DELIVERING QUALITY, SERVING COMMUNITIES:

NURSES LEADING CARE INNOVATIONS

INTERNATIONAL NURSES DAY 2009

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Dear Colleagues,

Nurses worldwide are engaged in innovative activities on a daily basis; activities motivated by the desire to improve patient care outcomes and the need to reduce costs to the health system. Many of these initiatives have resulted in significant improvements in the health of patients, populations and health systems. However, the nursing contribution to health care innovation is seldom recognised, publicised or shared among nursing and the wider public. That is why ICN has chosen to shine the spotlight on nursing innovation for the 2009 International Nurses Day kit.

We live in a world that is constantly changing. Such is our reality, our challenge and our opportunity − our opportunity, as nurses, to make a significant difference to the world's people. We have never been in a better position to do so.

We are heading up specialized clinics in such areas as diabetes, mental health and rheumatology. And we are fast becoming the first and primary point of contact for health services, often for people who find it difficult to access the mainstream.

Expert knowledge and the nursing research that underpins this knowledge are at the heart of many of our new roles, as well as the basis for traditional nursing care. But it is the combination of innovation and vitality that allows our work to take flight.

Novel solutions by nurses represent a vital element in efforts to address current and future global health challenges – challenges such as aging populations, HIV/AIDS, TB, malaria, an increase in non-communicable diseases, poverty, inadequate resources and workforce shortages. The need for innovative solutions has never been greater as health care environments globally struggle to provide equitable, safe and effective health services, while at the same time containing costs.

Within today's context of scarce resources, continuous change and expanding knowledge, innovation is truly an expectation. The business sector and governments are among those investing heavily in this area. We must invest too − to advance our practice, and improve care and outcomes.

We hope this IND kit will assist you in promoting and sharing nursing innovations. Best wishes for success and enjoyment on International Nurses Day 2009!.

Sincerely,

Hiroko Minami   David C. Benton
President   Chief Executive Officer

Foreword

Innovation is not a new concept to the nursing profession. Nurses worldwide are engaged in innovative activities on a daily basis; activities motivated by the desire to improve patient care outcomes and the need to reduce costs to the health system. Many of these initiatives have resulted in significant improvements in the health of patients, populations and health systems. However, nursing's contribution to health care innovation is seldom recognised, publicised or shared amongst nursing and the wider public.

Nursing innovation is a fundamental source of progress for health care systems around the world. Nurses work in all settings with all types of patients, families, communities, health care personnel and personnel in other sectors. As such, we are critically positioned to provide creative and innovative solutions that make a real difference to the day-to-day lives of our patients, organisations, communities and our profession.

Novel solutions by nurses also represent a vital element in efforts to address current and future global health challenges - challenges such as aging populations, HIV/AIDS, tuberculosis, malaria, an increase in non-communicable diseases, poverty, inadequate resources and workforce shortages. The need for innovative solutions has never been greater as health care environments globally struggle to provide equitable, safe and effective health services while, at the same time, containing costs.

This International Nurses Day Kit celebrates the role of nursing in health care innovation. Through this and other initiatives, ICN wishes to ensure innovative nurse-led projects are promoted and shared, and that nurses are supported in their efforts to provide innovative solutions to the challenges and demands of health care provision.

What is 'Innovation'?

Innovation is the process of developing new approaches, technologies and ways of working. It can apply to tools and technologies and processes, or to the way an organisation or an individual behaves, works or acts. Innovation starts with a good idea, but it is much more than that. It also refers to the process of turning that good idea into something that can be used, something that is implementable and achievable, and hopefully, will bring about better health promotion, disease prevention and better patient care.

