



**QUALITY OF CARE  
AND PATIENT SAFETY:  
A GLOBAL PRIORITY**

**POSITION  
STATEMENT**





SIDIEF



QUALITY OF CARE  
AND PATIENT SAFETY:  
A GLOBAL PRIORITY

POSITION  
STATEMENT

**Under the direction of**

Gyslaine Desrosiers, R.N., M.B.A., Dr.h.c., Certified Board Director

**Text and research**

Pierre Éric Langlois, Economist, Policy Analyst

**Collaboration**

Hélène Salette, R.N., M.Sc., Certified Board Director

**DISTRIBUTION**

Secrétariat international des infirmières et infirmiers de l'espace francophone (SIDIEF)

4200, Molson St., Office 142, Montreal (Quebec) H1Y 4V4 CANADA

Telephone: (++) 1 514 849-6060

Fax: (++) 1 514 849-7870

[info@sidiief.org](mailto:info@sidiief.org)

[www.sidiief.org](http://www.sidiief.org)

**Legal deposit**

Library and Archives Canada, 2015

Bibliothèque et Archives nationales du Québec, 2015

ISBN 978-2-9815143-5-6 (PDF)

(Original edition: ISBN 978-2-9815143-2-5 (PDF), SIDIEF, Quebec, Canada)

© Secrétariat international des infirmières et infirmiers de l'espace francophone (SIDIEF), 2015  
Tous droits réservés.



**SIDIIEF**

SECRÉTARIAT INTERNATIONAL DES INFIRMIÈRES  
ET INFIRMIERS DE L'ESPACE FRANCOPHONE

The SIDIIEF is an international non-governmental non-profit organization headquartered in Montreal (Quebec, Canada). It has consultative status with bodies in the International Organization of La Francophonie (OIF). SIDIIEF oversees a French-language network of nurses in some thirty French-speaking countries.

**Mission**

SIDIIEF's mission is to facilitate networking in the nursing community throughout the French-speaking world, highlight nursing leadership and promote the nursing profession's contribution to population health.



## Table of contents

List of abbreviations .....	3
List of tables .....	4
Foreword .....	5
<b>1. International trends in patient safety and quality of care .....</b>	<b>7</b>
1.1. Defining quality of care and patient safety .....	7
1.2. The position of international agencies .....	10
1.2.1. The World Health Organization (WHO) .....	10
1.2.2. The World Alliance for Patient Safety (WHO) .....	11
1.2.3. The Organization for Economic Co-operation and Development (OECD) .....	11
1.2.4. The International Council of Nurses (ICN) .....	12
1.2.5. The West African Health Organization (WAHO) .....	13
1.2.6. The Alliance francophone pour la qualité et la sécurité des soins (AFQUARIS) .....	13
1.3. The international context of health systems .....	13
1.3.1. Health: a vector for economic development .....	13
1.3.2. Health: a heavy burden for public finances .....	14
1.3.3. Achieving the best cost-effectiveness ratio .....	15
1.4. Risk management: central to management, at every level .....	16
1.5. Nursing: the target of budget rationing .....	18
<b>2. The quality of nursing care: a lever for health system performance .....</b>	<b>20</b>
2.1. The clinical and systemic benefits of quality nursing care .....	21
2.2. The economic value of the nursing profession .....	23
2.3. The optimal use of the nursing workforce .....	26
2.4. Other issues to consider .....	30
<b>3. Patient care outcomes: the importance of measurement and comparability .....</b>	<b>31</b>
3.1. Quantitative methods and quality of care go hand in hand.....	31
3.2. The creation of an international database on the quality of nursing care .....	35
<b>4. SIDIIEF's position on quality of care and patient safety .....</b>	<b>39</b>
<b>5. Bibliography .....</b>	<b>42</b>



## List of abbreviations

AFQUARIS	Alliance francophone pour la qualité et la sécurité des soins [Francophone alliance for quality and safety of care]
ASSM	Académie Suisse des Sciences Médicales [Swiss academy of medical sciences]
CSSS	Centre de santé et de services sociaux [Health and social services centre] (Quebec, Canada)
DRG	Diagnosis-related group
FERASI	Formation et expertise en recherche en administration des services infirmiers [Training and Expertise in Nursing Administration Research]
FNP	Family Nurses Partnership
GDP	Gross domestic product
HCQI	Health Care Quality Indicators
HPG	Homogeneous patient group
ICD	International Classification of Diseases
ICN	International Council of Nurses
ICNP	International Classification for Nursing Practice
ICPS	International Classification for Patient Safety
IST	Inter-Country Support Team
OECD	Organization for Economic Co-operation and Development
OIIQ	Ordre des infirmières et infirmiers du Québec [Quebec order of nurses]
PSI	Patient Safety Indicators
RAND	Research and Development Corporation
RN CCM	Registered nurse complex case manager
SNOMED	Systematized Nomenclature of Medicine
WAHO	West African Health Organization
WHO	World Health Organization



## List of tables

Table 1: Health care spending relative to gross domestic product (GDP)  
in different OECD countries in 2012 ..... 14

Table 2: Health workforce, 2000-2007, WHO countries ..... 19

Table 3: The economic value of nursing: some examples ..... 24

Table 4: Twelve priority nursing-sensitive quality indicators ..... 33





## Foreword

The Secrétariat international des infirmières et infirmiers de l'espace francophone (SIDIEF) is a membership organization with members in over thirty countries. Founded in 2000, SIDIEF's mission is to bring the French-speaking nursing community together on issues related to health care. The sharing of nursing knowledge in order to support excellence in practice is translated into action through diverse networking and educational activities. SIDIEF also serves as a voice for the nursing profession by taking positions that may influence health policies.

Following the 2012 Triennial World Conference, SIDIEF identified quality of care and patient safety, which is a universal issue given its social, political and economic impact, as a priority. From a strictly nursing standpoint, this issue concerns the very core of professional practice. Indeed, in the interests of patients, nurses advocate, in most countries, for the ability to practice their profession in accordance with recognized quality standards.

SIDIEF supports the global priority established by the World Health Organization (WHO) to reduce the risks associated with the delivery of health services. It is important to stress that quality of care cannot be reduced to good intentions and that outcomes of care must be measured and compared. To this end, SIDIEF mandated an interuniversity team of Quebec researchers affiliated with the Training and Expertise in Nursing Administration Research Centre (FERASI Centre)\* to review the literature on recognized nursing-sensitive quality indicators and assess their use in different countries. This systematic literature review is presented in a SIDIEF publication (2015). A chapter of this position statement focuses on the creation and use of databases using these indicators.

In addition to the nursing profession's traditional approach that addresses quality of care through practice development, SIDIEF would like to pursue its vision on a macroscopic level. Our objective here is to be able to discuss nursing care quality in terms that will spark the interest of national policymakers. For this reason, we are proposing an economic rationale.

This position statement reiterates the recommendations and position of international agencies on issues related to health care quality and patient safety. It identifies opportunities for and barriers to increasing the value attributed to quality nursing practice and the profession's strategic role in achieving system-wide objectives on a national scale. In this position statement, SIDIEF proposes a framework for reflection and a rationale. Lastly, in the final chapter, SIDIEF sets out its position on these issues.

---

Note: \* The FERASI Centre (Training and Expertise in Nursing Administration Research Centre) was created in 2001. Its mission was to promote skills development, research and the transfer of knowledge and expertise in nursing administration. Funded by the Canadian Foundation for Healthcare Improvement (CFHI), the Fonds de recherche en santé du Québec and the institutions of Québec's health network, the Centre continued its activities until May 31, 2014.





# 1

## *International trends in patient safety and quality of care*

Many international organizations pay close attention to the strategic importance of quality of care, in general, and nursing care, in particular, in optimizing the efficiency of a country's health care system. Patient safety has become a key criterion for analyzing health system performance. Health care incidents, iatrogenic problems, the rate of complications and the emergence of healthcare-associated infections have become undeniable, universal patient safety concerns. This chapter will provide an overview of international agencies' involvement in issues related to health care quality and patient safety.

### *1.1. Defining quality of care and patient safety*

From a systemic standpoint, patient safety and quality of care go hand in hand<sup>1</sup>. Patient safety is often considered a component of quality, so that practices designed to improve patient safety usually lead to an improvement in overall quality of care. The notion of patient safety is necessarily linked to adverse events. Measuring adverse events and errors is fundamental to patient safety. There are multiple sources of information: patient records, administrative databases, other databases, etc. Patient safety indicators exist and are documented in many countries.

In WHO's International Classification for Patient Safety<sup>2</sup>, patient safety is defined as:

*“the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum. An acceptable minimum refers to the collective notions of given current knowledge, resources available and the context in which care was delivered weighed against the risk of non-treatment or other treatment.”*

<sup>1</sup> Pringle, D. (2004). “Dot: From the editor-in-chief. Quality goes beyond safety: shifting shifts”. *Nursing Leadership*, 17(3), pp. 1-4.

<sup>2</sup> Retrieved from <http://www.patientsafetyinstitute.ca/french/toolsresources/governancepatientsafety/pages/whatisqualityandpatientsafety.aspx>



Quality of care is a multidimensional concept. There are numerous definitions of quality of care. WHO defines quality of care as:

*“a process that must guarantee each patient the combination of diagnostic and therapeutic acts that will ensure the best result in terms of health, based on current medical science, at the lowest cost for the same result, with the lowest iatrogenic risk and for his greatest satisfaction in terms of procedures, results and human contact in the health care system”*<sup>3</sup>. [Translated from the French.]

The concept of quality of care includes the dimensions of appropriateness (the care or services are appropriate to the needs of the patient/client, patient group or population), effectiveness (the care or services produce the desired outcomes for the patient/client, patient group or population) and efficiency (maximum efficiency is achieved at the lowest cost)<sup>4</sup>.

Quality of care is a dynamic concept that evolves as health care, science, technology and the population’s expectations evolve. The concept varies with time and space and must take the resources invested and the resources available in a given context into account. Quality of care is no small challenge. It requires consultation and patient-/client-centred interdisciplinary collaboration. Providing quality services means that all the members of an institution must work together to make the patient/client the focus of decisions and prevent any negative effects on quality of care<sup>5</sup>.

In Donabedian’s approach<sup>6</sup> to the assessment of quality of care, elements related to structure (organizational resources, practice conditions, qualifications of professionals), process (anything associated with the delivery of care and services) and outcomes for both the patient/client and the care provider must be taken into account. Quality assessment must also consider overall changes in the context in which care is delivered.

---

<sup>3</sup> Retrieved from <http://www.santepublique.eu/qualite-des-soins-definition/>

<sup>4</sup> Leprohon, J. (2000). *“Vers une culture d’amélioration continue: l’univers de l’évaluation de la qualité”*. Ordre des infirmières et infirmiers du Québec (OIIQ), Direction de la qualité de l’exercice, 16 p.

<sup>5</sup> Idem.

<sup>6</sup> Donabedian, A. (1988). “The quality of care. How can it be assessed?”. *JAMA*, 260, pp. 1743-48. doi: 10.1001/jama.1988.03410120089033



---

Quality of care is not an easy dimension to measure. Furthermore, there is no universal consensus on the optimal level of quality. Quality of care depends on human and financial resources, professional standards, institutional standards as well as available structural attributes, such as equipment, technology, etc. These variables may differ between countries or institutions. The rapid pace of change and advances in technology are forcing health systems to constantly review quality standards. Medicine is highly innovative, so that 10% of practices recommended in 2000 are considered errors today<sup>7</sup>.

There is greater consensus with respect to the notion of patient safety that assesses iatrogenic risks\*. Patient safety indicators highlight non-quality and are used to compile national statistics and make international comparisons. Many international agencies participate in the development and analysis of these safety indicators.

---

---

Note: \* "Adverse event: incident, accident, complication, death... attributable to medical management and/or the determination of care irrespective of the patient's initial condition and pathology"<sup>8</sup>. [Translated from the French.]

<sup>7</sup> Amalberti, R. (2012). *Sécurité des patients: mieux connaître et réduire les risques*, Haute Autorité de santé; adap. 79; June.

<sup>8</sup> Retrieved from [http://www.cclinparisnord.org/REGION/NPC/USAGER010310/GDR\\_Perrin.pdf](http://www.cclinparisnord.org/REGION/NPC/USAGER010310/GDR_Perrin.pdf)



## 1.2. *The position of international agencies*

### 1.2.1. *The World Health Organization (WHO)*

The World Health Organization (WHO) has made patient safety a global priority. WHO estimates that one in ten patients is harmed by avoidable errors that have direct health consequences: pain, disability, physical and psychological trauma, death. The estimated financial cost of unsafe care is approximately 10% of a country's total health spending<sup>9</sup>.

Another WHO publication draws attention to the substantial economic burden of adverse events:

*“The economic burden of unsafe care is also compelling. Studies show that additional medical expenses due to unsafe care, resulting in prolonged hospitalization, lost income, disability and litigation, cost some countries between US\$ 6 billion and US\$ 29 billion a year. The annual economic burden of unsafe injections alone is estimated to be US\$ 535 million in direct medical costs”<sup>10</sup>.*

*“Even more importantly, there is very little evidence about the burden of unsafe care in developing countries, where there is likely to be an even greater risk of harm to patients due to limitations in infrastructure, technologies and human resources. For example, 16 billion injections are administered worldwide each year, mostly for curative care. Of these, 40% are administered using syringes and needles that are reused without sterilization, and in some countries this proportion is as high as 70%. Each year, unsafe injections cause 1.3 million deaths, and about 26 million years of life lost, primarily due to the transmission of blood-borne viruses such as hepatitis B and C and HIV”<sup>11</sup>.*

WHO advocates controlling the cost of non-quality and optimizing professional competence to meet increasingly complex health needs<sup>12</sup>. WHO's orientations call upon all governments to take steps to ensure access to high-quality, safe, efficient health care and services within a sustainable development approach. All countries should work towards achieving these objectives in collaboration with health professionals.

---

<sup>9</sup> World Health Organization (WHO) — World Alliance for Patient Safety. (2005). *Global Patient Safety Challenge*. Geneva: WHO.

<sup>10</sup> Retrieved from [http://www.who.int/patientsafety/information\\_centre/documents/ps\\_research\\_brochure\\_en.pdf?ua=1](http://www.who.int/patientsafety/information_centre/documents/ps_research_brochure_en.pdf?ua=1)

<sup>11</sup> Idem.

<sup>12</sup> WHO. (2008). *The World Health Report*. Primary Health Care – Now More than Ever. Geneva: WHO.



In 2004, WHO launched the Patient Safety programme in order to address this issue in a global and collaborative manner. More recently, WHO deployed a coordination effort for ten countries in East Africa. The goal of the Inter-Country Support Team's (IST) Patient Safety programme is to raise national authorities' awareness of the importance of making the objective of achieving the best possible quality of care central to their health care system.

