

The Family Medicine Integrated Clinical Pathways Project (FM ICliP): Methods of Development and Implementation

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Continuing care in family and community medicine is a dynamic process that requires regular patient assessments and adjustments of treatment strategies as the patient goes through the wellness and disease process. Family and community physicians need to be aware of any changes in the patient's clinical condition and re-assess therapeutic interventions when such changes occur. The use of clinical pathways can optimize the management of patients with a given disorder in our setting. The overall goal of the project is to improve the quality of health care in Philippine family and community medicine practice.

Clinical pathway is defined as a "tool to guide family and community medicine practitioners to implement evidence-based care and holistic interventions to specific group of patients and population within a specific timeframe adjusted for acceptable variations that may be due to patient and practice setting characteristics designed to achieve optimum health outcome for the patient and community and efficient use of health care resources." In this definition, holistic interventions refer to interventions directed to the individual patient within the context of the family and community. In this context the PAFP Clinical Pathways Project will be developed to promote and implement clinical pathways in family and community medicine. The PAFP Clinical Pathways Project will be implemented by a group who will review published medical literature to identify, summarize, and operationalize the clinical content of diagnostics, interventions and clinical indicators or outcomes to develop an evidence-based clinical pathway in family medicine practice. The group will also identify processes and indicators to measure the effect of implementation of clinical pathways. Linear time-related representations of patient care processes, in terms of assessments, pharmacologic and non-pharmacologic interventions as well as social and community strategies to prevent complications and maintain wellness will be developed. The clinical pathways will be disseminated to the general PAFP membership and other stakeholders for consensus development. We hope that with this process, family and community medicine practitioners will be dedicated to a common goal and overcome organizational, personal, and professional perspectives barriers to the implementation of the clinical pathway.

The implementation of clinical pathways to be adopted by the PAFP will include a nation-wide dissemination, education, quality improvement initiatives and feedback. Dissemination will be in a form of publication in the Filipino Family Physician Journal, conference presentations and focused group discussions. Quality improvement activities will be in a form of patient record reviews, audit and feedback. Audit standards will be the assessment and intervention recommendations in the clinical pathway. Variations will be discussed in focused group meeting and feedback sessions. The clinical pathways recommendations may also be revised if the variations are justified. Quality improvement activities will also be used to identify barriers in the implementation of clinical pathways. An electronic medical information system may also be used to facilitate the implementation.

To monitor the implementation of clinical pathways the PAFP need to select, define and use outcomes and impact to monitor the success of implementation. Outcomes and impact will be at the practice level and the organizational level. Practice level can be a simple count of family and community medicine practice using and applying the clinical pathways. Patient outcomes will also be measured based on quality improvement reports. Organizational outcomes can be activities of the PAFP devoted to the promotion, development, dissemination and implementation of clinical pathways.

Background

The continuous development in medical sciences is associated with considerable change in medical knowledge. It is difficult for physicians to follow all recent knowledge and innovations and apply them to their daily clinical practice. Clinical pathways based on evidence-based clinical guidelines and adapted to the physicians' clinical setting have been used to help physicians apply these innovations in their practice.

The term 'clinical pathway' is an internationally accepted term that refers to a tool to improve quality in the process and outcome of health care. However, there is no single, widely accepted definition. De Bleser, et al. attempted to define it by conducting a review of literature using PubMed of articles published between January 2000 and December 2003. They proposed that a clinical pathway is "a method for the patient-care management of a well-defined group of patients during a well-defined period of time. A clinical pathway explicitly states the goals and key elements of care based on evidence based medicine guidelines, best practice and patient expectations by facilitating the communication, coordinating roles and sequencing the activities of the multidisciplinary care team, patients and their relatives; by documenting, monitoring and evaluating variances; and by providing the necessary resources and outcomes."¹ The aim of a clinical pathway is to improve the quality of the processes of care, reduce risks of complications, improve patient satisfaction and quality of life and increase the efficiency in the utilization of health care resources. It is also supposed to optimize the outcomes for specific groups of patients.

In hospital setting clinical pathways have been used as a tool to coordinate care of multidisciplinary teams. Hospital care is characterized by complex set of specialists' medical care and nursing care as well. However, it is a challenge to operationalize the definition in family and community medicine practice as it is entirely different from hospital setting. In the outpatient setting, there is usually one attending physician and nursing care is provided by a family member at home. This can be overcome if an operational

definition can be established for its use in family and community practice.