> *Creativity is thinking up new things. Innovation is doing new things.*
> *Theodore Levitt, economist*
> *(www.quotesand sayings.com)*

Innovation sometimes comes in the form of a major breakthrough with far-reaching consequences. Many of the great inventions of history fall into this category. However, innovations can also be incremental rather than radical (Afuah 1998). Incremental innovations involve a constant process of refinement, review and renewal to constantly improve the outcome or the product. Although they do not provide the same 'big bang' as a radical approach, they build on existing competencies and, over time, may achieve an equally positive outcome.

Innovations may be technical, involving the development of a new or improved product or process, or administrative, which involves organisational structures and administrative processes (Afuah 1998). Each may exist without the other. Conversely,each may depend on or require a corresponding innovation in the other domain in order to support or enable the innovations implementation.

> *He that will not apply new remedies must expect new evils, for time is the greatest innovator*
> *Francis Bacon (Cohen, undated)*

Innovation involves branching out into new areas and trying new things. As such, the results of an innovation do not always yield immediate, positive results. Instead, the path to improvement may involve a series of trials, and possibly a series of errors. The literature on innovation, as well as commentary from innovators in business and industry across the world, is littered with examples of failures. Sometimes these are the necessary pre-conditions to success. For the purposes of this paper, however, innovation is defined as the generation of new

ideas, or the application of existing ideas to a new situation, resulting in improvements to a service, programme, structure, product, and/or system.

Why innovate?

Innovation is central to maintaining and improving quality of care. And nurses innovate to find new information and better ways of promoting health, preventing disease and better ways of care and cure. One of the earliest examples of innovations is Nightingale's landmark study of maternal morbidity from puerperal fever following childbirth. She observed the high number of deaths in maternity wards and asked the question, "Do more women die after giving birth in a hospital rather than at home? And if so, why?" Her study proved that the death rate was higher for women who gave birth in hospitals; her innovation resulted in changes to the services that resulted in the saving of women's lives. (McDonald 2005).

The health care system operates in an environment of constant change and challenge. Changes in demographics and the burden of disease continue to present new demands on the health system, placed as is on the front line of addressing the global challenges of disease and delivering on the Millennium Development Goals (Affara 2007). These increasing demands do not occur in isolation. Growing demands on health services in turn create increasing pressures to do more with fewer resources. In one evaluation, researchers calculated that the case management of persons with complex conditions by nurse practitioners (working in conjunction with physicians) could deliver potential savings of $103,000 (USD) a year in hospital costs per nursing practitioner (Patrick *et al*. 2006 p.520). These pressures are likely to be exacerbated by the current economic downturn, as governments balance competing demands for the available funds and continue to seek the best value for a limited supply of dollars. Cost effectiveness, then, will continue to be a significant driver of innovation (Amo 2006).

Global workforce shortages also provide another driver for innovation. While innovation is often thought of in terms of high cost, high tech solutions, the need for innovation is even more pressing in the developing world. As Buchan and McCaffrey (2007) point out in their work for The Capacity Project, 'skill shortages, geographic and sector maldistribution, poor morale, inadequate resources, growing demand for services due

> *Every system is designed to achieve exactly the results it gets...If you don't like the results, change the system.*
>
> Don Berwick
> President & CEO
> Institute of Healthcare Improvement
> (Dwyer and Leggat, 2004)

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to HIV/AIDS and other factors' remain unresolved challenges in Africa as well as other parts of the developing world. These challenges are unlikely to be met without developing new ways to tackle the problems and provide the care.

Innovations often arise out of necessity in order to address a need or a gap in service or technology. For example, nurses know that caring for pre-term infants in incubators is expensive, and unsafe if not properly done. Incubators are also not readily available in a number of countries. Kangaroo care was developed in Colombia by an American nurse as an easy, economical, safe and socially acceptable alternative. It involves placing healthy, pre-term infants skin-to-skin between their mothers' breasts. Its application in Zimbabwe showed Kangaroo care reduces neonatal mortality in developing countries. This new idea developed by nurses in one country, eventually benefited babies on the other side of the world (Kambarami et. al. 1999).