### ***1.2.2. The World Alliance for Patient Safety (WHO)***

The World Alliance for Patient Safety recommends system-wide interventions and changes in organizational culture to improve patient safety rather than denouncing individual health practitioners and administrators. The main action areas of the Patient Safety programme aim to improve specific aspects of patient safety. In 2008, the World Alliance published research and action priorities for developed and developing countries in order to mitigate all risks associated with unsafe care<sup>13</sup>.

WHO is developing an international classification of key patient safety determinants: the International Classification for Patient Safety (ICPS).

*“The International Classification for Patient Safety (ICPS) provides a common language for sharing information about patient safety incidents and for measuring the impact of change. The World Health Organization is developing the ICPS to classify patient safety concepts and information. This system will allow us to ask, listen, and talk to one another so we can recognize similarities and variations across the continuum of care, languages, and cultures. Global Patient Safety Alerts uses the ICPS to communicate patient safety information”<sup>14</sup>.*

### ***1.2.3. The Organization for Economic Co-operation and Development (OECD)***

According to the Organization for Economic Co-operation and Development (OECD), “One of the most important developments in health care over the past decade has been a popular awakening to problems of quality. In fact, across OECD countries, there is a large and expanding bank of evidence of serious shortcomings in quality that result in unnecessary deaths, disability, and poor health, and that add to costs.” The problems are of three types: unwarranted interventions, failure to administer appropriate care and medical errors<sup>15</sup>.

The OECD identifies the key challenges policymakers in member countries face in improving the performance of their national health systems. It also recommends investing in the development of professional competence in response to major global health issues, arguing that the top-performing countries have not hesitated to expand professional roles, especially by a new sharing of responsibilities between physicians and nurses<sup>16</sup>.

---

<sup>13</sup> Retrieved from [http://www.who.int/patientsafety/information\\_centre/documents/ps\\_research\\_brochure\\_en.pdf?ua=1](http://www.who.int/patientsafety/information_centre/documents/ps_research_brochure_en.pdf?ua=1)

<sup>14</sup> Retrieved from <http://www.globalpatientsafetyalerts.com/english/toolsresources/pages/international-classification-for-patient-safety.aspx>

<sup>15</sup> Organization for Economic Co-operation and Development (OECD). (2004). *The OECD Health Project – Towards High-Performing Health Systems*, Summary report, p. 12.

<sup>16</sup> OECD. (2008). *The Looming Crisis in the Health Workforce: How Can OECD Countries Respond*. Joint OECD-WHO report. [[www.sourceOECD.org/questionssociales/9789264050778](http://www.sourceOECD.org/questionssociales/9789264050778)]; 16.07.2010



The OECD deploys considerable efforts to develop comparison statistics for member countries in all sectors and produces statistical reports in the health sector. At the beginning of the 21st century, the OECD launched a long-term project, the Health Care Quality Indicators (HCQI) Project<sup>17</sup>. With the participation of several international bodies, this project produces internationally comparable data. However, much methodological work remains to be done. Participating countries include Canada, France, Switzerland and Belgium. This project also informs discussions on information systems so that quantitative and qualitative improvements can be made to the data collected. The OECD produces an annual report on member countries' health systems based on the results of some fifty indicators, including Patient Safety Indicators.

#### ***1.2.4. The International Council of Nurses (ICN)***

The International Council of Nurses (ICN) is concerned about the shortage of qualified nursing staff that is jeopardizing quality of care and patient safety. It contends that, due to growing health needs and rising costs, nurses must define, examine and assess patient care outcomes. The ICN insists on the importance of investing in initial training that meets the requirements of nursing practice as well as in continuing education programs throughout a nurse's career<sup>18</sup>. The ICN believes that nursing leadership is built on evidence-based scientific knowledge specific to different areas of practice.

In 2001, the ICN launched the International Classification for Nursing Practice Programme, known as ICNP, to develop a classification that could be used by experts worldwide to describe nursing practice across a variety of domains and clinical settings<sup>19</sup>. The profession is making sustained efforts (every two years) to expand terminologies that are compatible with developments in nursing practice. One of the key objectives is to promote intraprofessional comparisons and communication between nurses as well as between nurses and other professionals. In the French-speaking world, the Université de Sherbrooke School of Nursing in Quebec (Canada) is contributing to this work. The ICNP may prove useful for collecting data on the quality of nursing care.

---

<sup>17</sup> OECD. (2011). *Improving Value in Health Care: Measuring Quality*. OECD Health Policy Studies, OECD Publishing, Paris. DOI: <http://dx.doi.org/10.1787/9789264094840-fr>.

<sup>18</sup> International Council of Nurses (ICN). (2010). "Global issues and trends in nursing education". Geneva: ICN.

<sup>19</sup> Coenen, A. (2003). "The International Classification for Nursing Practice (ICNP®) Programme: Advancing a Unifying Framework for Nursing", *Online Journal of Issues in Nursing*, 8(2). Retrieved from <http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume82003/No2May2003/ArticlesPreviousTopics/TheInternationalClassificationforNursingPractice.aspx>.





### *1.2.5. The West African Health Organization (WAHO)*

The West African Health Organization (WAHO) is a specialized agency of the Economic Community of West African States (ECOWAS). With its 15 member countries, ECOWAS is the most populated regional African community. In its Strategic Plan 2009-2013, WAHO<sup>20</sup> recommended improving the quality of health care systems and stressed the importance of more appropriate and improved education for health professionals. The need for a high level of training for trainers was identified. The harmonization of policies is expected to foster the reciprocal recognition of diplomas, the development of scientific research, the promotion and dissemination of best practices as well as adequate training of health workers.

### *1.2.6. The Alliance francophone pour la qualité et la sécurité des soins (AFQUARIS)*

Faced with the major global challenges of quality of care and patient safety, decision makers, managers and professionals from all countries concerned about quality of care and risk management felt the need to pool their expertise to influence and learn from one another in order to improve the quality of care provided to populations worldwide.

The mission of the Alliance francophone pour la qualité et la sécurité des soins (AFQUARIS) is to promote culture and health improvement initiatives to French-language health care institutions and health care professionals, support the implementation of projects, assist in the development of guides and frames of reference, organize local, regional and international support missions in French-speaking countries and foster exchanges among stakeholders involved in quality of care and risk management in the health sector in French-speaking countries.

## *1.3. The international context of health systems*

### *1.3.1. Health: a vector for economic development*

In the last half century, massive investments in health have led to lower mortality rates for diseases such as cancer and have increased life expectancy by one year every four years in OECD countries<sup>21</sup>. It is recognized that effective health systems contribute to economic development, investment and prosperity.

Investments in public health and health services act as economic stabilizers and creators of wealth. Since spending on health accounts for a significant share of government spending in OECD countries, health services tend to be seen as a social expenditure. Yet the health system also produces services

---

<sup>20</sup> West African Health Organization (WAHO). (2008). *Strategic Plan 2009-2013*.

<sup>21</sup> OECD. (2010). *Health Care Systems: Getting More Value for Money*, OECD Economics Department, Policy Note, No. 2.



whose economic impact has an effect on growth. A country's productivity, regardless of whether it is industrialized or developing, can largely be attributed to its population's health status and the performance of its health system. To invest in health is to invest in human capital. High labour productivity encourages higher rates of domestic and foreign investment. Quality health care reduces risks and creates investment opportunities. Countries that are concerned about health care quality create an investment climate that is attractive to companies, paving the way for innovation.

WHO points out that there is a problem with adequate infrastructure in Africa, where modern hospitals coexist with health centres that regularly do not have running water. In many developing countries, the public sector does not have the means to provide health services to the entire population or to ensure that private sector health services have the objective of improving the health of the poor<sup>22</sup>. For these countries, health is also an economic asset of major importance, since a large proportion of the population simply cannot afford health care. Indeed, given its high cost, seeking medical care would be a significant drain on family income.

### *1.3.2. Health care: a heavy burden for public finances*

In OECD countries, health care is a large component of government spending. The OECD estimates that public spending on health care could increase by 3.5 to 6 percentage points of GDP by 2050 across member countries<sup>23,24</sup>. By improving the efficiency of the health care system, public spending savings would be close to 2% of GDP, on average, for OECD countries<sup>25</sup>.

*Table 1: Health care spending relative to gross domestic product (GDP) in different OECD countries in 2012*

Countries	% of GDP
Belgium	10.9%
Canada	10.9%
France	11.6%
Switzerland	11.4%

Source: OECD Health Statistics 2014, <http://www.oecd.org/els/health-systems/health-data.htm>

<sup>22</sup> OECD-WHO. (2003). *VIII: Investing in Health to Reduce Poverty*, OECD Journal on Development 1/2003 (No. 4), pp. 185-201. Retrieved from [http://www.oecd-ilibrary.org/development/development-co-operation-report-2002/investing-in-health-to-reduce-poverty\\_dcr-2002-11-en](http://www.oecd-ilibrary.org/development/development-co-operation-report-2002/investing-in-health-to-reduce-poverty_dcr-2002-11-en).

<sup>23</sup> OECD. (2010). *Health Care Systems: Getting More Value for Money*, OECD Economics Department, Policy Note, No. 2.

<sup>24</sup> OECD. (2013). *What Future for Health Spending?*, OECD, Economics Department Policy Note, No. 19, June.

<sup>25</sup> OECD. (2010), *Health Care Systems: Getting More Value for Money*, OECD Economics Department, Policy Note, No. 2.

---

Countries believe it is imperative to contain rising costs and optimize the return on investments in health care. However, improving efficiency often results in lower costs without regard to outcomes of care. The evolution of diseases in changing economic contexts is driving health planners to try various ways to obtain better returns on investments in health. This trend will be maintained in the coming decades.

---

### *1.3.3. Achieving the best cost-effectiveness ratio*

On the one hand, a population's health is a vector for economic development, while, on the other hand, the demand for increasingly sophisticated health care is placing almost unsustainable pressure on countries' public finances. Health systems are under enormous pressure due to rising health care costs which account for a growing share of public spending. Consequently, all OECD countries are striving to develop and apply best practices in order to achieve the optimal cost-effectiveness ratio.

According to the European Commission, the purpose of a cost-effectiveness analysis is to identify the economically most efficient way to fulfil an objective. The effectiveness that is being analyzed is the relationship between results and objectives. In other words, a cost-effectiveness analysis estimates the cost of obtaining a result or the estimated cost of implementing a program. This method can be used to compare policies, programs or projects. Various alternatives can be compared in order to choose the one that is most likely to achieve a given result for the lowest cost<sup>26</sup>.

According to an OECD report published in 2010: "There is no health care system that performs systematically better in delivering cost-effective health care. It may thus be less the type of system that matters but rather how it is managed"<sup>27</sup>. Achieving a better cost-effectiveness ratio involves a constant process of revision that requires each country to thoroughly analyze the strengths and weaknesses of its health care system and identify areas that could yield efficiency gains and the reforms needed to achieve them. Furthermore, to implement concrete reforms, countries must draw on best international practices, while adapting these reforms to the local context. In this regard, nursing research can contribute effectively to the development and validation of best practices in health care.

Non-quality of health care is a barrier to the implementation of best practices in health care that are essential to the long chain of innovation. Ultimately, non-quality will be reflected in a health care system that is less effective at treating the diseases affecting the population. This lack of effectiveness and deficit in health care undermine people's lives, the productivity of organizations and nations; they can have many harmful consequences: premature death, decreased quality of life, short- and long-term loss of work, a heavier burden for families and caregivers. There is a significant opportunity cost in seeing the activity of people on the labour market reduced, people who, had they been treated more effectively, could have contributed more to their country's productivity and economic growth.

---

<sup>26</sup> Retrieved from [http://ec.europa.eu/europeaid/evaluation/methodology/tools/too\\_cef\\_def\\_en.htm](http://ec.europa.eu/europeaid/evaluation/methodology/tools/too_cef_def_en.htm)

<sup>27</sup> OECD. (2010). *Health Care Systems: Getting More Value for Money*, OECD Economics Department, Policy Note, No. 2.

---

Improving quality of care and patient safety is a solution for reducing cost pressures and reconciling the growing demand for health care with budget constraints.

---

#### ***1.4. Risk management: central to management, at every level***

Risk management is increasingly identified as a priority by countries. Poor risk management generates significant costs due to complications, inappropriate use of services, adverse events and deaths.

In 2001, WHO carried out the first ever analysis of the world's health systems<sup>28</sup>. Christopher Murray, Director of WHO's Global Programme on Evidence for Health Policy, says:

*“Although significant progress has been achieved in past decades, virtually all countries are underutilizing the resources that are available to them. This leads to large numbers of preventable deaths and disabilities, unnecessary suffering, injustice, inequality and denial of an individual's basic rights to health”<sup>29</sup>.*

For example, in France, one in 20 hospitalized patients has a nosocomial infection. This was reported by the French Institute for Public Health Surveillance when it presented the results of a large-scale survey conducted in May and June of 2012 in collaboration with the coordination centres for nosocomial infection control: 1,938 health care facilities, representing more than 90% of hospital beds, were surveyed on a given day to identify the number of infected patients. Of 300,330 hospitalized patients, 15,180 (5.1%) had at least one nosocomial infection<sup>30</sup>.

The recent Ebola epidemic in West Africa is a clear illustration of the economic risks facing countries where public health measures are inadequate and where the health care system is sometimes virtually non-existent. Moreover, a global epidemic of a very virulent influenza virus would affect the economy of all countries. Indeed, the globalization of trade is increasing the risk of the spread of epidemics.

---

<sup>28</sup> WHO. (2001). *The World Health Report 2000 - Health Systems: Improving Performance*.

<sup>29</sup> Retrieved from [http://www.who.int/whr/2000/media\\_centre/press\\_release/fr/](http://www.who.int/whr/2000/media_centre/press_release/fr/)

<sup>30</sup> Réseau d'alerte, d'investigation et de surveillance des infections nosocomiales (Raisin). Enquête nationale de prévalence des infections nosocomiales et des traitements anti-infectieux en établissements de santé, France, mai-juin 2012. Résultats. Saint-Maurice: Institut de veille sanitaire; 2013. 181 p.



The need for proper risk management is fundamental in developing countries. For example, Africa has 11% of the world's population, but 24% of the burden of morbidity — over 60% of people with HIV/AIDS live there — and only 3% of the health workforce<sup>31,32</sup>. In this regard, the issue of nursing workforce emigration is crucial in Africa. In 2006, the World Health Organization (WHO) estimated that there was a shortage of more than 4.3 million health personnel across the world<sup>33</sup>. Low-income countries were particularly hard hit: of the 57 countries with a critical shortage, 36 were sub-Saharan African countries. The presence of an adequate number of highly qualified health professionals is a prerequisite to any quality of care and patient safety improvement initiative.