Continuing care in family and community medicine is a dynamic process that requires regular patient assessments and adjustments of treatment strategies as the patient goes through the wellness and disease process. Family and community physicians need to be aware of any changes in the patient's clinical condition and re-assess therapeutic interventions when such changes occur. The use of clinical pathways can optimize the management of patients with a given disorder in our setting.²

In this context, the PAFP Clinical Pathways Project will be developed to promote and implement clinical pathways in family and community medicine. The project will exert efforts at the PAFP national level to promote clinical pathways standards for best care with more local professional involvement. The project will include and evaluate a wider variety of approaches in the dissemination and implementation of the pathway recommendations. Aside from diagnostic and medications, it will also exert effort to include behavioural, social (family and community) and culturally accepted interventions.

Lawal, et al. proposed four operational criteria that define a clinical pathway. The first is that the interventions are structured multidisciplinary plan of care. Second, the elements of care and interventions must come from guidelines or evidence adapted to into local systems and structures. Third, these elements of care and interventions must be in detailed steps in a course of treatment or care in a plan, pathway, algorithm, protocol or other 'inventory of actions'. Fourth, the intervention aimed to standardize care for a specific group of population.³

It is from this operational criteria that the Philippine Academy of Family Physicians decided to adopt its own definition and undertake this clinical pathways project. In this project, clinical pathway is defined as a "tool to guide family and community medicine practitioners to implement evidence-based care and holistic interventions to specific group of patients and population within a specific timeframe adjusted for acceptable variations that may be due to patient and practice setting characteristics designed

to achieve optimum health outcome for the patient and community and efficient use of health care resources." In this definition, holistic interventions refer to interventions directed to the individual patient within the context of the family and community.

Why Clinical Pathways

The approach in the development and implementation of clinical pathways that the PAFP will adopt is based on existing experience with modification for applicability in the Philippines. One experience in the implementation of healthcare reform to improve quality in health service is based on policy development and implementation. But these policies do not address the changes in day-to-day family and community medicine practice. There is a need to translate these policies to service models adapted to local practices. In Australia, clinical pathways adapted to local acute hospital care setting have been shown to be feasible and acceptable but have limited data on clinical impact and cost-effectiveness.⁴

In the Philippines, the Philippine Health Insurance Corporation (PHIC) also developed policy statements from clinical practice guidelines for implementation by its accredited hospitals. Presently PHIC encourages the use of clinical pathways to improve the quality and efficiency of hospital care. However there is a need to identify tools and service models to implement and monitor the effective and efficient implementation of the policy recommendations outside the hospital setting.

The PAFP will also use the policy approach but with the objective of gaining widespread support within the organization rather than controlling physicians' practice. Appropriate policies among the different committees of the PAFP is necessary in order to facilitate the development and implementation of the clinical pathways. In terms of implementation, the project will rely on voluntary compliance. This can be done by focusing on successes and addressing the problems encountered in a capacity building and facilitative manner.

Many countries have started the development of treatment algorithms or clinical pathway guides as a method to implement national guidelines and policies. Efforts are usually led by professional societies and government agencies. There is however a significant emphasis on medication practices and less emphasis on the role of behavioural, social (family and community) or other non-pharmacological approaches. In addition there is also insufficient emphasis on integrating the recommendations with local capacity and cultural practices into the provision of quality health care.⁵

Objectives of the Project

The overall goal of the project is to improve health outcomes of patients and the quality of health care in Philippine family and community medicine practice. This will be achieved through the following specific objectives:

1. To develop a database of clinical pathways for specific conditions commonly seen in Philippine family and community medicine project.
2. To disseminate and promote the implementation of these clinical pathways.
3. To monitor the implementation of clinical pathways in terms of patient outcomes, process of care and utilization of health care resources.

Relevance of the Project

In the current health care system, providing quality of care while maintaining cost-effectiveness is an ever-growing battle that every family and community medicine practitioner face. There is an increasing competition between hospital-based practice and outpatient care. Hospitals have established standards of care recognized by licensing and accrediting institutions. There is none in free-standing outpatient clinics focusing on family and community medicine. As a result there is more incentive for hospital care than outpatient care. This increases the cost of care for both the health system and the patients.