In South Africa, nurses use their mobile phones to support people living with HIV/AIDS and to improve adherence to antiretroviral therapy (ARVs). Similarly, nurses in Iceland provided telephone-based nursing intervention and reduced fatigue and distress for mothers who received up to five telephone calls over two months from a skilled nurse counsellor. These examples demonstrate how innovation provides a way to meet local challenges and deliver on important health priorities.

Figure 1: About the ICN Innovations Database

Nurses worldwide are engaged in innovative activities on a daily basis; activities motivated by the desire to improve patient care outcomes and the need to reduce costs to the health system. Many of these initiatives have resulted in significant improvements in the health of patients, populations and health systems. However, nursing's contribution to health care innovation is seldom recognised, publicised or shared amongst nursing and the wider public. The ICN Innovations Database aims to ensure innovative nurse-led projects are promoted and shared.

Purpose
The goal of the ICN Innovations Database is to be a well-utilised resource amongst a wide range of nurses, other health care professionals, employers, government, industry and the general public. The ICN Innovations Database is a long term initiative that has been created to:

- Foster nursing innovation
- Promote the dissemination of nursing innovations to a wider audience
- Recognise the contribution nurses make to health systems
- Provide a searchable inventory
- Provide an environment for knowledge sharing

The ICN Innovations Database is being developed over time. Initially the database will include broad innovation search categories, which will be further refined according to user feedback.

Innovation Submission Criteria

Anyone with a nursing innovation is encouraged to submit it for entry in the database. The innovation may be provided by an individual, group or organisation. We encourage the submission of all innovations whether they are simple or complex, proposed or already implemented. In order to be included in the database, an innovation must meet the following criteria:

- The innovation has resulted in improvements in a service, programme, structure, product, and/or system
- For innovations not yet implemented, the innovation has the potential to generate improvements in a service, programme, structure, product, and/or system
- The innovation must be current (generated between 2003-2009)
- The innovation has had the significant involvement and leadership of nurses from inception to development and implementation
- The innovation has not been funded or support by a manufacturer of tobacco or alcohol products

To read more about the database, search or add an innovation, go to http://www.icn.ch/innovations/about.htm

Innovation in clinical practices occurs across the continuum of care. Advances in medical equipment and technology have formed a significant driver in changes in clinical practice, demanding new skills and techniques as well as new ways of working. Similarly, changes to the availability and effectiveness of drug-based treatments have also brought about significant shifts in clinical practice. Just as important, however, are innovations to the *way* we approach care, through new collaborative partnerships with other organisations and health care providers, communities and community groups, and with consumers of health services, their families and carers.

Innovations in health promotion and disease prevention

The realm of disease prevention and health promotion provides a range of examples of the influence of nursing in improving population health status. Nurses are uniquely positioned to identify risk factors, provide information about how to manage these risks, and promote the benefits of healthier lifestyles, diets and avoid risky behaviours (ICN 2008a & 2008c).

The example provided in this document, describing a study in which 392 different interventions were identified, demonstrates the breadth of activity undertaken by nurses as they seek to help patient manage chronic health conditions and live longer and healthier lives. In another innovative approach in the UK, nurses have implemented a programme for Practical Advice on Childcare for Teenagers (PACT) for young people in an area of high deprivation and

Nursing Innovations in Health Promotion and Disease Prevention

Northern Ireland.
1000 nurses working in areas of social disadvantage in Northern Ireland were surveyed and asked to assess the interventions they had developed to work with disadvantaged women. A total of 392 nursing interventions were identified, the majority of which were health promotion activities addressing issues such as breast and cervical screening, childhood accident prevention, smoking cessation, adolescent suicide, AIDS/HIV awareness and lay health worker programmes, among many others.

Malawi
A team of community health nurses and environmental health officers started a community empowerment process by working with communities to elect village health committees and train them in leadership skills, community mobilisation, communication and management of common health problems. Priority health problems were identified, including diarrhoea, malnutrition and family planning. An action plan was developed, and both internal and external resources mobilised. After one year, the community had a protected source of water supply, almost all families had toilets, a feeding programme was running and diarrhoea was no longer a problem.