Given the importance of nursing for patient outcomes, directors of nursing are often charged with managing quality and tracking adverse events statistics. Substantial efforts are made with respect to patient safety by directors of nursing. However, administrative decisions at higher levels regarding the allocation of resources sometimes affect the ability to comply with care standards.

For example, good practices in the clinical monitoring of patients who have never taken opioids and who are receiving this medication intravenously recommend intensive monitoring by nurses. Yet the number of nurses on the ward often makes this impossible. Coroner's inquests\* in Quebec (Canada) have reported deaths due to inadequate monitoring<sup>34</sup>.

Directors of health care in university hospital centres (UHCs) encourage partnerships with universities to develop research programs to ensure excellence in health care practices despite budget constraints. Interinstitutional comparisons of patient safety are limited in Canada. In France, the Ministry of Health publishes hospital ratings (a rankings list) for nosocomial infections.

The American College of Surgeons created the National Surgical Quality Improvement Program<sup>35</sup>. This program, developed by surgeons, addresses the challenge of defining and preventing avoidable surgical complications. The program helps hundreds of hospitals across the United States to gauge the quality of their surgical programs with unrivalled precision and measurably improve surgical outcomes.

---

<sup>31</sup> Falk Rafael, A. (2005). "Speaking Truth to Power: Nursing's Legacy and Moral Imperative", *Advances in Nursing Science*, 28(3), pp. 212-223.

<sup>32</sup> Secrétariat international des infirmières et infirmiers de l'espace francophone (SIDIEF). (2011). *University Education for Nurses: A Response to the Challenges Facing Health Systems*. Montreal, 52 p.

<sup>33</sup> OECD-WHO. (2010). *International Migration of Health Workers. Improving International Cooperation to Address the Global Health Workforce Crisis*. Retrieved from [http://www.who.int/hrh/resources/oecd-who\\_policy\\_brief\\_en.pdf](http://www.who.int/hrh/resources/oecd-who_policy_brief_en.pdf)

<sup>34</sup> Durand, S. et al. (2009). *Surveillance clinique des clients qui reçoivent des médicaments ayant un effet dépressif sur le système nerveux central (2nd edition)*, Ordre des infirmières et infirmiers du Québec (OIIQ), 24 p.

<sup>35</sup> Retrieved from <http://site.acsnsqip.org/program-specifics/data-collection-analysis-and-reporting/>



The program tracks patients for 30 days after their operation, providing a more complete picture of their care. Statistical reports help hospitals identify areas where they may be underperforming. Hospital quality committees use the report findings as the basis for quality improvement action plans to re-engineer workflows, foster and improve internal education and develop clinical performance improvement initiatives. A study involving 118 hospitals concluded that the program helped each hospital prevent between 250 and 500 complications per year<sup>36</sup>. In addition, 82% of those hospitals saw a reduction in morbidity rates, while 66% saw a reduction in mortality rates.

Note: \* In Quebec, the coroner is a public officer (physician, lawyer or notary) appointed by the government and placed under the authority of the chief coroner. He intervenes systematically in various situations, in particular when a death occurs in violent (accident, suicide, homicide) or obscure circumstances or following negligence by a person if the cause of death is unknown or if the identity of the deceased person is unknown, etc.

---

All countries are required to ensure transparency and report adverse incidents. Groups of injured patients and families, pressure groups, unions and professional associations closely monitor health care incidents. Unions and nursing groups are concerned that this might overwhelm the nursing profession, which is already under pressure, by drawing attention to nursing errors that are the result of a heavy workload. They are afraid that it will undermine public trust in the profession.

SIDIEF, on the contrary, considers that the protection of the public calls for the greatest transparency in this regard. It will serve as a springboard to better care. However, some data is not easy to obtain or interpret. Developed countries employ oversight and accreditation procedures for health care institutions. These mechanisms are not always able to capture “non-quality” (for example, an infection that develops after the patient is discharged or has left the hospital).

---

### *1.5. Nursing: the target of budget rationing*

Despite structural and organizational differences between countries, it is well known that the national nursing workforce can account for up to 40% of health care spending on wages and salaries in developed countries. The nursing profession is the largest group of health care professionals, providing more health services than any other type of provider across the continuum of care. Nursing is the foundation of health care services in most countries, irrespective of the strength of national economies. A document produced by WHO in 2009 provides the following statistics on the health workforce for 2000-2007<sup>37</sup>.

---

<sup>36</sup> Hall, B. et al. (2009). “Does Surgical Quality Improve in the American College of Surgeons National Surgical Quality Improvement Program”. *Annals of Surgery*, 205(3), pp. 363-376; September. doi: 10.1097/SLA.0b013e3181b4148f

<sup>37</sup> WHO. (2009). World Health Statistics 2009. pp. 104-105.

**Table 2: Health workforce, 2000-2007, WHO countries**

Physicians	Nursing and midwifery personnel	Dentistry personnel	Community health workers and other health services providers
8,404,351	17,651,585	1,854,572	14,631,863

Source: World Health Organization (WHO) (2009). World Health Statistics 2009, pp. 104-105.

The significant weight of the profession has led government decision makers to consider professional nursing services as an operating cost. Many government administrations reduce spending on nursing resources without focusing attention on the potential gains and return on investment<sup>38</sup>. Too often, nursing costs are seen as an obstacle rather than an investment in quality and continuity of care<sup>39,40</sup>.

Moreover, many countries have adopted measures to contain public spending on these functions: cuts in salaries for health professionals, reductions in the size of the workforce, reductions in health care provider remuneration and increases in out-of-pocket spending for patients to relieve budget pressures<sup>41</sup>.

Because the nursing profession accounts for a large proportion of health care spending on wages and salaries and since nursing is seen as an adjunct to medical services, it is the target of repeated rationalization, even rationing, attempts, without thoroughly analyzing the impact of these measures on patient safety, quality of care and the long-term effectiveness of the health care system.

By making cuts in the nursing workforce, there is a significant risk that the patient will be deprived of a proven continuum of care. SIDIIEF is concerned about the short-term impact of these decisions. It believes that they will increase costs in the longer term, not to mention the adverse effects on nurses and, possibly, on the attractiveness of the profession. Instead of considering the nursing workforce from a cost perspective, it is clear, for SIDIIEF, that nursing potential must be leveraged to increase effectiveness and efficiency throughout the health care system.

<sup>38</sup> Aiken, L. H. (2008). "Economics of Nursing", *Policy, Politics, & Nursing Practice*. 9(2), pp. 73-79.

<sup>39</sup> Idem.

<sup>40</sup> Vanhook, P. M. (2007). "Cost-utility analysis: a method of quantifying the value of registered nurses". *Online Journal of Issues in Nursing*, 12(3). doi: 10.3912/OJIN.Vol12No03Man05.

<sup>41</sup> Morgan, D. and R. Astolfi (2013), "Health Spending Growth at Zero: Which Countries, Which Sectors Are Most Affected?", OECD Health Working Papers, No. 60, OECD Publishing, p. 158.

## *The quality of nursing care: a lever for health system performance*

Whether it is a prosperous or a developing economy, nurses are the hard core of the workforce in national health systems. They deal with the issue of patient safety on a daily basis. Inevitably, they play a vital role in maintaining and promoting patient safety.

The nursing profession has long invested in patient safety and already has a strong foundation with respect to patient safety and quality of care actions. Tools are in place to support nursing practice: research, advances in knowledge, technology, interdisciplinary collaboration, nursing leadership, university education.

Investing in nursing capital is key to health system performance. Some countries allow nurses to play a leadership role in prevention, health care delivery and clinical organization. In a system that places a premium on the quality of nursing care, nurses are more involved in assessing health needs and treating patients. It has been shown that countries that create new nursing roles achieve quality and efficiency gains.

In England, the contribution of nurses is highly valued, especially in primary health care. Advanced practice nurses have been authorized prescribers since the 1990s<sup>42</sup>. Norway grants a high level of autonomy to different groups of specialized nurses, as in nurse-led clinics<sup>43</sup>. In the United States, many centres of excellence use nursing resources as a performance optimizing factor to generate clinical and systemic results. The application of these principles is associated with measures that support considerable nursing autonomy, nurse participation in decision making and facilitate career development<sup>44</sup>. Studies have shown positive effects on patient safety, quality of care, and patient and staff satisfaction without any increase in costs<sup>45,46</sup>.

<sup>42</sup> Dubois, C. A. et al. (2013). *Aligner la formation initiale des infirmières aux besoins de santé et de soins de la population québécoise et aux défis du système de santé - Une étude comparative*. Summary report. Report submitted to the Ministère de la Santé et des Services sociaux (Quebec, Canada).

<sup>43</sup> Idem.

<sup>44</sup> SIDIIIEF (2011). *University Education for Nurses: A Response to the Challenges Facing Health Systems*. Montreal: SIDIIIEF 52 p.

<sup>45</sup> Aiken, L. H. (2005). "Extending the magnet concept to developing and transition countries", *Reflections on Nursing Leadership*, 31(1), pp. 16-18.

<sup>46</sup> Aiken, L. H. (2008). "Economics of Nursing", *Policy, Politics, & Nursing Practice*, 9(2), pp. 73-79.



## 2.1. *The clinical and systemic benefits of quality nursing care*

According to the international literature, it is clear that, to improve performance, health systems could capitalize further on the nursing profession, in particular the scope of nursing practice and the introduction of advanced nursing roles. Ultimately, the patient and the health care system would benefit from these performance gains.

The literature provides data on the systemic effectiveness and efficiency gains generated by the optimal use of nurses which benefit patients in many ways:

- improved quality of care<sup>47</sup>;
- lives saved and prolonged lives<sup>48</sup>;
- improved patient health and quality of life<sup>49</sup>;
- fewer adverse events<sup>50</sup>;
- complications and admissions avoided<sup>51</sup>;
- better continuum of care, reducing the use of more costly care<sup>52</sup>;
- better management of chronic diseases<sup>53</sup>;
- increased patient well-being<sup>54</sup>;
- improved pain management<sup>55</sup>;
- adoption of healthy lifestyle behaviours at the different levels of prevention (primary, secondary, tertiary)<sup>56</sup>;
- better access to health care<sup>57</sup>;
- more rapid diagnosis and treatment<sup>58</sup>;

---

<sup>47</sup> Needleman, J. et al. (2002). "Nurse-staffing levels and the quality of care in hospitals". *New England Journal of Medicine*, 346(22), pp. 1715-22. doi: 10.1056/NEJMsa012247.

<sup>48</sup> Aiken, L. H. et al. (2003). "Educational levels of hospital nurses and surgical patient mortality", *JAMA*, 290, pp. 1617-23.

<sup>49</sup> Actions-Santé. (2013). *Évaluation du programme. Retombées observées*.

<sup>50</sup> Dall, T. M. et al. (2009). "The Economic Value of Professional Nursing". *Med Care*, Jan, 47(1), pp. 97-104. doi: 10.1097/MLR.0b013e3181844da8

<sup>51</sup> Aiken, L. H. et al. (2008). "Effects of hospital care environment on patient mortality and nurse outcomes", *JONA*, 38(5), pp. 223-229.

<sup>52</sup> American Nurses Association (ANA). (2012). "The Value of Nursing Care Coordination: A White Paper of the American Nurses Association", June.

<sup>53</sup> Idem.

<sup>54</sup> Idem.

<sup>55</sup> Idem.

<sup>56</sup> Canadian Nurses Association (CNA). (2013). "Registered nurses: stepping up to transform health care", September.

<sup>57</sup> Cootauco, M. B. (2008). "Nurse led rapid diagnosis and management of TB", *Nursing Times*, 104(32), pp. 28-29. Retrieved from <http://www.nursingtimes.net/nurse-led-rapid-diagnosis-and-management-of-tb/1794335.article>

<sup>58</sup> Canadian Nurses Association. (2013). "Registered nurses: stepping up to transform health care", September.



- improved patient compliance with treatment and medication<sup>59</sup>;
- improved patient follow-up<sup>60</sup>;
- improved care transition to the community<sup>61</sup>;
- overall reduction in health system expenditure<sup>62</sup>.

The clinical benefits are indicative of a system's performance. The benefits listed above are the considerable positive impacts associated with quality nursing care.

---

Given the benefits reported, SIDIIEF believes that challenging preconceived notions on the return potential of nursing would prove to be an excellent lever for all countries to improve their cost-effectiveness ratio without compromising patient safety or quality of care. Nor should nursing care be seen as a budget expenditure item but as an efficiency factor in the long-term that is essential for reshaping health care systems.

---

---

<sup>59</sup> Burns, M. (2013). "Study: Nurse practitioners role in patient adherence intensifies". Retrieved from <http://www.drugs.com/news/study-nurse-practitioners-role-patience-adherence-intensifies-47465.html>

<sup>60</sup> Delamaire, M. and Lafortune, G. (2010). "Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries". *OECD Health Working Papers, No. 54*. Paris: OECD Publishing. DOI: <http://dx.doi.org/10.1787/5kmbrcfms5g7-en>

<sup>61</sup> Karoly, L. A. et al. (2005). "Early Childhood Interventions - Proven Results, Future Promise", *RAND Corporation*, 200 p. Retrieved from <http://www.rand.org/pubs/monographs/MG341.html>

<sup>62</sup> OIIQ. (2013). *Le rehaussement de la formation de la relève infirmière: un levier de transformation du système de santé - Une analyse coûts/bénéfices*, June, 48 p.

## 2.2. *The economic value of the nursing profession*

In the past few decades, many health economists have proposed empirical models to assess the systemic return potential of nursing more accurately. These models usually endeavour to assess the impact of the following scenarios:

- an increase in the nursing workforce;
- the implementation of best nursing practices;
- nurse-led coordination of care;
- the outcomes of care provided by university-educated nurses.

The most commonly used analysis parameters in the international literature for these scenarios are:

- reduced mortality;
- savings associated with lower rates of complications;
- savings associated with shorter hospital length of stay;
- savings associated with a reduction in hospital readmission rates;
- reduction of the burden in primary care;
- savings associated with nurse-physician substitution for certain medical acts.

In its publication “Le rehaussement de la formation de la relève infirmière: un levier de transformation du système de santé – Une analyse coûts/bénéfices” [Increasing the education level of the next generation of nurses: a lever for transforming the health care system – a cost-benefit analysis] (2013)<sup>63</sup>, the Ordre des infirmières et infirmiers du Québec (OIIQ) presented significant excerpts from the international literature on the economic value of the nursing profession in a variety of settings. They provide a clear illustration of the economic contribution of higher nurse staffing levels in a given setting, the improved utilization of nurses or expanded roles.