Clinical pathways as the standards of care in the outpatient setting may be developed, implemented, and evaluated utilizing validated methods. This will eventually improve patient outcomes, reduce costs of care and avoid hospital admissions.⁶ This will also enable social insurance system, third party payers and government institutions to develop accreditation system and reimbursements for outpatient care providers.

The most appropriate care in family and community practice is aimed at the promotion of health and wellness and prevention of disease. Clinical pathways can reshape new service deliveries in family and community medicine practice that will lead to an integrated disease management. The introduction of a clinical pathways by the PAFP will lead to re-design of health care processes necessary to integrate the clinical, social and community services into the actual patient care activities.⁷ With this being implemented, there will be improved patient outcomes and reduction of hospital admission.

Clinical pathways can improve clinical process management by describing the optimal route for diagnostic and therapeutic medical treatment of a specified patient. Apart from economic aspects, the use of clinical pathways can make a contribution to optimization of health quality management as well as to improvement of family and community practice. This will lead to both patient satisfaction and patient safety that will further establish the role of family and community care in the health system.⁸

Methods of Development

Clinical pathways are usually developed by a working group of specialists designated by their institutions. They coordinate the proceedings and raise issues of interest by their respective organization.⁹ Despite the worldwide use of clinical pathways, it is unclear which key interventions multidisciplinary teams select as pathway components, which outcomes they measures and what the effect of this complex intervention is.

Essentially clinical pathways answer the following questions: 1) What are the key interventions used for

patients with a particular disease? 2) Which outcome measures should be used? 3) What are the effects of a clinical pathway to the health care system? In hospital setting interventions include pre-admission assessment and testing, admission and treatment procedures, symptoms management, discharge management, primary caregiver involvement, home-based interventions and continuous follow-up.¹⁰ These interventions are then decided by multi-specialists groups for integrated care implementation in the hospital. In family and community medicine practice, the approach may be different.

Issues related to the development and implementation of clinical pathways require thoughtful planning, collaborative teamwork, and an understanding of its nature and purpose. In fact, understanding of the purpose should be the first step to consider. This will dictate the nature of assessments and interventions in the pathway. Other issues include physician involvement, documentation of pathway development, variance data analysis and feedback, and integration with outcomes management activities. Successfully addressing these issues is an essential component for the success of a clinical pathway program.¹¹ We will address all these issues in the PAFP Clinical Pathways Program.

The PAFP Clinical Pathways Group will be organized to oversee the implementation of the PAFP Clinical Pathways Project. The group will review published medical literature to identify, summarize, and operationalize the clinical content of diagnostics, interventions and clinical indicators or outcomes to develop an evidence-based clinical pathway in family medicine practice. The review will also include identifying processes and indicators to measure the effect of implementation of clinical pathways. Linear time-related representations of patient care processes, in terms of assessments, pharmacologic and non-pharmacologic interventions as well as social and community strategies to prevent complications and maintain wellness will be developed. The clinical pathways will be disseminated to the general PAFP membership and other stakeholders for consensus development. We hope that with this process, family and community medicine practitioners will be

dedicated to a common goal and overcome organizational, personal, and professional perspectives barriers to the implementation of the clinical pathway.

No single approach can be prescribed for the development of clinical pathways but some strategies that will be adapted by the PAFP Clinical Pathways Group can help ensure the best possible chance of pathway success. The first strategy is emphasizing on evidence-based recommendations as recommended assessments and interventions discussed previously. The second strategy is recognition of potential variations between-patient and between specific practice settings. The third strategy is the recognition of "stakeholder groups" outside of family and community practice with careful attention to getting their opinion and support but without sacrificing the objectives of the project. The fourth strategy is emphasis on the commitment to establishment of the ultimate goal of improving the effectiveness, efficiency and quality of patient care in family and community practice. These strategies have been shown to work in implementing cystectomy and pressure ulcer pathways.¹²

