premature infants will each have their own specific criteria. All documents which fall under the overall case management plan or those specific to categories of care providers must be adapted to the targeted client group.

The clinical pathway evaluation leaves room for a comparative analysis of similar clinical events for a defined period of time both before and after the case management project is implemented. Statistics at hand, the evaluation sheds light on the effectiveness of case management and fosters its use while realistically portraying its limitations.

EXAMPLE OF A COMPARATIVE EVALUATION OF SYSTEM EFFECTIVENESS

CRITERIA	Before the implementation	Past 3 months	Notes
- Number of emergency visits by patients monitored. - Number of readmissions for the same symptoms. - Number of readmissions for complications. - Number of emergency room visits for the same pathology or a complication of the same pathology. - Number of medical consultations. - Duration of stay in days.			

SELECTING CLIENTELES TO BE INCLUDED IN CASE MANAGEMENT

The types of patients that should be included in case management are those at risk of developing complications and of experiencing prolonged or frequent hospital stays, as well as those whose treatements are costly. The patients may be suffering from complex pathologies or chronic diseases or may be undergoing surgery for severe problems. There are also less complicated, common cases in which there exists a potential for reducing hospital stays.

Each institution must base its decisions upon the operating statistics at its disposal. Patients which may be found in a systematic monitoring system include: persons suffering from hip fractures, knee problems, heart or kidney conditions, and chronic obstructive pulmonary disease (COPD); clients who require a coronary bypass, arthroplastia, total hip replacement, bone marrow transplant, vaginal hysterectomy, prostate resection, mastectomy, and antibiotic therapy.

Case management can be extended more broadly to seniors and mental health patients. Their cases are monitored beyond the hospital, into the community, and encompass the clinical pathway plans.

Not every patient suffering from the pathologies described is integrated into case management programs; however, those who meet the admissions criteria are. The established criteria focus on the age of the client and his past or present condition. The criteria are based on the assumed and reasonable probability that a person can reach the objectives within the timeframe outlined in the clinical pathway plan. Patients who do not meet the criteria are treated in the usual manner. The table below illustrates a template for a clinical pathway plan with a list of categories to be included. This form must cover the period of the patient's anticipated hospital stay. Each intervention category must name the categories of care providers to be included in the team.

TEMPLATE OF A CLINICAL PATHWAY PLAN

Hospital:
Diagnosis:
Expected duration of stay: Patient care unit:
Date of admission: Date of discharge:

PROBLEMS	Preadmission	Day 1	Day 2	Day 3
1.				
2.				
3.				

INTERVENTIONS				
1. Consultations				
2. Diagnosis methods				
3. Monitoring parameters				
4. Activities of daily living				
5. Care and treatment				
6. Medication and perfusions				
7. Diet				
8. Teaching				
9. Discharge planning				

Source: Le suivi systématique des clientèles une solution infirmière, Ordre des Infirmières et Infirmiers du Québec (1996) 21.

POST-HOSPITAL FOLLOW-UP

The attending department needs to develop a discharge plan before giving the client his discharge. The plan must include the care and interventions required in the post-hospitalization period. A grid for the clinical evaluation and to identify problems and remedial interventions must also be developed.

Case management can be extended to the community. It includes a home care plan. Outpatient monitoring is similar to that carried out in the hospital; however, the timeframe is measured in weeks of monitoring rather than in the days of the hospital stay. There are many ways to carry out the post-hospital follow-up, but it is usually based on two principles: 1) the gathering of data, carrying out of diagnoses and setting out of the objectives to be reached; and 2) the interventions and results assessments.

TEMPLATE FOR THE DEVELOPMENT OF A CLINICAL PATHWAY PLAN FOR THE OUTPATIENT FOLLOW-UP

PLAN OF CARE **Visit No.:**

Name:

Date follow-up began: Expected final date of follow-up:

EVALUATION SECTION

Elements to be evaluated (*insert checkmark*):
__Respiration __Skin colour __Breathing noises
__Pulsation __Blood presure __Peripheral pulse
__Diet __Hydration __Weight
__Urinary elimination __Intestinal elimination __Edema
__Movements and activities __Tolerance: _____
__ Condition of skin and mucous membranes: _____
__ Pain __Anxiety __Psychological state

PREVALENT NURSING DIAGNOSES SECTION (select one or more appropriate diagnoses)

__Ineffective airway management
__Fluid volume deficit __Fluid volume excess
__Nutritonal deficiency __Inability to eat
__Urinary elimination alteration __Urinary retention
__Constipation __Diarrhea __Mobility alteration __Intolerence to activity __Inability to groom self __ Inability to get dressed
__Skin injuries __Tissue injuries __Mucous membrane injuries
__Anxiety __Pain __Non-compliance with treatment
__Lack of knowledge Other: _____

OBJECTIVES SECTION

Legend: write in space allotted: **objective reached = A**
about to be reached = V; not reached = N