The OIIQ referred to an American study published in 2009<sup>64</sup> entitled “The Economic Value of Professional Nursing”, which attempted to quantify the economic value of nursing. The study concluded that adding 133,000 nurses in acute care hospitals would save 5,900 lives per year. The productivity value of the lives saved would be US\$1.3 billion per year (or US\$9,900 per nurse per year). This addition of nurses — leading to more rapid patient recovery — would increase national productivity in the United States by US\$231 million per year and would generate medical cost savings of US\$6.1 billion (US\$46,000 per nurse per year).

---

<sup>63</sup> OIIQ. (2013). *Le rehaussement de la formation de la relève infirmière: un levier de transformation du système de santé - Une analyse coûts/bénéfices*, June, 48 p.

<sup>64</sup> Dall, T. M. et al. (2009). “The Economic Value of Professional Nursing”. *Med Care, Jan*, 47(1), pp. 97-104. doi: 10.1097/MLR.0b013e3181844da8.

Other examples from the OIIQ publication are presented in Table 3.

*Table 3: The economic value of nursing: some examples*

- A simulation exercise in the United States allowed researchers to establish a cost-benefit ratio for the addition of one full-time registered nurse per patient-day for 1,000 hospitalized patients. Ratios were positive at 2.51 for intensive care units, 1.79 for surgical patients and 1.27 for medical patients<sup>65</sup>.
- An American simulation study using data from 799 general acute care hospitals showed that a higher proportion of hours of nursing care provided by registered nurses (without increasing total nurse hours) would reduce “patient-days” by 1.5 million, prevent 60,000 complications and generate a net reduction in costs of 0.5%<sup>66</sup>.
- An American study showed that hospitals with high numbers of registered nurses obtain better results, including reductions of 3% to 12% in complications. Another study showed that a 10% increase in licensed nursing staff would reduce patient falls by 3% and pulmonary problems by 1.5%<sup>67</sup>.
- Cho, S.H. et al. (2003) showed that a 10% increase in the proportion of registered nurses was associated with a 9.5% reduction in the odds of pneumonia in 243 acute care hospitals in California<sup>68</sup>.
- A study showed that patients in American hospitals that had higher proportions of registered nurses with baccalaureate degrees had shorter lengths of stay for their treatment. Furthermore, these hospitals had lower rates of heart failure mortality, postoperative deep vein thrombosis or pulmonary embolism<sup>69</sup>.
- Greater complementarity between general practitioners and nurses would reduce the cost of primary health care and services by 12%<sup>70</sup>.
- According to a study, the underutilization of nursing expertise in New Zealand is estimated to generate expenditure of NZ\$37K for every 1,000 patients<sup>71</sup>. In Texas, the Perryman Group estimated that potential net savings in health care costs of about 6.2% would be attainable by more fully utilizing advanced practice registered nurses<sup>72</sup>.

Thus, the monetary value of gains attributable to nursing expertise and adequate staffing levels can be established, in particular the economic benefits associated with reductions in the number of admissions or readmissions, the incidence of pneumonia or falls.

The economic impact of nurses is not well documented for community and ambulatory settings, where their influence on the continuum of care (including prevention and patient follow-up) deserves to be highlighted. However, in 2005, the RAND Corporation<sup>73</sup> conducted a study on the impact

<sup>65</sup> Thunjaroenkul, P. et al. (2009). “Costs Associated with Increased RN Staffing in Acute Care Hospitals: Simulation Exercise”, *Nursing Economics*, 27(5), pp. 302-14.

<sup>66</sup> Needleman, J. et al. (2002). “Nurse-staffing levels and the quality of care in hospitals”. *New England Journal of Medicine*, 346(22), pp. 1715-22. doi: 10.1056/NEJMsa012247

<sup>67</sup> Unruh, L. (2003). “Licensed nurse staffing and adverse events in hospitals”. *Med Care*, 41(1), pp. 142-152.

<sup>68</sup> Cho, S. H. et al. (2003). “The effects of nurse staffing on adverse events, morbidity, mortality, and medical costs”. *Nursing Research*, 52, pp. 71-79.

<sup>69</sup> Blegen, M. A. et al. (2003). “Baccalaureate Education in Nursing and Patient Outcomes”, *JONA*, 43(2), February, pp. 89-94.

<sup>70</sup> Manga, P. and Campbell, T. (1994). “Health human resources substitution: a major area of reform towards a more cost-effective health care system”. University of Ottawa. Administration, Health Sciences, Medicine.

<sup>71</sup> Turbide, S. (2012). *La sous-utilisation des infirmières coûte cher*, Le Progrès-Dimanche, May 6, pp. 28-29.

<sup>72</sup> Perryman Group (2012). The Economic Benefits of More Fully Utilizing Advanced Practice Registered Nurses in the Provision of Health Care in Texas: An Analysis of Local and Statewide Effects on Business Activity [http://c.ygcdn.com/sites/flanp.site-ym.com/resource/resmgr/articles\\_and\\_research/Perryman-APRN-Utilization-E.pdf](http://c.ygcdn.com/sites/flanp.site-ym.com/resource/resmgr/articles_and_research/Perryman-APRN-Utilization-E.pdf)

<sup>73</sup> Karoly, L.A. et al. (2005). “Early Childhood Interventions - Proven Results, Future Promise”, *RAND Corporation*, 200 p. Retrieved from <http://www.rand.org/pubs/monographs/MG341.html>



of a community-level nursing program, the Family Nurse Partnership or FNP, a program in which nurseswork with first-time low-income or vulnerable mothers from pregnancy until the child turns two. The estimated annual cost of the program per child was US\$9,118, while the return on the investment for society was US\$26,298, a positive cost-benefit ratio of 2.88 (US\$1 spent in this program generates savings of US\$2.88 for society). For higher-risk mothers, the ratio increases to 5.70 (US\$1 spent in this program generates savings of US\$5.70 for society).

From an economic analysis perspective, nursing education has been extensively documented in the international literature on the economic value of nursing. Many studies show, and rightly so, that nursing education is a key issue in patient safety and quality of care. In its position statement on university education, SIDIIIEF (2011) advocated the importance of education and its effects. American studies confirm that mortality rates associated with complications have decreased significantly in various health care environments with high staffing levels of university-educated nurses, down from 27 to 12 per 1,000 admissions in surgical units<sup>74,75,76,77</sup>.

A European study by the RN4CAST Consortium<sup>78</sup> shows that university-educated nurses reduce the number of inpatient deaths:

*“Under the supervision of Professor Linda Aiken from the University of Pennsylvania School of Nursing (United States), the study conducted in nine European countries shows that every 10% increase in bachelor’s degree nurses was associated with a 7% decrease in the likelihood of an inpatient dying. Based on statistics for more than 420,000 patients in three hundred hospitals, the RN4CAST study also shows that an increase in a nurse’s workload by one patient increased the likelihood of an inpatient dying within 30 days of admission by 7%. Patients in hospitals in which 60% of nurses had bachelor’s degrees and nurses cared for an average of six patients would have almost 30% lower mortality than patients in hospitals in which only 30% of nurses had bachelor’s degrees and nurses cared for an average of eight patients”<sup>79</sup>.*

The issue of education has also been the subject of studies in a number of French-speaking countries. A Belgian study compared the costs of optimal university-educated nurse staffing levels (75th percentile) in cardiac surgery units with the benefits of reducing mortality rates. The analysis showed that optimal

---

<sup>74</sup> Aiken, L. H. et al. (2003). “Educational levels of hospital nurses and surgical patient mortality”, *JAMA*, 290, pp. 1617-23.

<sup>75</sup> Aiken, L. H. et al. (2008). “Effects of hospital care environment on patient mortality and nurse outcomes”, *JONA*, 38(5), pp. 223-229.

<sup>76</sup> Estabrooks, C. A. et al. (2005). “The impact of hospital nursing characteristics on 30 day mortality”, *Nursing Research*, 54(2), pp. 74-84.

<sup>77</sup> Tourangeau, A. E. et al. (2007). “Impact of hospital nursing care on 30-day mortality for acute medical patients”, *Journal of Advanced Nursing*, 57, pp. 32-44.

<sup>78</sup> Aiken, L.H. et al. (2014). “Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study”.

<sup>79</sup> Retrieved from [http://51955210.swh.strato-hosting.eu/wp\\_anfide/international/cii-conseil-international-des-infirmieres/](http://51955210.swh.strato-hosting.eu/wp_anfide/international/cii-conseil-international-des-infirmieres/)

staffing levels would avoid 45.9 patient deaths per year and generate 459 life-years gained annually, which corresponds to €26,372 per avoided death and €2,939 per life-year gained. Undeniable benefits, such as life expectancy, quality of life and national productivity, lead the authors to conclude that optimal university-educated nurse staffing levels must be considered in staffing decisions<sup>80,81</sup>.

The OIIQ's cost-benefit analysis of increasing the education level of the next generation of nurses to university level (2013) proposes possible scenarios to assess the systemic and economic impact of higher staffing levels of university-educated nurses. It studies the economic aspects of a shift toward university education for the next generation of nurses in Quebec. From 2019 to 2027, Quebec's health care system would benefit from added value in the form of savings or avoided additional care of between CAN\$930 million and CAN\$1.31 billion<sup>82</sup>.

These many studies highlight the nursing profession's ability to be a key player in the transformation of health care systems. The economic value of nursing expertise is evident in a variety of clinical settings and is a vital component of the health care system dynamic, for both patients (who derive personal health benefits) and policymakers who are looking to fully utilize nursing resources in order to generate clinical and systemic efficiency gains.

### *2.3. The optimal use of the nursing workforce*

The literature suggests that the nursing workforce is not being fully utilized at present to improve health system performance, be it with respect to the prioritization of investments, health care organization, work organization or optimization of the scope of practice.

Two aspects emerge from the literature on the optimal use of the nursing workforce: efficiency gains associated with the complementarity of services between physicians and nurses and those associated with nurse-led coordination of care. The international trend towards the development of so-called advanced nursing practice is interesting. It implies a political will to promote the sharing of clinical activities between physicians and nurses. The reduction in the medical profession's control over health care delivery is usually strongly opposed by medical corporatism in many countries, especially French-speaking countries.

---

<sup>80</sup> Van den Heede, K., Simoons, S., Diya, L., Lesaffre, E., Vleugels, A. and Sermeus, W. (2010). "Increasing nurse staffing levels in Belgian cardiac surgery centres: a cost effective patient safety intervention?". *Journal of Advanced Nursing*, 66(6), pp. 1291-96. doi: 10.1111/j.1365-2648.2010.05307.x

<sup>81</sup> Sermeus, W. et al. (2011). "Nurse forecasting in Europe (RN4CAST): Rationale, design and methodology". *BMC Nursing*, 10(1), 6. doi: 10.1186/1472-6955-10-6.

<sup>82</sup> OIIQ. (2013). *Le rehaussement de la formation de la relève infirmière: un levier de transformation du système de santé - Une analyse coûts/bénéfices*, June. Montreal: OIIQ, 48 p.

A review of the development of advanced practice in twelve OECD countries<sup>83</sup> confirms its positive impact on quality of care and costs. In response to shortages of physicians and to ensure satisfactory access to care, some countries have authorized nurses to perform more complex tasks (for example, assess common health problems, provide routine follow-up for patients with chronic conditions, develop public health programs). It is generally recognized that advanced practice nurses deliver the same quality of care as physicians.

While countries are at different stages in implementing advanced roles for nurses, evaluations in countries that have been using advanced practice nurses for a long time, for instance, in primary care, show that doing so can improve access to services and reduce wait times. This care model is either cost reducing or cost neutral. Evaluations find a high level of patient satisfaction due to the time spent with nurses, the quality of the information provided, a better understanding of their health condition and patients' ability to participate in treatment and manage their health themselves. The implementation of advanced roles for nurses may require some changes to legislation and regulations to overcome barriers to their development<sup>84</sup>.

However, the underutilization of nursing competence inevitably reduces the potential productivity of health care systems, no matter where care is provided. SIDIEF denounces the quasi-monopoly of physicians in many countries. It can distort the delivery of health care and services. The cost-effectiveness ratio of this situation has never been analyzed. It is probably not conducive to the optimal use of the professional workforce as a whole.

According to the “Rapport relatif aux métiers en santé de niveau intermédiaire — Professionnels d’aujourd’hui et nouveaux métiers: des pistes pour avancer” [Report on mid-level health professions — professionals today and new professions: solutions for moving forward] (France, 2011) (known as the “Berland report”), it has become necessary, in France, to move toward the delegation of tasks, the transfer of skills and cooperation between the various stakeholders in the health care sector. The authors of the report believe the French health system must ensure a better distribution of tasks among the various stakeholders in the health sector, including physicians and nurses, in order to meet changing health needs now and in the future<sup>85</sup>.

---

<sup>83</sup> Delamaire, M. and Lafortune, G. (2010). “Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries”. *OECD Health Working Papers, No. 54*. Paris: OECD Publishing. DOI: <http://dx.doi.org/10.1787/5kmbrcfms5g7-en>

<sup>84</sup> Delamaire, M. and Lafortune, G. (2010). “Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries”. *OECD Health Working Papers, No. 54*. Paris: OECD Publishing. DOI: <http://dx.doi.org/10.1787/5kmbrcfms5g7-en>, p.76

<sup>85</sup> Berland, Y., Cadet, D. and Hénart, L. (2011). *Rapport relatif aux métiers en santé de niveau intermédiaire - Professionnels d’aujourd’hui et nouveaux métiers: des pistes pour avancer*, 61 p. Retrieved from [http://www.sante.gouv.fr/IMG/pdf/Rapport\\_relatif\\_aux\\_metiers\\_en\\_sante\\_de\\_niveau\\_intermediaire\\_-\\_Professionnels\\_d\\_aujourd\\_hui\\_et\\_nouveaux\\_metiers\\_-\\_des\\_pistes\\_pour\\_avancer.pdf](http://www.sante.gouv.fr/IMG/pdf/Rapport_relatif_aux_metiers_en_sante_de_niveau_intermediaire_-_Professionnels_d_aujourd_hui_et_nouveaux_metiers_-_des_pistes_pour_avancer.pdf)



In France, members of parliament passed a health bill on April 9, 2015. Section 30 creates an advanced practice role for the paramedical professions. This measure is intended to create the profession of nurse clinician. The areas of intervention in advanced practice will include referral, education, prevention or screening activities; clinical assessment and conclusion, technical procedures and clinical and paraclinical monitoring; prescriptions for health products that do not require a medical prescription, prescriptions for additional tests and renewals or adjustments of medical prescriptions. In the impact study, the government points out that the estimate presented is “approximate insofar as the advanced practice model has not yet been defined” [Translated from the French.]. With figures for the nursing profession alone, the estimated statutory impact in the public hospital system is over 4.3 million euros per year. But it will “save” medical time which will partly offset the additional cost, according to the government. In the primary care sector, there would not be any additional costs (assumption as to the number of consultations and medical acts that could be avoided by including a nurse in the medical follow-up protocol). The government explains that the medical time freed up could increase the number of actual medical consultations. The creation of these professions will mean an additional two years of training for the professionals concerned<sup>86</sup>.