Methods of Implementation

There is little information available concerning the implementation of and compliance to clinical pathways in family and community practice. Most of the experiences of clinical pathway implementation are in the hospital setting. One documented experience aimed to create and implement recommendations from an evidence-based pathway for hospital management of pediatric diabetic ketoacidosis. The implementation processes included multidisciplinary and hospital-wide dissemination, education and feedback. Team meetings, computer decision support and electronic order sets were also done to facilitate implementation. The pathway defined the assessments and interventions but variations in care persisted. To address the variations there was ongoing review and pathway tool adjustment. Quality improvement measures were used to identify barriers and resulted to subsequent adjustments of assessments and interventions. The program resulted into an overall

improvement in diabetic ketoacidosis management. There was also improved manner of insulin infusions and recognition of hypokalemia. The implementation was continuous to sustain clinical gains and further identify improvement opportunities.¹³

There are other documented hospital-based experience. Length of stay and complication rate are the most commonly used indicators.¹⁴ In surgery clinical pathways that contain specific interventions to improve postoperative outcome resulted in reduced length of stay without compromising other postoperative outcome measures.¹⁵ Others showed mixed results. The implementation of clinical pathways for pediatric asthma were effective in reducing hospitalization costs associated with asthma, but there was little reported improvement in clinical outcomes. It was also not effective in reducing readmission rates or affecting other patient outcomes such as increasing asthma education, the use of controller medications, spacers, and peak flow meters.¹⁶

Electronic medical information systems offer many possibilities for the support of medical decision-making. Some electronic system were designed mainly in regard to storage of information and in others interactive diagnostic work-up and the selection of the most suitable treatment plan. These systems are referred to as computer-based medical decision support systems and can be used to implement clinical pathways in family and community medicine practice.¹⁷ Electronic systems provides clinicians with real time results on assessments and care given to patients. Computer systems based on clinical pathways may be designed to generate alerts on out of range assessment results, deteriorating trends and potential problems such as drug interactions. The introduction of a power tool like the clinical pathway management system may lead to work practice redesign, education of clinicians and more research to maximise the benefits of the tool and achieve better process quality improvement.¹⁸

The implementation of clinical pathways to be adopted by the PAFP will include a nation-wide dissemination, education, quality improvement initiatives and feedback will be done. Dissemination will be in a form of publication in the Filipino Family Physician Journal, conference

presentations and focused group discussions. Quality improvement activities will be in a form of patient record reviews, audit and feedback. Audit standards will be the assessment and intervention recommendations in the clinical pathway. Variations will be discussed in focused group meeting and feedback sessions. The clinical pathways recommendations may also be revised if the variations are justified. Quality improvement activities will also be used to identify barriers in the implementation of clinical pathways. An electronic medical information system may also be used to facilitate the implementation.

Monitoring and Evaluation

Clinical pathways with clear goals and purpose are among the most widespread tools used to improve quality care and enhance patient outcomes. When applied to family and community medicine practice, it may also decrease the cost of care by preventing hospital admissions. To monitor the implementation of clinical pathways the PAFP need to select, define and use outcomes and impact to monitor the success of implementation. Outcomes and impact will be at the practice level and the organizational level. Practice level can be a simple count of family and community medicine practitioners using and applying the clinical pathways. Patient outcomes will also be measured based on quality improvement reports. Organizational outcomes can be activities of the PAFP devoted to the promotion, development, dissemination and implementation of clinical pathways.

Once we have define measures of outcomes and impact, we will identify basic statistical measures that can be readily “understood by and communicated among providers and consumers of health care services” in family and community medicine practice. The use of both the frequency, mean and percent and standard deviation to evaluate the effectiveness of various clinical pathways will be used. Correlation of statistical variables such as interventions and outcome or resource utilization may also be done if warranted and applicable.¹⁹

Essential to the process monitoring and evaluation is a method of collecting and processing data in a timely manner. The PAFP Clinical Pathways Group will play a very significant role to ensure an appropriate monitoring and evaluation. Unfortunately, organizational complexity may come in the way. Several committees of the PAFP may need to be involved. These committees may have other priorities. Although there is already a rich experience in this area from the other medical field, family and community practice is in its early stage. There are many challenges to overcome.