(ICN 2008a)

where teenage pregnancy rates are high. The course was developed with involvement of young people, who evaluate it at every stage and inform its further development. The teenagers are provided with a computerised virtual baby for which they have to care. This includes taking the baby into school and waking-up when it wakes through the night. Nurses support young people to consider a wide range of issues such as the impact of teenage pregnancy, divorce, single parenthood and abortion. The project is organised in community settings so those excluded from or not attending school can attend. The title, PACT, also stems from the fact that the young people who attend make a pact to attend all sessions, complete all tasks set and provide evidence (written, dictated, or pictorial) of their work. Impact evaluation of the programme shows change in attitudes toward early pregnancy and higher level of interest in personal future achievement by participants. As well, participants have reported an increase in their self esteem and confidence to voice their opinions (submitted by M Brok, ICN Innovations Database, www.icn.ch/innovations).

In Denver, Colorado (USA), the Nurse-Family Partnership (NFP) programme was developed to support low income, first time mothers during pregnancy and in the first two years of the child's life. Three separate randomised controlled trials have found lasting improvements in child health and other social indicators for programme participants as a result of this initiative. These include better pregnancy outcomes, increased intervals between first and second births as well as reductions in child injuries and child abuse. The programme has also been associated with enduring gains for both mothers and children, and cost savings to government (AHRQ 2008a).

Nursing Innovation in Primary Health Care

Sustainable Farm Families, Australia

The project has undertaken educational programmes and physical assessments of dairy farmers and their families over a range of locations in rural Victoria, as well as providing referrals and support. This project stemmed from recognition that local farmers were ageing, working harder and longer and experiencing higher levels of injury, suicide and morbidity than the general Australian population.

Project leader and nurse, the local health service's Community Services Director, says evaluation to date has indicated some significant changes in attitudes and behaviour to personal health and safety, evidenced through improved cholesterol levels and body mass index, increased health knowledge and better use of local GP and primary health services.

The project was a collaboration between the health service, researchers and a range of dairy industry and farming bodies, as well as 321 farmer families. In 2007 it gained federal government support to extend the programme to other rural and remote communities across Australia (Western District Health Service).

Innovations in primary and community health care

Nurses figure prominently in primary health care delivery and development. The theme of International Nurses Day 2008, *Delivering Quality, Servicing Communities: Nurses Leading Primary Health Care* celebrated this tradition, noting the long standing concern of nurses for the broader determinants of health including education, income, gender and social environment.

Since the early years of the primary health care (PHC) and Health for All (HFA) movement, ICN has provided global leadership to bring about a shift in nursing education, practice and research towards primary health care.

A key component of PHC is the concept of community development. Providing 80% of primary health care (Hughes 2006), nurses are uniquely positioned to drive innovation in this field. As nurses work closely with communities, their role in community participation and community action for health is crucial for healthy communities and sustainable development.

Nurses continue to innovate in PHC. For example the Tirawhiti Innovative Nursing Team (TINT) project, which is an entirely nurse led project in a deprived area of New Zealand, provides health assessment, follow-up, teen-parent counselling, case management and outreach services to deprived communities. Qualitative feedback from all involved shows that TINT is making a difference. Morbidity rates and decrease in preventable admission rates are being monitored as outcome indicators (submitted by D Williams, ICN Innovations Database www.icn.ch/innovations).

Similarly Ghanaian trained nurses, who were moved from fixed-location clinics to village residences built by the community, provide door-to-door service-delivery in the community. They provide ambulatory care and visits to all houses in the community for health education, follow-up and diagnosis. The project provides them with a motorbike for community liaison work and they are responsible for immunisations and outreach services. Evaluation in the first five years of project implementation showed the nurses operating in the community outreach site achieved reductions in child mortality rates through improved treatment of acute respiratory infections, malaria and diarrhoea and through improved childhood vaccination.