The Académie Suisse des Sciences Médicales (ASSM)<sup>87</sup> (2014) published a charter for collaboration among health professionals in order to optimize patient treatment, ensure access to care given the growing shortage of health professionals and support the work of health professionals. Thus, under Section 3 of the Charter: “The different tasks involved in providing care are performed in response to patients’ and family members’ needs and using the necessary professional competence.” [Translated from the French.] The objective of such an approach is to ensure equitable access for the entire population to efficient, quality medical services that are considered satisfactory by patients and collaborators; it is in keeping with the concept of “sustainable medicine” founded on evidence-based criteria, ethics and economics.

In addition to advanced practice, the coordination of care pathways for patients with chronic diseases could be a very promising measure with respect to efficiency gains. The literature provides a wealth of examples in this regard, In 2012, a white paper of the American Nurses Association<sup>88</sup> described the benefits of nursing in the care coordination process and showed its importance in achieving high-quality, effective, efficient and patient-centred care. Significant gains are achieved when nurses are made central to care coordination. Antonelli et al. (2008) assessed care coordination activities performed by nurses and observed an 81% reduction in emergency room visits and a 63% reduction in unnecessary doctor’s office visits<sup>89</sup>.

---

<sup>86</sup> Retrieved from <http://www.infirmiers.com/profession-infirmiere/legislation/exercice-pratique-avancee-adopte-deputes.html>

<sup>87</sup> Académie Suisse des Sciences Médicales (ASSM). (2014). *Charte de Collaboration entre les professionnels de la santé*. Basel, Switzerland, 8 p.

<sup>88</sup> ANA. (2012). “The Value of Nursing Care Coordination: A White Paper of the American Nurses Association”, June.

<sup>89</sup> Antonelli, R. C. et al. (2008). “Care coordination for children and youth with special health care needs: a descriptive, multisite study of activities, personnel costs, and outcomes”, *Pediatrics*, 122(1), pp. e209-e216.





In Quebec, the Health and Welfare Commissioner noted, in his 2009 report<sup>90</sup>, that the primary care physician is used to meet all of people's needs and provides services that other professionals would be authorized to provide. He reports that a review of the research on the complementarity of physicians and nurses in primary health care services suggests that 25% to 70% of the work done by general practitioners in primary health care could be transferred to nurses<sup>91</sup>. This redistribution of professional roles would allow physicians to focus on more complex cases, thereby boosting medical availability and improving access to physicians for all patients.

Initiatives placing nurses at the centre of care coordination were implemented in four health and social services centres in a region of Quebec where the practice of RN complex case manager (RN CCM) was introduced. An evaluation of the initiative showed the following results for June 2009 to December 2011: 21% to 44% reduction in admissions; 27% to 50% reduction in emergency room visits; 21% to 61% reduction in laboratory and imaging tests<sup>92</sup>.

---

From every angle of analysis, there is a wealth of international literature on the value of nurses in improving quality of care and reducing adverse events and admissions. The development of so-called advanced nursing practice and the coordination of care pathways by nurses appear to be two key levers for improving performance. Managers developing long-term staffing plans will pay close attention to these analyses of potential gains.

---

---

<sup>90</sup> Commissaire à la santé et au bien-être. (2009). *Construire sur les bases d'une première ligne de soins renouvelée: recommandations, enjeux et implications, gouvernement du Québec*, 136 p.

<sup>91</sup> Richardson, G. et al. (1998). "Skill mix changes: substitution or service development?". *Health Policy*, 45(2), pp. 119-132. doi: 10.1016/S0168-8510(98)00038-4

<sup>92</sup> OIIQ. (2013). *Le rehaussement de la formation de la relève infirmière: un levier de transformation du système de santé - Une analyse coûts/bénéfices*, June. Montreal: OIIQ, 48 p.

## *2.4. Other issues to consider*

SIDIEF believes that vigilance is needed with respect to administrative strategies, such as activity-based funding, DRG-based funding, HPGs\* or lean management\*\*, especially when they do not take into account evidence of the effectiveness and efficacy of nursing with respect to patient outcomes.

In an approach where hospital services are bundled together for reimbursement, we may wonder how the share of nursing is calculated. An inaccurate estimate or one that does not comply with quality standards will result in a reduction in the contribution of nursing during hospitalization and, consequently, a reduction in staffing.

For decision makers, the most sensitive analysis variables are those associated with a decrease in financial losses or a reduction in costs in institutions and in the field. Too often, the impact on the patient is minimized.

For nursing to no longer be considered an expenditure (or as a way to reduce expenditure) and instead be leveraged to enhance the effectiveness and efficacy of health care systems, we must be able to measure its contribution to patient safety and quality of care. If the correlates between quantitative measurement and quality of care are not defined, decision-making mechanisms behind nurse staffing planning will remain vague and arbitrary. Since we do not know the critical threshold for adequate staffing levels, nursing planning tends to be done blindly and a posteriori (not prospectively).

---

Like large international organizations, SIDIEF supports the objective of effective health care and reduced iatrogenic risks. The nursing profession's potential to contribute to reducing risk and improving the cost-effectiveness ratio must be recognized by government administrations.

To ensure that the quality of nursing care can be leveraged to improve health system performance, it is important to optimize nursing resource planning with respect to developments in diseases, health care and technology. For now, the most promising analyses regarding the potential of nursing expertise are studies on the clinical and economic benefits of a more efficient utilization of nurses.

---

---

Notes: \* In France, homogeneous patient groups are a medico-economic system used to classify medicine, surgery, obstetrics and odontology admissions.

\*\* Lean management is a work organization system that relies on a collaborative team effort to improve the efficiency and performance of a company, production unit or service by eliminating waste.

## *Patient care outcomes: the importance of measurement and comparability*

There is little consensus on the notion of performance among health professionals and hospital managers. The financial context of health care institutions is complex. The coexistence of notions of performance linked to institutional efficiency (the best care at the best cost possible), effectiveness (with respect to the institution's multiple missions) and the delivery of quality care is a source of controversy, even conflicts in vision. Nursing unions in all countries denounce the budgetary restrictions that prevent nurses from practicing the profession properly. Based on our observations, this stance does not allow the real danger to be identified or, at the very least, the negative impacts to be objectivized, hence the value of compiling accurate data, verified by research, and creating databases for mixed analysis methods and international comparisons.

Intuitively, nurses rely mainly on patient satisfaction and a long tradition when it comes to improving competence and quality of care in clinical settings. However, these considerations have little impact on resource allocation decisions. The more time passes, the more we need to demonstrate the potential return on investments in health.

### *3.1. Quantitative methods and quality of care go hand in hand*

In the past, national and international nursing associations and universities made considerable efforts to develop a classification of nursing diagnoses or nursing outcomes to support the standardization of the terminology and some degree of outcome measurement. These efforts met with too little success internationally and, to our knowledge, countries do not use these nursing classifications to develop health care policies. Databases derived from nursing workload or patient needs measurement systems (for example, PRN, GRASP or Medicus systems)<sup>93</sup> sparked the interest of the profession and had some success in the 1980s. Yet, these unwieldy systems with their methodological biases did not produce the expected results<sup>94</sup>. Nor were the few attempts made to incorporate nursing intensity data into DRGs any more successful. The intensity of nursing care required by a patient is still a complex element to measure and comparisons are difficult.

<sup>93</sup> Thibault, C. et al. (1990). *Workload Measurement Systems in Nursing*. Montreal: Association des hôpitaux du Québec (AHQ), 216 p.

<sup>94</sup> Hadley, F. et al. (2004). *Assess Use, Compliance and Efficacy Nursing Workload Measurement Tools*. Retrieved from [http://cna-aiic.ca/-/media/cna/page-content/pdf-fr/workload\\_measurement\\_tools\\_e.pdf](http://cna-aiic.ca/-/media/cna/page-content/pdf-fr/workload_measurement_tools_e.pdf)



SIDIEF decided to explore the issue in order to identify priority nursing-sensitive quality indicators. To do this, it commissioned a study by researchers affiliated with the Training and Expertise in Nursing Administration Research Centre (FERASI Centre)<sup>95</sup>. The study, entitled “Indicateurs prioritaires pour évaluer la contribution infirmière à la qualité des soins: revue systématique des écrits” [Priority indicators to assess the contribution of nursing to quality of care: a systematic review of the literature], was conducted by a team of interuniversity researchers under the supervision of Carl-Ardy Dubois, Full Professor at the Université de Montréal’s Faculty of Nursing (Canada).

This study is part of a SIDIEF undertaking to develop the evidence base needed to guide, in the French-speaking world, strategic quality measurement and improvement initiatives that take the contribution of nursing into account. The objective of the study was to identify indicators of quality of care that are internationally recognized as nursing sensitive<sup>96</sup>. This synthesis of current scientific knowledge on these indicators identifies those that must be used as a priority to measure the contribution of nursing and its impact on outcomes of care. This systematic review of the literature identified twelve priority nursing-sensitive quality indicators classified into three categories: a) Acquisition, deployment and maintenance of nursing resources, b) Transformation of nursing resources into nursing services, and c) Production of changes in patients’ conditions, as shown in Table 4.

---

<sup>95</sup> Dubois, C. A. et al. (2015). *Indicateurs prioritaires pour évaluer la contribution infirmière à la qualité des soins: revue systématique des écrits*. Montreal: SIDIEF.

<sup>96</sup> Dubois, C. A. et al. (2015). *Indicateurs prioritaires pour évaluer la contribution infirmière à la qualité de soins: revue systématique des écrits*. Montreal: SIDIEF.

**Table 4: Twelve priority nursing-sensitive quality indicators**

**a) Acquisition, deployment and maintenance of nursing resources**

- Quantity and intensity of resources
- Composition of health care teams
- Number of continuous hours worked

**b) Transformation of nursing resources into nursing services**

- Nurse-led prevention and promotion interventions
- Symptom management (pain and fatigue)
- Discharge planning

**c) Production of changes in patients' conditions**

- Pressure ulcers
- Medication errors
- Catheter-associated urinary tract infections
- Falls
- Hospital length of stay
- Readmissions

Source: Dubois, C. A. et al. (2015). *Indicateurs prioritaires pour évaluer la contribution infirmière à la qualité des soins: revue systématique des écrits*. Montreal: SIDIEF.

The study also reviews measurement systems in various national contexts. Seven countries and one territory were included in the study: Belgium, France, Lebanon, Quebec, Switzerland, Senegal and Tunisia. Data was also collected on transnational quality measurement and improvement systems. The data collected show that little progress has been made in implementing the 12 priority indicators. Not one of the 12 indicators has been implemented in all of the seven countries and the one territory reviewed and they are given little consideration in large-scale international quality measurement systems. The researchers believe that the contribution of nursing to quality of care should be a key lever in decision making when developing and implementing policies designed to improve quality of care. These outcome indicators based on best practices are the starting point in this quantitative approach to quality management.

To gain a better understanding of how these indicators could be used in the development of national databases and international comparisons, SIDIEF sought the opinion of Jean-Marie Januel, R.N., Ph.D., Public Health and Health Economics, Expert Member of the WHO Topic Advisory Group on Quality and Safety for the 11th revision of the WHO International Classification of Diseases.



According to this expert, the ability to generate intelligible indicators is extremely important, not only for the profession, but also for other professions and decision makers. Furthermore, it is important to include them in databases that support interinstitutional comparisons nationally and, subsequently, internationally<sup>97</sup>.

However, this appears to be highly complex:

*“[...] it would be difficult to make reliable and valid comparisons of these indicators which are measured using data that is likely to be structurally different internationally. [...] The databases used to develop indicators must meet the criteria of a single structure and a single taxonomy/terminology for the different countries. These databases must be able to show certain factors that potentially come into play to partly explain the variability in the measurement of indicators between countries, related to differences in practices and/or health care system organization”<sup>98</sup>. [Translated from the French.]*

We understand that there is a need for consensus in the profession as to the method of collecting data using a standardized terminology and coding system. The work of the International Classification for Nursing Practice (ICNP), supported by the ICN which now uses SNOMED\*, means that we can be optimistic about seeing the nursing profession integrated into the ICD’s revision process and its support in developing quality or safety indicators in ICD databases.

---

Note: \* SNOMED<sup>99</sup> is an internationally recognized terminology standard for clinically relevant information. It is used in over 50 countries.

---

<sup>97</sup> Januel, J. M. (2015). *De l’intérêt de parler un même langage afin d’atteindre la reconnaissance des soins infirmiers dans les programmes d’amélioration de la qualité des soins*. SIDIIEF: Montreal. Retrieved from <http://www.sidiief.org>

<sup>98</sup> Idem.

<sup>99</sup> Retrieved from <https://www.infoway-inforoute.ca/fr/component/edocman/resources/guides-cahiers-de-travail/84-fiche-d-information-sur-snomed-ct?Itemid=101>

### *3.2. The creation of an international database on the quality of nursing care*

The six indicators identified in Dubois' study (2015) in the category "Production of changes in patients' conditions" have the most potential for international comparability. Indeed, only those that associate health care outcomes with patient safety can truly claim to support international comparisons, in particular because they can be used to produce a standardized definition applicable in all countries and are therefore easily coded. The other six other indicators are, however, of interest to professionals and managers at the local and national levels.

Thus the six indicators that can be associated with health care outcomes could be produced using so-called "medico-administrative" databases that record, in a standardized and exhaustive manner, a series of data on hospital admissions using the International Classification of Diseases (ICD)<sup>100</sup>. All the data coded by a hospital when a patient is discharged are entered in a national database and used to generate medico-administrative and epidemiological statistics such as mortality rates. The hard core of these databases is the International Classification of Diseases (ICD), since any patient who is admitted has had one or more diagnoses and treatments. Thus, at present, data on health care outcomes are based on hospital discharge coding.

Remember that the ICD is an international classification system — updated periodically by WHO since 1946 following the transfer of the International List of Diseases and Causes of Death and Occupational Disability — based on a list of diagnostic codes and specific coding rules. The ICD is used in most WHO member countries. Furthermore, the 11th revision that is currently underway relies on the active participation of the various potential users<sup>101</sup>. Quality of care and patient safety are key elements in this revision<sup>102</sup>.