Acknowledgement and Conflict of Interest

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REFERENCES

1. De Bleser L, Depreitere R, De Waele K, Vanhaecht K, Vlayen J, Sermeus W. Defining pathways. *J Nurs Manag* 2006; 14(7): 553-63.
2. Lenchus JD. Transitions in the Prophylaxis, Treatment and Care of Patients with Venous Thromboembolism. *Adv Ther* 2016; 33(1): 29-45. doi: 10.1007/s12325-015-0271-8. Epub 2015 Dec 16.
3. Lawal AK, Rotter T, Kinsman L, Machotta A, Ronellenfisch U, Scott SD, Goodridge D, Plishka C, Groot G. What is a clinical pathway? Refinement of an operational definition to identify clinical pathway studies for a Cochrane systematic review. *BMC Med* 2016; 14:35. doi: 10.1186/s12916-016-0580-z.
4. Brand C, Hunter D, Hinman R, March L, Osborne R, Bennell K. Improving care for people with osteoarthritis of the hip and knee: how has national policy for osteoarthritis been translated into service models in Australia? *Int J Rheum Dis* 2011; 14(2):181-90. doi: 10.1111/j.1756-185X.2011.01613.x.)
5. Hickie I. Treatment guidelines for depression in the Asia Pacific region: a review of current developments. *Australas Psychiatry* 2004; 12 Suppl: S33-7.
6. Gurzick M, Kesten KS. The impact of clinical nurse specialists on clinical pathways in the application of evidence-based practice. *J Prof Nurs* 2010; 26(1):42-8. doi: 10.1016/j.profnurs.2009.04.003.

7. Ippolito A, Cannavacciuolo L, Pongiglione C, De Luca N, Iaccarino G, Illario M. Redesigning service delivery for hypertensive patients: a methodological guideline to improve the management of chronic diseases. *Transl Med UniSa*. 2014; 9: 7-17. eCollection 2014 Apr.
8. Noll-Hussong M. [Development of an internet-based clinical pathway exemplified by the fibromyalgia syndrome]. [Article in German] *Schmerz*. 2012; 26(2):123-30. doi: 10.1007/s00482-012-1145-5.
9. Donzelli A, Sghedoni D, Carelli FA, Chirchiglia S, Manunta P. The clinical pathway for hypertensive patient of local health unit, hospitals and general practitioners, the Milan experience. *Rev Recent Clin Trials* 2011; 6(1):16-23.
10. Van Herck P, Vanhaecht K, Deneckere S, Bellemans J, Panella M, Barbieri A, Sermeus W. Key interventions and outcomes in joint arthroplasty clinical pathways: a systematic review. *J Eval Clin Pract* 2010; 16(1):39-49. doi: 10.1111/j.1365-2753.2008.01111.x.
11. Ibarra V, Titler MG, Reiter RC. Issues in the development and implementation of clinical pathways. *AACN Clin Issues*. 1996; 7(3): 436-47.
12. Ramos MC, Ratliff C. The development and implementation of an integrated multidisciplinary clinical pathway. *J Wound Ostomy Continence Nurs* 1997; 24(2): 66-71.
13. Koves IH, Leu MG, Spencer S, Popalisky JC, Drummond K, Beardsley E, Klee K, Zimmerman JJ. Diabetic Ketoacidosis Guideline Development Workgroup. Improving care for pediatric diabetic ketoacidosis. *Pediatrics*. 2014; 134(3):e848-56. doi: 10.1542/peds.2013-3764. Epub 2014 Aug 4.
14. van Zelm R, Janssen I, Vanhaecht K, de Buck van Overstraeten A, Panella M, Sermeus W, Coeckelberghs E. Development of a model care pathway for adults undergoing colorectal cancer surgery: Evidence-based key interventions and indicators. *J Eval Clin Pract* 2017 1. doi: 10.1111/jep.12700. [Epub ahead of print]
15. Lemmens L, van Zelm R, Borel Rinkes I, van Hillegersberg R, Kerckamp H. Clinical and organizational content of clinical pathways for digestive surgery: a systematic review. *Dig Surg* 2009; 26(2): 91-9. doi: 10.1159/000206142. Epub 2009 Mar 2.
16. Banasiak NC, Meadows-Oliver M. Inpatient asthma clinical pathways for the pediatric patient: an integrative review of the literature. *Pediatr Nurs* 2004; 30(6):447-50.
17. Tomaszewski W. Computer-Based Medical Decision Support System based on guidelines, clinical pathways and decision nodes. *Acta Bioeng Biomech* 2012;14(1):107-16.
18. Chu S. Computerised clinical pathway management systems and the implications. *Collegian* 2001; 8(2):19-24.
19. Lagoe RJ. Basic statistics for clinical pathway evaluation. *Nurs Econ*.1998; 16(3): 125-31.