In the USA, nurse specialists use telephones to provide follow-up for infants with lung disease in rural areas. The programme targets families living in rural areas who often find it difficult to repeatedly travel to a distant medical centre for necessary follow-up care. A randomised control trial found that the programme, believed to be the first application of telephone follow-up care for an infant population, delivers similar developmental and health outcomes as traditional models of care, suggesting that the programme successfully enhanced access without impacting on quality (AHRQ 2008b).

CHAPTER 3

Innovations in Management, Policy and Education

Workforce innovation

The availability of health care workers is a worldwide issue. Skill shortages are evident across the world, and the distribution of available workers is uneven.

One response to these pressures has been to change the way that nurses work to ensure that the best use is made of the available skills. New nursing roles, in which nurses develop new approaches to care to take on roles formerly the domain of other health professionals, have proliferated and have been cited as numbering at least 3000 (Read *et al.*1999 cited in Spilsbury & Meyer 2001).

For example, advanced practice nurses including nurse practitioners, have come to play an important role in health care delivery since their inception in the 1960s, driven by a number of factors including shortages of health professionals in rural and remote areas and efforts to contain costs. While research is so far inconclusive in regard to long-term cost effectiveness, there is evidence to demonstrate that these models can provide an effective means to provide good quality patient care (Buchan & Calman 2005).

Workforce innovations — many of which involve nurses in either their development or implementation — continue to play an important part in health care policy and development. Some recent examples include:

- The implementation of community health and family planning services in Ghana using specially trained nurses relocated to villages to provide

International Council of Nurses: Leadership in Innovation

Wellness Centres
In sub-Saharan Africa, ICN and the Stephen Lewis Foundation are collaborating with national nursing associations and Becton, Dickinson and Company to provide Wellness Centres for health care workers and their families. The goal is to provide the necessary funding and material "to sustain a healthy, motivated and productive health care workforce, leading to a strengthened health care delivery system" (ICN 2006).

The Wellness Centers offer a range of services, including testing, counselling and treatment for HIV and TB; antenatal services, including Prevention of Mother to Child Transmission (PMTC); stress management; post exposure prophylaxis; screening for chronic conditions and a training and resource/knowledge center for continuous professional development. The aim is to provide care for health care workers who, in turn, will be able to better care for their patients and communities.

'doorstop' services to underserved rural populations (Pence et al. 2005).

- Malawi's Ministry of Health (MOH) has supported a range of initiatives to retain nurse tutors. The MOH instituted a salary supplement scheme in 1997 with funding from the Interchurch Organization for Development Cooperation. This incentive programme has its strengths and weaknesses, but has ultimately been deemed successful in attracting and retaining nurse tutors (Buchan & McCaffery 2007).

- In the Netherlands, nurse-led approaches to diabetes management have shown positive outcomes. Care of outpatients with type 2 diabetes was shifted from interns to nurse specialists and from outpatient clinics to general practice. This was achieved with no negative impacts on quality of care, and the nurse specialist model also showed improvements in patients' glycaemic control (Vrijhoef *et al.* 2001).

- Nursing roles have developed into many areas of practice and roles in the United Kingdom. For example, advanced nurse practitioners (ANPs) have taken the role of senior house officers in obstetrics and gynaecology.[1] A study of the impact of this innovation found lasting benefits in terms of better communication and multidisciplinary working, and the development of an informal referral system that allows patients to be seen more quickly and appropriately, without any ill-effects on patient care (Easton *et al*. 2004).

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[1] without changing the ability to prescribe.

Innovative approaches to education and development

Approaches to education have also undergone significant changes in recent decades, moving from a focus on the transfer of knowledge and skills to a competencies based approach with a greater focus on transferable capabilities and decision-making.