---

<sup>100</sup> Retrieved from <http://www.who.int/classifications/icd/revision/icd11faq/en/>

<sup>101</sup> Idem.

<sup>102</sup> Ghali, W. A. et al. (2013). "ICD-11 for quality and safety: overview of the WHO Quality and Safety Topic Advisory Group". *International Journal for Quality in Health Care: Journal of the International Society for Quality in Health Care / ISQua*, 25(6), pp. 621-25. doi: <http://dx.doi.org/10.1093/intqhc/mzt074>

According to Januel (2015), the inclusion of nursing-sensitive quality indicators in the ICD should be considered by the nursing profession for several reasons<sup>103</sup>:

- the ICD is the most widely used classification system in the world today for coding mortality and morbidity data using routine data collected on hospital admissions<sup>104,105</sup>;
- the data coded using ICD codes is used to compile statistics and produce epidemiological overviews of health management, resource allocation, follow-up and assessment, research, primary care, prevention and treatment<sup>106</sup>;
- this classification is clearly intended to be used by all health care providers and partners (physicians, nurses, other health care professionals, researchers, health information managers and coders, health information technology workers, policymakers, insurers and patients)<sup>107</sup>.
- the current 11th revision of the ICD, which is using an innovative approach based on interdisciplinary collaboration, is a unique, unprecedented opportunity<sup>108</sup>.

For the first time ever, WHO is inviting experts and ICD users to participate in the revision process through a shared online platform. The result will be a classification based on the contributions and needs of all potential users. SIDIIEF, aware of this possibility, believes the different trends in the profession must be brought together around this ambitious objective. Indeed, WHO's invitation to participate in the revision of the ICD creates an opportunity to integrate the nursing profession into international policies on quality of care by supplementing the hospital discharge database with data sensitive to outcomes of care.

The Patient Safety Indicators (PSIs) used, for instance, in OECD statistics, measure the incidence of adverse events associated with health care in hospital using ICD-coded data. Much is at stake, since ICD data provide access to all hospital admissions (exhaustive data), not only to a sample, as with ad hoc studies, as well as to information standardized a priori (no measurement bias, ideally)<sup>109</sup>.

---

<sup>103</sup> Riley, P. L., Zuber, A., Vindigni, S. M., Gupta, N., Verani, A., Sunderland, N. L., [...] and Campbell, J. (2012). "Information systems on human resources for health: a global review". *Hum Resour Health*, 10(7), 10-1186. doi: 10.1186/1478-4491-10-7

<sup>104</sup> Retrieved from <http://www.who.int/classifications/icd/revision/icd11faq/en/>

<sup>105</sup> OECD. (2013). "Strengthening Health Information Infrastructure for Health Care Quality Governance: Good Practices, New Opportunities and Data Privacy Protection Challenges". *OECD Health Policy Studies*, OECD Publishing, Paris. DOI: <http://dx.doi.org/10.1787/9789264193505-en>

<sup>106</sup> Retrieved from <http://www.who.int/classifications/icd/revision/icd11faq/en/>

<sup>107</sup> Retrieved from <http://www.who.int/classifications/icd/revision/icd11faq/en/>

<sup>108</sup> Idem.

<sup>109</sup> Januel, J. M. (2011). *Développement d'indicateurs de la sécurité des soins (PSI) à partir des bases de données médico-administratives hospitalières*. Rapport final. Série Sources et Méthodes—Ministère du Travail, de l'Emploi et de la Santé. Direction de la recherche, des études, de l'évaluation et des statistiques (DREES), (20). Retrieved from [www.sofgres.org/serieetud93.pdf](http://www.sofgres.org/serieetud93.pdf)





In this context, SIDIEF believes that it is in the nursing profession's best interest to use recognized databases for its research, but which are also generated by hospital discharges in all countries.

One of the indicators recognized and identified by Dubois' study (2015) with respect to outcomes of care is the incidence of pressure ulcers. Yet, decubitus ulcers and pressure areas are coded L89 (in the ICD-10) and further broken down based on the Braden Scale (stages 1 to 4) into the subcategories L89.0, L89.1, L89.2 and L89.3, and L89.9 if the stage is not specified. PSIs are generated using the ICD database for adverse events associated with diagnostic codes for all hospital admissions. Thus we can obtain a prevalence rate for these events. The nursing profession is highly interested in these statistics which would allow it to interact with national health administrations and other professions and, most importantly, obtain highly informative international comparisons.

According to Januel, the 11th revision of the ICD is much more than a simple revision of codes. Its entire structure and method of use will be revised. This revision will allow aspects of nursing care to be added that will highlight the connections between the three factors used to characterize the incidence of healthcare-associated events: 1) the harm or injury incurred (i.e., the outcome of the event or the outcome, for example, of the healthcare-associated infection); 2) the cause of harm or injury; and 3) the mode or mechanism of harm or injury linked to the cause. In addition, four categories have been created to identify the cause of events: events associated with 1) substances; 2) procedures; 3) devices; and 4) other aspects of care.

The nursing profession's active participation in this revision would improve "the metrological performance" of quality of care and patient safety indicators developed using this classification system.

SIDIEF plans to continue its efforts and support its members' interest in the creation of databases on health care outcomes. The profession must be able to analyze macroscopic health statistics and make representations on quality of care and patient safety accordingly, both nationally and internationally.

Once the revision of the ICD has been completed, we must ensure that nursing-sensitive quality indicators are coded in each country. National agencies and health care institutions will be required to comply with these changes and modify their analysis parameters to include the nursing component. WHO and the OECD should apply the necessary pressure to ensure this happens.



SIDIEF believes that the ICD should be the tool of choice for developing health care outcome indicators. Quality of care cannot be analyzed in professional “silos”. Countries’ interest in expanding their databases derived from ICD-based hospital discharge coding is an opportunity to integrate nursing-sensitive data into these databases.

---

SIDIEF stresses that it is important for the nursing profession to lend its political and scientific support to the 11th revision of the ICD. SIDIEF intends to ask WHO and the ICN to make this revision the starting point for developing national and international statistical databases of nursing-sensitive quality indicators.

---

## *SIDIIEF's position on quality of care and patient safety*

In a universal context of cost containment in health services, SIDIIEF believes that performance and quality of care should be complementary objectives. Moreover, the economic impact of non-quality has now been recognized by the WHO. The nursing profession believes it is too often the target of budget restrictions that may adversely affect patients. SIDIIEF considers it imperative that the contribution of nursing to health system performance be determined, in particular by highlighting the economic value of quality nursing practice.

Because of its leadership position, SIDIIEF is responsible for informing the international French-speaking nursing community about issues as critical as quality of care and patient safety and mobilizing the profession to pursue promising courses of action.

SIDIIEF endorses the statements made by international organizations, namely, that improved patient safety and improved quality of care is a priority in all countries.

To this end,

### **1. SIDIIEF invites countries to transform their health systems and achieve a better cost-effectiveness ratio by making optimal use of the nursing workforce.**

- 1.1 SIDIIEF encourages the advancement of nursing research that can contribute significantly to the development and validation of best practices in health care;
- 1.2 SIDIIEF denounces the fact that underutilization of the nursing profession can lead to adverse events and significant costs for health systems;
- 1.3 SIDIIEF supports the development of advanced nursing roles and the coordination of care pathways by nurses as the best solutions for improving the cost-effectiveness ratio of countries' health budgets;

- 1.4 SIDIIEF, like organizations such as the OECD and WHO, reiterates that the top-performing countries with respect to quality and effectiveness of care have not hesitated to expand nursing roles by a new sharing of responsibilities between physicians and nurses;
- 1.5 SIDIIEF believes that it is essential, in any national quality of care improvement initiative, to maintain efforts to develop and renew health care practices, ensure an appropriate level of training for nurses and develop a regulatory framework for the protection of the public, including the adoption of a code of ethics for the nursing profession. These elements are important in all French-speaking countries;
- 1.6 SIDIIEF opposes targeting nurses for budgetary restrictions without analyzing the impact of staffing reductions on patient safety, quality of care and the long-term effectiveness of the health system;
- 1.7 SIDIIEF affirms that nursing should no longer be considered a budget expenditure item but as a positive factor in the long-term, essential for reshaping health systems;
- 1.8 SIDIIEF considers that nurse staffing levels (quantitative measurement) must be planned based on quality indicators and other impacts on patients.

**2.SIDIIEF invites countries and international organizations to continue their efforts to help African countries invest in public health and in their health systems.**

- 2.1 SIDIIEF asks that health care structures in French-speaking Africa be strengthened by significant investments in the university education of adequate numbers of nurses;
- 2.2 SIDIIEF asks that the role of nurses in primary health care be recognized and strengthened.

**3.SIDIIEF invites the leaders of the profession to increase their interest in the use of quantitative methods to measure outcomes of care.**

- 3.1 SIDIIEF invites unions and other professional nursing groups to promote and advocate for the development of national health care outcome indicators;
- 3.2. SIDIIEF believes it is important that the nursing profession establish and maintain partnerships with agencies concerned with patient safety and quality of care;
- 3.3. SIDIIEF considers that the profession must enhance its understanding of the international databases used by countries as well as of comparative reports between countries, in particular OECD countries. The nursing profession must analyze and critically review the OECD's annual health statistics report and take a position in this regard;

3.4. SIDIIEF considers it essential that the nursing profession influence health policies. To this end, the analysis of macrosystemic indicators must be included in nursing programs and institutions where they are offered;

3.5. SIDIIEF is in favour of the public disclosure of information on unsafe care and the prevalence of adverse events associated with the practice of all health professionals, including physicians.

**4. SIDIIEF asks countries that the International Classification of Diseases (ICD) be adopted as the preferred tool for developing health care outcome indicators. WHO's 11th revision of the ICD by is a unique opportunity for the nursing profession to contribute to work that is recognized internationally by health administrations in all countries.**

4.1 SIDIIEF requests that WHO and the ICN make the current revision the starting point for the creation of national and international statistical databases of nursing-sensitive quality indicators;

4.2 SIDIIEF considers that the nursing-sensitive quality indicators that were identified in Dubois' study (2015) as being capable of producing changes in patients' conditions have the most potential for international comparability and should be integrated into national and international statistics;

4.3 SIDIIEF asks that six nursing-sensitive quality indicators be identified as priority indicators for inclusion in the ICD Patient Safety Indicators:

- Pressure ulcers
- Medication errors
- Catheter-associated urinary tract infections
- Falls
- Hospital length of stay
- Readmissions;

4.4 SIDIIEF invites local and national nursing services to integrate the indicators identified in the study "Indicateurs prioritaires pour évaluer la contribution infirmière à la qualité des soins: revue systématique des écrits"<sup>110</sup> into their practice in order to continuously improve the quality of nursing care.

---

<sup>110</sup> Dubois, C. A. et al. (2015). *Indicateurs prioritaires pour évaluer la contribution infirmière à la qualité des soins: revue systématique des écrits*. Montreal: SIDIIEF.

## Bibliography

Académie Suisse des Sciences Médicales (ASSM). (2014). *Charte de Collaboration entre les professionnels de la santé*. Basel, Switzerland, 8 p.

Actions-Santé. (2013). *Évaluation du programme. Retombées observées*.

Aiken, L. H. (2005). "Extending the magnet concept to developing and transition countries". *Reflections on Nursing Leadership*, 31(1), pp. 16-18.

Aiken, L. H. (2008). "Economics of Nursing". *Policy, Politics, & Nursing Practice*, 9(2), pp. 73-79.

Aiken, L. H., Clarke, S. P., Cheung, R. B. and Sloane, D. M. (2003). "Educational levels of hospital nurses and surgical patient mortality". *JAMA*, 290, pp. 1617-23.

Aiken, L. H., Clarke, S. P., Sloane, D. M., Lake, E. T. and Cheney, T. (2008). "Effects of hospital care environment on patient mortality and nurse outcomes". *JONA*, 38(5), pp. 223-229.

Aiken, L. H., Sloane, D. M., Bruyneel, L., Van den Heede, K., Griffiths, P., Busse, R. [...] and Sermeus, W. (2014). "Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study". *The Lancet*, 383(9931), pp. 1824-30. Retrieved from [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(13\)62631-8/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)62631-8/fulltext)

Amalberti, R. (2012). *Sécurité des patients: mieux connaître et réduire les risques*, Haute Autorité de santé; adap. 79; June.

American Nurses Association (ANA). (2012). "The Nurse's Essential Role in Care Coordination".

American Nurses Association (ANA). (2012). "The Value of Nursing Care Coordination: A White Paper of the American Nurses Association". June. Retrieved from <http://www.nursingworld.org/carecoordinationwhitepaper>

Antonelli, R. C., Stille, C. J., and Antonelli, D. M. (2008). "Care coordination for children and youth with special health care needs: a descriptive, multisite study of activities, personnel costs, and outcomes". *Pediatrics*, 122(1), pp. e209-e216.



Bartunek, J. M. (2011). "Intergroup relationships and quality improvement in healthcare". *BMJ Quality & Safety*, 20 Suppl 1: pp. 62-66.

Berland, Y., Cadet, D. and Hénart, L. (2011). *Rapport relatif aux métiers en santé de niveau intermédiaire - Professionnels d'aujourd'hui et nouveaux métiers: des pistes pour avancer*. 61 p. Retrieved from [http://www.sante.gouv.fr/IMG/pdf/Rapport\\_relatif\\_aux\\_metiers\\_en\\_sante\\_de\\_niveau\\_intermediaire\\_-\\_Professional\\_d\\_aujourd\\_hui\\_et\\_nouveaux\\_metiers\\_-\\_des\\_pistes\\_pour\\_avancer.pdf](http://www.sante.gouv.fr/IMG/pdf/Rapport_relatif_aux_metiers_en_sante_de_niveau_intermediaire_-_Professional_d_aujourd_hui_et_nouveaux_metiers_-_des_pistes_pour_avancer.pdf)

Blegen, M. A., Goode, C. J., Park S. H., Vaughn T. and Spetz J. (2013). "Baccalaureate Education in Nursing and Patient Outcomes". *JONA*, 43(2), February, pp. 89-94.

Burns, M. (2013). "Study: Nurse practitioners role in patient adherence intensifies". Retrieved from <http://www.drugs.com/news/study-nurse-practitioners-role-patient-adherence-intensifies-47465.html>

Canadian Nurses Association (CNA). (2013). "Registered nurses: stepping up to transform health care". September.