__Unobstructed and noiseless breathing
__Maintain stable vital signs
__Increase __limit fluid volume to ___ml/day
__Show no presence of edema
__Eating to meet metabolic needs
__Follow diet guidelines
__Increase __reduce weight by ____
__Sleep quietly ___ hours/night
__Recover the following elimination rhythm(s): __urinary
__normal intestinal
__Undertake activities without increasing vital signs
__Be able: to walk __ minutes
__ to get dressed
__ to groom oneself
__ to take care of the wound
__Unbroken skin
__wound which heals well __without redness __without any infection
__Declare to be calmer: _____
__State that there is pain reduction
__Say that the disease and treatment are properly understood
__Comply with the treatment
Other: _____

Duration of follow up: 4 weeks
Recommended frequency of visits: __1/week __2/week __3/week

POST-HOSPITAL FOLLOW-UP – INTERVENTIONS SECTION

CATEGORIES	INTERVENTIONS	OBSERVATIONS
Understanding of the disease	__Provide the necessary explanations to the client and his family __Encourage his receptiveness	
Respiration and vital signs	__Provide instructions for positioning and to facilitate breathing __Have the client do __ respiration __expectoration exercises __Teach client to measure __pulse __blood pressure	
Nutrition and hydration	__Evaluate client understanding of the diet __Weigh every ___days __weeks __Provide __ nutritional __hydration guidelines	
Elimination	__ Provide instructions to favour proper elimination __Teach the abdominal massage	
Activities	__Explain limits. Monitor __mobility __balance __Propose activities which the client can realistically carry out	
Rest/sleep Pain	__Teach a relaxation technique Explain the analgesic: __effects; __what to avoid	
Medication	__Verify compliance to treatment __Teach: __therapeutic/__toxic effects __signs and symptoms to be reported to the physician	
Safety	__Evaluate environmental risks (infections, accidents) __Enforce the necessary measures	
Teguments and lesions	__Monitor skin condition __condition of the lesion (incision)	
Treatments and diagnosis method	__Evaluate client understanding of the treatment __Apply medical care according to prescription __Record reactions __Plan nursing care according to needs	
Psychosocial needs	__Monitor how needs are expressed __Refer to the appropriate resources __Offer psychological support	
Teaching (client and family)	__Appreciate the need for knowledge __of the client __of his family __Initiate teaching	
Appointments and consultations	__Schedule appointments __Initiate necesary administrative procedures	
Name of physician	Nurse's signature:	

Specific forms must be developed for specialized programs (i.e. hip or knee prothesis, mental illness, chronic obstructive pulmonary disease).

Integrated programs which include post-hospital services provide outstanding support to patients who would otherwise have to visit the emergency room and undergo frequent, long hospitalizations that are costly to taxpayers. Such an organization system provides many benefits.

"In an integrated system, a pivot nurse oversees the coordination among the care providers involved." and "She oversees the clinical monitoring of the patient, educates the client and his family, offers safe home care and services, and mobilizes community resources to improve the quality of life of the patient and his family."[11]

FORMS FOR OTHER PROFESSIONALS

In a case management system, the head physician plays a central role in the multidisciplinary team. He is responsible for the development of the clinical pathway plan, including the tests, examinations, medical prescriptions, future consultations, and so on. He must also respond to unexpected events which occur during the stay and accommodate needs which were not in the original plan. The overall plan must therefore include a prescription sheet. An example is provided below.

Because the approach is essentially multidisciplinary, professionals other than physicians and nurses also have an important role to play. Specific forms which structure their profession are also included. The interventions of these professionals can be included in the overall pathway or in separate forms. An example is provided below.

EXAMPLE OF A MEDICAL PRESCRIPTION FORM
Not planned in the clinical pathway

DAY 2	
HOURS DATE	**PRESCRIPTION**
6/10 10:00 a.m.	Vital signs 3 times/day Monitor diuresis Free drainage of Foley catheter Progressive rising from the bed Morphine 10 mg SUB Q as needed every 3 to 4 hours Diet according to taste.

[11] Freely translated from Louise Cossette, Claudette Gagnon et Chantal Bruneau (2005) 21.

CLINICAL PATHWAY FOR KINESITHERAPY
To be integrated to general plan

INTERVENTIONS	DAY	DATE	SIGNA-TURE
__Client management __Initial evaluation completed	2 3		
Position: Sitting __on the side of the bed __wheelchair __geriatric chair	2		
Movements (sitting or lying): __autonomous __with minimal assistance (bed to chair) __with minimal assistance __with significan assistance __with verbal instructions	4		
Standing position __using parallel bars	5		
Walking **__walker** __with assistance __with surveillance __autonomous			
__four-legged cane __with assistance __with surveillance __autonomous	6		
__cane __with assistance __with surveillance __autonomous			
__free __with surveillance __autonomous **Discharge: _____**	7		

CONCLUSION

Case management is systematic. This system is made up of specific organizational rules and tools which are used throughout the duration of the patient's stay and which guide the care providers in their actions. Every actor knows what he is supposed to do at every stage or day of the treatment. Everyone's participation is essential to meet the predetermined clinical objectives as well as the objectives of this care delivery method which aims to attain a more efficient cost-benefit ratio for the resources and services used for each client treated. Case management is a proven system, but its tools can still be perfected.

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