Carinci F., Van Gool, K., Mainz, J., Veillard, J., Pichora, E., Januel, J. M., Arispe, I., Kim S. M., Klazinga, N.S., on Behalf of the OECD Health Care Quality Indicators Expert Group. (2015). "Toward actionable international comparisons of health system performance: expert revision of the OECD framework and quality indicators". *International Journal for Quality in Health Care*. Apr;27(2): 137-46. doi: [dx.doi.org/10.1093/intqhc/mzv004](https://doi.org/10.1093/intqhc/mzv004)

Chesla, C. A. (2008). "Translational research: essential contributions from interpretive nursing science". *Research in Nursing & Health*, 31(4), pp. 381-390. doi: [10.1002/nur.20267](https://doi.org/10.1002/nur.20267)

Chiffi, D. and Zanotti, R. (2014). "Medical and nursing diagnoses: a critical comparison". *J Eval Clin Pract*, May 12, DOI: [10.1111/jep.12146](https://doi.org/10.1111/jep.12146). [Epub ahead of print].

Cho, S. H., Ketefian, S., Barkauskas, V. H. and Smith, D. G. (2003). "The effects of nurse staffing on adverse events, morbidity, mortality, and medical costs". *Nursing Research*, 52, pp. 71-79.

Chute, C. G., Cohn, S. P., Campbell, K.E., Oliver, D. E. and Campbell, J.R. (1996). "The content coverage of clinical classifications. For The Computer-Based Patient Record Institute's Work Group on Codes & Structures", *Journal of the American Medical Informatics Association: JAMIA*, 3(3), pp. 224-233. doi: [dx.doi.org/10.1136/jamia.1996.96310636](https://doi.org/10.1136/jamia.1996.96310636)

Coenen, A. (2003). "The International Classification for Nursing Practice (ICNP®) Programme: Advancing a Unifying Framework for Nursing". *Online Journal of Issues in Nursing*, 8(2). Retrieved from <http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume82003/No2May2003/ArticlesPreviousTopics/TheInternationalClassificationforNursingPractice.aspx>

Commissaire à la santé et au bien-être. (2009). *Construire sur les bases d'une première ligne de soins renouvelée: recommandations, enjeux et implications*, gouvernement du Québec. 136 p.

Cootauco, M. B. (2008). "Nurse led rapid diagnosis and management of TB", *Nursing Times*, 104(32), pp. 28-29. Retrieved from <http://www.nursingtimes.net/nurse-led-rapid-diagnosis-and-management-of-tb/1794335.article>

Curley, M. A. and Hickey, P. A. (2006). "The Nightingale Metrics: Nurses at one institution improved outcomes by putting patients 'in the best condition for nature to act.'" *The American Journal of Nursing*, 106(10), pp. 66-70.

Dall, T. M., Chen, Y. J., Seifert, R. F., Maddox, P. J. and Hogan, P. F. (2009). "The Economic Value of Professional Nursing". *Med Care*, Jan, 47(1), pp. 97-104. doi: 10.1097/MLR.0b013e3181844da8

Delamaire, M. and Lafortune, G. (2010). "Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries". *OECD Health Working Papers*, No. 54. Paris: OECD Publishing. doi: [dx.doi.org/10.1787/5kmbrcfms5g7-en](https://doi.org/10.1787/5kmbrcfms5g7-en)

Diallo, K., Zurn, P., Gupta, N. and Dal Poz, M. (2003). "Monitoring and evaluation of human resources for health: an international perspective". *Human Resources for Health*, 1(1), p. 3. doi: 10.1186/1478-4491-1-3

Donabedian, A. (1966). "Evaluating the quality of medical care". *The Milbank Memorial Fund Quarterly*, 44(3), Pt. 2, pp. 166-203.

Donabedian, A. (1988). "The quality of care. How can it be assessed?". *JAMA*, 260, pp. 1743-48. doi: 10.1001/jama.1988.03410120089033.

Dubois, C. A. and McKee, M. (2006). "Cross-national comparisons of human resources for health - what can we learn?". *Health Economics, Policy and Law*, 1(Pt 1), pp. 59-78. doi: [dx.doi.org/10.1017/S1744133105001027](https://doi.org/10.1017/S1744133105001027)

Dubois, C. A., D'Amour, D., Brault, I., Dallaire, C., Déry, J., Duhoux, A., [...] and Zufferey, A. (2015). *Indicateurs prioritaires pour évaluer la contribution infirmière à la qualité des soins: revue systématique des écrits*. SIDIEF: Montreal.



Dubois, C. A., Dallaire, C., Lavoie-Tremblay, M., Mathieu, L., Pépin, J., Brault, I., [...] and Denis, J.-L. (2013). *Aligner la formation initiale des infirmières aux besoins de santé et de soins de la population québécoise et aux défis du système de santé - Une étude comparative*. Summary report. Report submitted to the Ministère de la santé et des services sociaux.

Duclos, J. Y. (2013). *Les dépenses en santé: un enjeu de long terme*. Retrieved from: <http://blogue.economistesquebecois.com/2013/12/10/les-depenses-en-sante-un-enjeu-de-long-terme/>

Durand, S. Brodeur, J. and Thibault, C. (2009). *Surveillance clinique des clients qui reçoivent des médicaments ayant un effet dépressif sur le système nerveux central (2nd edition)*. Ordre des infirmières et infirmiers du Québec (OIIQ). 24 p.

Enquête nationale de prévalence des infections nosocomiales et des traitements antiinfectieux en établissements de santé, mai-juin 2012. Résultats. Une enquête du Réseau d'Alerte, d'Investigation et de Surveillance des Infections Nosocomiales (Raisin), mise en oeuvre par les établissements de santé et les Centres de Coordination de la Lutte contre les infections Nosocomiales (CCLin) et coordonnée par l'Institut de Veille Sanitaire (InVS).

Estabrooks, C. A., Midodzi, W. K., Cummings, G. G., Ricker, K. L. and Giovanetti, P. (2005). "The impact of hospital nursing characteristics on 30-day mortality". *Nursing Research*, 54(2), pp. 74-84.

Falk Rafael, A. (2005). "Speaking Truth to Power: Nursing's Legacy and Moral Imperative". *Advances in Nursing Science*, 28(3), pp. 212-223.

Fewster-Thuente, L. and Velsor-Friedrich, B. (2008). "Interdisciplinary collaboration for healthcare professionals". *Nurs Admin Q*, 32(1), pp. 40-48. doi: 10.1097/01.NAQ.0000305946.31193.61

Fitzpatrick, J. J., Kerr, M. E., Saba V. K., Hoskins, L. M., Hurley, M. E., Mills, W. C., [...] and Carpenito, L. J. (1989). "Nursing Diagnostics: Translating nursing diagnosis into ICD code". *The American Journal of Nursing*, 89(4), pp. 493-495.

*Formation infirmière et changements identitaires*. Soins. 2013. No. 772.

Garde, S., Harrison, D. and Hovenga E. (2005). "Skill needs for nurses in their role as health informatics professionals: a survey in the context of global health informatics education". *International Journal of Medical Informatics*, 74(11-12), pp. 899-907. doi: 10.1016/j.ijmedinf.2005.07.008

Garnerin, P., Bovier, P., Chamot, E., Chastonay, P., Chopard, P., Herrmann, F. and Perneger, T. (2001). "Qualité des soins". *Politique, économie et droit (Bulletin des médecins suisses)*, 82, p. 2020-24.

Gausvik, C., Lautar, A., Miller, L., Pallerla, H. and Schlaudecker, J. (2015). “Structured nursing communication on interdisciplinary acute care teams improves perceptions of safety, efficiency, understanding of care plan and teamwork as well as job satisfaction”. *J MultidiscipHealthc*, 8, pp. 33-37. doi: 10.2147/JMDH.S72623

Ghali, W. A., Pincus, H. A., Southern, D. A., Brien, S. E., Romano, P. S., Burnand, B., [...] and Üstün, T. B. (2013). “ICD-11 for quality and safety: overview of the WHO Quality and Safety Topic Advisory Group”. *International Journal for Quality in Health Care: Journal of the International Society for Quality in Health Care / ISQua*, 25(6), pp. 621-25. doi: dx.doi.org/10.1093/intqhc/mzt074

Gupta, N. and Dal Poz, M. R. (2009). “Assessment of human resources for health using cross-national comparison of facility surveys in six countries”. *Human Resources for Health*, 7:22. doi: 10.1186/1478-4491-7-22

Hadley, F., Graham, K. and Flannery, M. (2004). *Assess Use, Compliance and Efficacy Nursing Workload Measurement Tools*. Retrieved from [http://cna-aiic.ca/-/media/cna/page-content/pdf-fr/workload\\_measurement\\_tools\\_e.pdf](http://cna-aiic.ca/-/media/cna/page-content/pdf-fr/workload_measurement_tools_e.pdf)

Hall, B., Hamilton, B. H., Richards, K., Bilimoria, K. Y., Cohen, M. E. and Ko, C. Y. (2009). “Does Surgical Quality Improve in the American College of Surgeons National Surgical Quality Improvement Program”. *Annals of Surgery*, 205(3), pp. 363-376; September. doi: 10.1097/SLA.0b013e3181b4148f

Hogston, R. (1997). “Nursing diagnosis and classification systems: a position paper”. *Journal of Advanced Nursing*, 26(3), pp. 496-500. doi: 10.1046/j.1365-2648.1997.t01-8-00999.x

Hughes, R. G. (2008). “Patient safety and quality: An evidence-based handbook for nurses”. (Prepared with support from the Robert Wood Johnson Foundation). AHRQ Publication No. 08-0043. Rockville, MD: Agency for Healthcare Research and Quality; March.

Hyland, P., Davison, G. and Sloan, T. (2003). “Linking team competences to organisational capacities in health care”. *Journal of Health Organization and Management*, 17(3), pp. 150-163. doi: dx.doi.org/10.1108/14777260310480712

Institut de recherche en santé publique. *Renforcer et rendre visible la contribution des infirmières à la qualité des soins dans l'espace francophone: vers une démarche axée sur les meilleures preuves scientifiques*; September 2014; Montreal.

Institute of Medicine (IOM). (2001). “Crossing the Quality Chasm: A New Health System for the 21st Century”. Washington, D.C.: National Academy Press.



- International Council of Nurses (ICN). (2001). *Promoting the value of cost-effectiveness or nursing*. Position statement. Geneva: CII.
- International Council of Nurses (ICN). (2004). *Scope of nursing practice*. Position statement. Geneva: ICN.
- International Council of Nurses (ICN). (2007). *Nurses and primary health care*. Position statement. Geneva: ICN.
- International Council of Nurses (ICN). (2010). "Global issues and trends in nursing education". Geneva: ICN.
- Januel, J. M. (2011). *Développement d'indicateurs de la sécurité des soins (PSI) à partir des bases de données médico-administratives hospitalières*. Rapport final. Série Sources et Méthodes–Ministère du Travail, de l'Emploi et de la Santé. Direction de la recherche, des études, de l'évaluation et des statistiques (DREES), (20). Retrieved from [www.sofgres.org/serieetud93.pdf](http://www.sofgres.org/serieetud93.pdf)
- Januel, J. M. (2015). *De l'intérêt de parler un même langage afin d'atteindre la reconnaissance des soins infirmiers dans les programmes d'amélioration de la qualité des soins*. SIDIIEF: Montreal. Retrieved from <http://www.sidiief.org>.
- Januel, J. M. et al. (2009). *Développement d'indicateurs de la sécurité des soins (PSI) à partir de la base de données médico-administratives hospitalières: évaluation et validation d'une sélection d'indicateurs*. DREES, Ministère de la Santé, France, July. Retrieved from [www.sofgres.org/serieetud93.pdf](http://www.sofgres.org/serieetud93.pdf)
- Januel, J. M., Couris, C. M., Luthi, J. C. et al. (2011). [ICD-10 adaptation of 15 Agency for Healthcare Research and Quality patient safety indicators]. *Revue d'épidémiologie et de santé publique*, 59(5), pp. 341-350.
- Karoly, L. A., Kilburn, M. R. and Cannon, J. S. (2005). "Early Childhood Interventions - Proven Results, Future Promise", *RAND Corporation*, 200 p. Retrieved from <http://www.rand.org/pubs/monographs/MG341.html>
- Kim, T. Y. and Coenen A. (2011). "Toward harmonising WHO International Classifications: a nursing perspective". *Informatics for Health and Social Care*, 36(1), pp. 35-49.
- Kingston, M., Evans, S., Smith, B. and Berry, J. (2004). "Attitudes of doctors and nurses towards incident reporting: a qualitative analysis". *Medical Journal of Australia*, 181(1), pp. 36-39. doi: 10.3109/17538157.2010.534213

Kurtzman, E. T. and Corrigan, J. M. (2007). “Measuring the contribution of nursing to quality, patient safety, and health care outcomes”. *Policy, Politics & Nursing Practice*, 8(1), pp. 20-36. doi: 10.1177/1527154407302115

Lecocq, D. (2014). *Renforcer et rendre visible la contribution des infirmières à la qualité des soins dans l'espace francophone: vers une démarche axée sur les meilleures preuves scientifiques: Revue des systèmes nationaux de mesure de la qualité dans 6 pays francophones: la situation en Belgique*. Study conducted by the FERASI Centre, interuniversity consortium operating out of the Faculty of Nursing at the Université de Montréal (Canada).

Leprohon, J. (2000). *Vers une culture d'amélioration continue: l'univers de l'évaluation de la qualité*. Ordre des infirmières et infirmiers du Québec (OIIQ), Direction de la qualité de l'exercice, 16 p.

Manga, P. and Campbell, T. (1994). “Health human resources substitution: a major area of reform. Towards a more cost-effective health care system”. Queen's–University of Ottawa Economics project. Monograph 94-01. Ottawa: University of Ottawa.

Manojlovich, M. (2010). “Nurse/physician communication through a sensemaking lens: shifting the paradigm to improve patient safety”. *Medical Care*, 48(11), pp. 941-946. doi: 10.1097/MLR.0b013e3181eb31bd

Manser, T. (2009). “Teamwork and patient safety in dynamic domains of healthcare: a review of the literature”. *Acta Anaesthesiologica Scandinavica*, 53(2), pp. 143-151. doi: 10.1111/j.1399-6576.2008.01717.x

Martin, D. R., O'Brien, J. L., Heyworth, J. A. and Meyer, N. R. (2008). “Point counterpoint: the function of contradictions on an interdisciplinary health care team”. *Qualitative Health Research*, 18(3), pp. 369-379. doi: 10.1177/1049732307311119

McDonald, K. M., Romano, P. S., Geppert, J., Davies, S. M., Duncan, B. W., Shojania, K. G. and Hansen, A. (2002). “Measures of patient safety based on hospital administrative data—the patient safety indicators”. Rockville (MD): Agency for Healthcare Research and Quality.

Morgan, D. and Astolfi, R. (2013), “Health Spending Growth at Zero: Which Countries, Which Sectors Are Most Affected?”, OECD Health Working Papers, No. 60, OECD Publishing. p. 158

Müller-Staub, M., Lavin, M. A., Needham, I. and van Achterberg, T. (2007). “Meeting the criteria of a nursing diagnosis classification: Evaluation of ICNP®, ICF, NANDA and ZEPF”. *International Journal of Nursing Studies*, 44(5), pp. 702-713. doi: 10.1016/j.ijnurstu.2006.02.001



Needleman, J., Buerhaus, P., Mattke, S., Stewart, M. and Zelevinsky, K. (2002). “Nurse-staffing levels and the quality of care in hospitals”. *New England Journal of Medicine*, 346(22), pp. 1715-22. doi: 10.1056/NEJMsa012247

O’Brien, J. L., Martin, D. R., Heyworth, J. and Meyer, N. R. (2008). “Negotiating transformational leadership: A key to effective collaboration”. *Nursing & Health Sciences*, 10(2), pp. 137-143. doi: 10.1111/j.1442-2018.2008.00381.x

Olshansky, E. (2010). “In celebration of Florence Nightingale: 2010 as the year of the nurse”. *Journal of Professional Nursing*, 26(4), p. 197. doi: dx.doi.org/10.1016/j.profnurs.2010.06.001

Ordre des infirmières et infirmiers du Québec (OIIQ). (2013). *Le rehaussement de la formation de la relève infirmière: un levier de transformation du système de santé - Une analyse coûts/bénéfices*, June, 48 p.

Organization for Economic Co-operation and Development (OECD) - World Health Organization (WHO). (2003). *VIII: Investing in Health to Reduce Poverty. OECD Journal on Development* 1/2003 (No. 4), pp. 185-201. Retrieved from <http://www.oecd-ilibrary.org/docserver/download/4303311ec011.pdf?expires=1431468552&cid=id&accname=guest&checksum=AACA34FB34A8458565562AA33703735E>

Organization for Economic Co-operation and Development (OECD). (2004). *The OECD Health Project – Towards High-Performing Health Systems*, p. 12.

Organization for Economic Co-operation and Development (OECD). (2004). *The OECD Health Project – Towards High-Performing Health Systems*, Summary report.

Organization for Economic Co-operation and Development. (2008). *The Looming Crisis in the Health Workforce: How Can OECD Countries Respond*. Joint OECD-WHO report; 16.07.2010.

Organization for Economic Co-operation and Development (OECD). (2010). *Health Care Systems: Getting More Value for Money*, OECD Economics Department, Policy Note, No. 2.

Organization for Economic Co-operation and Development (OECD). (2010). *Value for Money in Health Spending: OECD Health Policy Studies*.

Organization for Economic Co-operation and Development (OECD) - World Health Organization (WHO). (2010). *International Migration of Health Workers. Improving International Cooperation to Address the Global Health Workforce Crisis*. Retrieved from [http://www.who.int/hrh/resources/oecd-who\\_policy\\_brief\\_en.pdf](http://www.who.int/hrh/resources/oecd-who_policy_brief_en.pdf)



Organization for Economic Co-operation and Development (OECD). (2011). *Improving Value in Health Care: Measuring Quality. OECD Health Policy Studies*, OECD Publishing, Paris. doi: dx.doi.org/10.1787/9789264094840-fr

Organization for Economic Co-operation and Development (OECD). (2013), *Health at a Glance 2013: OECD Indicators*, OECD Publishing, Paris. doi: dx.doi.org/10.1787/health\_glance-2013-fr

Organization for Economic Co-operation and Development (OECD). (2013). “Strengthening Health Information Infrastructure for Health Care Quality Governance: Good Practices, New Opportunities and Data Privacy Protection Challenges”. *OECD Health Policy Studies*, OECD Publishing, Paris. doi: dx.doi.org/10.1787/9789264193505-en

Organization for Economic Co-operation and Development (OECD). (2013). *What Future for Health Spending?*. OECD, Economics Department Policy Note, No. 19, June.

Öztekin, D. S., Akyolcu, N., Öztekin, I., Kanan, N. and Göksel, O. (2008). “Comparison of complications and procedural activities of pulmonary artery catheter removal by critical care nurses versus medical doctors”. *Nursing in Critical Care*, 13(2), pp. 105-115. doi: 10.1111/j.1478-5153.2007.00266.x

Papastavrou, E., Efstathiou, G., Acaroglu, R., DA, L., Antunes, M. D., Berg, A., [...] and Suhonen, R. (2012). “A seven country comparison of nurses’ perceptions of their professional practice environment”. *Journal of Nursing Management*, 20(2), pp. 236-248. doi: 10.1111/j.1365-2834.2011.01289.x

Pearson, A. (2003). “Multidisciplinary nursing: re thinking role boundaries”. *Journal of Clinical Nursing*, 12(5), pp. 625-629. doi: 10.1046/j.1365-2702.2003.00794.x

Perryman Group (2012). The Economic Benefits of More Fully Utilizing Advanced Practice Registered Nurses in the Provision of Health Care in Texas: An Analysis of Local and Statewide Effects on Business Activity [http://c.ymcdn.com/sites/flanp.site-ym.com/resource/resmgr/articles\\_and\\_research/Perryman-APRN-Utilization-E.pdf](http://c.ymcdn.com/sites/flanp.site-ym.com/resource/resmgr/articles_and_research/Perryman-APRN-Utilization-E.pdf)

Petri, L. (2010). “Concept analysis of interdisciplinary collaboration”. *In Nursing Forum*, 45(2), pp. 73-82. Blackwell Publishing Inc. doi: 10.1111/j.1744-6198.2010.00167.x

Pringle, D. (2004). “Dot: From the editor-in-chief. Quality goes beyond safety: shifting shifts”. *Nursing Leadership*, 17(3), pp. 1-4.

Réseau d’alerte, d’investigation et de surveillance des infections nosocomiales (Raisin). Enquête nationale de prévalence des infections nosocomiales et des traitements anti-infectieux en établissements de santé, France, mai-juin 2012. Résultats. Saint-Maurice: Institut de veille sanitaire; 2013. 181 p.



- Richardson, G., Maynard, A., Cullum, N. and Kindig, D. (1998). "Skill mix changes: substitution or service development?". *Health Policy*, 45(2), pp. 119-132. doi: 10.1016/S0168-8510(98)00038-4
- Richesson, R. L. and Krischer, J. (2007). "Data standards in clinical research: gaps, overlaps, challenges and future directions". *Journal of the American Medical Informatics Association*, 14(6), pp. 687-696. doi: dx.doi.org/10.1197/jamia.M2470
- Riley, P. L., Zuber, A., Vindigni, S. M., Gupta, N., Verani, A., Sunderland, N. L., [...] and Campbell, J. (2012). "Information systems on human resources for health: a global review". *Hum Resour Health*, 10(7), 10-1186. doi: 10.1186/1478-4491-10-7
- Rowin, E. J., Lucier, D., Pauker, S. G., Kumar, S., Chen, J. and Salem, D. N. (2008). "Does error and adverse event reporting by physicians and nurses differ?". *Joint Commission Journal on Quality and Patient Safety*, 34(9), pp. 537-545.
- Rutherford M. (2008). "Standardized nursing language: what does it mean for nursing practice?". *The Online Journal of Issues in Nursing*, 2008; 13(1): 11 p. Retrieved from <http://www.nursingworld.org/MainMenuCategories/ThePracticeofProfessionalNursing/Health-IT/StandardizedNursingLanguage.html#ANA06>
- Secrétariat international des infirmières et infirmiers de l'espace francophone (SIDIIEF). (2011). *University Education for Nurses: A Response to the Challenges Facing Health Systems*. Montreal: SIDIIEF. 52 p.
- Sermeus, W., Aiken, L. H., Van den Heede, K., Rafferty, A. M., Griffiths, P., Moreno-Casbas, M. T., [...] and Zikos, D. (2011). "Nurse forecasting in Europe (RN4CAST): Rationale, design and methodology". *BMC Nursing*, 10(1), 6. doi: 10.1186/1472-6955-10-6
- Simpson, R. L. (2008). "Caring communications: How technology enhances interpersonal relations, part I". *Nursing Administration Quarterly*, 32(1), 70-73. doi: 10.1097/01.NAQ.0000305950.54063.76
- Tang, C. J., Chan, S. W., Zhou, W. T. and Liaw, S. Y. (2013). "Collaboration between hospital physicians and nurses: an integrated literature review". *International Nursing Review*, 60(3), 291-302. doi: 10.1111/inr.12034
- Thibault, C., David, N., O'Brien-Palace, L. L., Vinet, A and Desrosiers, G. (1990). *Workload Measurement Systems in Nursing*. Montreal: Association des hôpitaux du Québec (AHQ), 208 p.
- Thomas, L. and Galla, C. (2013). "Building a culture of safety through team training and engagement". *BMJ QualSaf*, 22(5), pp. 425-434.





- Thomas, M. and Hynes, C. (2009). "The times they are a changin". *Journal of Nursing Management*, 17(5), pp. 523-531.
- Thoroddsen, A., Ehrenberg, A., Sermeus, W. and Saranto, K. (2012). "A survey of nursing documentation, terminologies and standards in European countries". In *NI 2012: Proceedings of the 11th International Congress on Nursing Informatics* (Vol. 2012). American Medical Informatics Association.
- Thoroddsen, A., Saranto, K., Ehrenberg, A. and Sermeus, W. (2009). "Models, standards and structures of nursing documentation in European countries". In *Nursing Informatics*, pp. 327-331. doi: 10.3233/978-1-60750-024-7-327
- Thunjaroenkul, P., Cummings, G. G. and Embleton A. (2009). "Costs Associated with Increased RN Staffing in Acute Care Hospitals: Simulation Exercise". *Nursing Economics*, 27(5), pp. 302-14.
- Tourangeau, A. E., Doran, D. M., Hall, L. M., O'Brien Pallas, L., Pringle, D., Tu, J. V. and Cranley, L. A. (2007). "Impact of hospital nursing care on 30 day mortality for acute medical patients". *Journal of Advanced Nursing*, 57(1), pp. 32-44. doi: 10.1111/j.1365-2648.2006.04084.x
- Turbide, S. (2012). *La sous-utilisation des infirmières coûte cher*. Le Progrès-Dimanche, May 6, pp. 28-29.
- Unruh, L. (2003). "Licensed nurse staffing and adverse events in hospitals". *Medical Care*, 41(1), 142-152.
- Üstün, T. B., Chatterji, S., Kostansjek, N., and Bickenbach, J. (2003). "WHO's ICF and functional status information in health records". *Health Care Financing Review*, 24(3), p. 77.
- Van den Heede, K., Simoens, S., Diya, L., Lesaffre, E., Vleugels, A. and Sermeus, W. (2010). "Increasing nurse staffing levels in Belgian cardiac surgery centres: a cost effective patient safety intervention?". *Journal of Advanced Nursing*, 66(6), pp. 1291-96. doi: 10.1111/j.1365-2648.2010.05307.x
- Vanhook, P. M. (2007). "Cost-utility analysis: a method of quantifying the value of registered nurses". *Online Journal of Issues in Nursing*, 12(3). doi: 10.3912/OJIN.Vol12No03Man05
- West African Health Organization (WAHO). (2008). *Strategic Plan 2009-2013*.
- Westra, B. L., Delaney, C. W., Konicek, D. and Keenan, G. (2008). "Nursing standards to support the electronic health record". *Nursing Outlook*, 56(5), pp. 258-266. doi: 10.1016/j.outlook.2008.06.005
- Wilson, B., Bekker, H. L. and Fylan, F. (2008). "Reporting of Clinical Adverse Events Scale: a measure of doctor and nurse attitudes to adverse event reporting". *Quality and Safety in Health Care*, 17(5), pp. 364-367. doi: 10.1136/qshc.2006.021691
- World Health Organization (WHO). (2001). *The World Health Report 2000 - Health Systems: Improving Performance*.





World Health Organization (WHO). (2008). *The World Health Report. Primary Health Care – Now More than Ever*. Geneva: WHO.

World Health Organization (WHO) — World Alliance for Patient Safety. (2005). *Global Patient Safety Challenge*. Geneva: WHO.

Zhan, C. and Miller, M. R. (2003). “Administrative data based patient safety research: a critical review”. *Quality and Safety in Health Care*, 12(suppl 2), pp. ii58-ii63. doi: 10.1136/qhc.12.suppl\_2.ii58

Zrelak, P. A., Utter, G. H., Sadeghi, B., Cuny, J., Baron, R. and Romano, P. S. (2012). “Using the Agency for Healthcare Research and Quality patient safety indicators for targeting nursing quality improvement”. *Journal of Nursing Care Quality*, 27(2), pp. 99-108. doi: 10.1097/NCQ.0b013e318237e0e3

#### Web pages / Documents on the Internet

[http://51955210.swh.strato-hosting.eu/wp\\_anfide/international/cii-conseil-international-des-infirmieres/](http://51955210.swh.strato-hosting.eu/wp_anfide/international/cii-conseil-international-des-infirmieres/)

[http://www.cclinparisnord.org/REGION/NPC/USAGER010310/GDR\\_Perrin.pdf](http://www.cclinparisnord.org/REGION/NPC/USAGER010310/GDR_Perrin.pdf)

[http://ec.europa.eu/europeaid/evaluation/methodology/tools/too\\_cef\\_def\\_en.htm](http://ec.europa.eu/europeaid/evaluation/methodology/tools/too_cef_def_en.htm)

<http://site.acsnsqip.org/program-specifics/data-collection-analysis-and-reporting/>

<http://www.actusoins.com/20995/reforme-1ere-annee-medecine-rate-les-ide.html>

<http://www.globalpatientsafetyalerts.com/english/toolsresources/pages/international-classification-for-patient-safety.aspx>

<http://www.infirmiers.com/profession-infirmiere/legislation/exercice-pratique-avancee-adopte-deputes.html>

<https://www.infoway-inforoute.ca/en/>

<http://www.nursingworld.org/npii/terminologies.htm>

<http://www.patientsafetyinstitute.ca/english/toolsresources/governancepatientsafety/pages/whatisqualityandpatientsafety.aspx>

<http://www.santepublique.eu/qualite-des-soins-definition/>

<http://www.who.int/classifications/icd/revision/icd11faq/en/>

[http://www.who.int/patientsafety/information\\_centre/documents/ps\\_research\\_brochure\\_en.pdf?ua=1](http://www.who.int/patientsafety/information_centre/documents/ps_research_brochure_en.pdf?ua=1)

[http://www.who.int/whr/2000/media\\_centre/press\\_release/en/](http://www.who.int/whr/2000/media_centre/press_release/en/)