Advances in imaging and communication technologies have also resulted in new models for the delivery of education, particularly in relation to ongoing professional development. Some examples of the way these new technologies can be used for nurse education are:

- A web-based, three-course sequence of assessment, analysis, planning and intervention for nurses in the community in the USA called 'Community as Partner'. The first course is focused on community assessment and analysis; the second on programme planning; and the third on evaluation. The courses have been offered since 1998 and were originally developed for graduate nurse practitioner and midwifery students in a nursing master's programme. Following their positive evaluation there are now plans to revise the courses for use by all levels of learners and to expand the audience beyond nursing (submitted by E Anderson, ICN Innovations Database, www.icn.ch/innovations).

- A 'Second Life' for nurse training. In the United Kingdom, the 'virtual world' programme 'Second Life' is being developed to help enhance student nurses' clinical skills. Glasgow Caledonian University has created a 'Second Life' island where the University's clinical skills laboratory is recreated. Here, student nurses can test their knowledge and skills in a virtual world (Tweedle 2008).

International Council of Nurses: Leadership in Innovation

Leadership for Change (LFC)
Leadership for Change is an action-learning programme to develop nurses as effective leaders and managers in a constantly changing health environment. Successful leadership and management development is more than acquiring new knowledge – it involves developing the attitudes, skills and behaviours that differentiate effective leaders and managers. This highly successful 'learning by doing' programme is implemented over enough time – usually two years – to allow for leadership development through 'hands on' experience.

LFC focuses on enhancing effectiveness in:

- Health planning and policy development

- Leadership and management in nursing and health services

- Developing quality cost effective nursing services

- Preparing future managers and leaders, nurses and non-nurses

- Sustaining development

- Contributing within the broader health and management teams

- Influencing curricula changes

- Networking nationally, regionally and internationally

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- Veterans Health Administration (VHA) Nurse Manager Core Curriculum Resource Tool (USA), a user-friendly electronic resource tool developed in 2003 to support leadership development at the nurse manager level. It provides a framework for:

  (a) acquiring knowledge and skills in preparation for a nurse manager role and/or

  (b) providing reference materials for both new and seasoned nurse managers to either refresh or acquire new skills.

This electronic resource tool can be used independently, in conjunction with an orientation plan for the nurse manager role by their mentor, as a resource to update current knowledge or cite particular references when dealing with particular topics, for performance improvement, or simply as an option to file/store continuing educational materials for self-development. It enables prospective and experienced nurse managers to assess their learning needs, apply knowledge within work units and organisations and maintain a high level competency as a nurse manager in VHA. It is also used for succession planning by facilities as a formal developmental programme to educate aspiring nurse managers (submitted by L Weiss, ICN Innovations Database, www.icn.ch/innovations).

Another example of an educational innovation is the LeaRN CRNE Readiness Test supported by the Canadian Nurses Association. The online test simulates the Canadian Registered Nurse Examination (CRNE). The tool assists internationally educated nurses to meet registration requirements and to integrate into the Canadian health care system. The test includes 100 questions from previous CRNEs. Benefits of the LeaRN CRNE Readiness Test include:

- worldwide accessibility;
- it allows nurses to assess their readiness to take the CRNE even before coming to Canada; and
- it provides test takers with experience with real CRNE questions that have been matched for level of difficulty with the CRNE (submitted by J Barry, ICN Innovations Database, www.icn.ch/innovations).

However, innovation does not need to be 'high-tech' to have a high impact. The ICN Mobile Libraries provide an example of how an innovative approach to a long-standing problem can make a great difference. These mobile libraries provide vital access to reference material for health workers across the world, where there would otherwise be none. Further information about this important initiative is provided in Figure 2.

Figure 2: ICN Mobile Library: Mobile books for nursing and health

Nurses deliver more than 80% of health care in developing countries. These nurses are often working in remote clinics, with poor or no access to current health care information. Yet everyday these nurses are called upon to care for people with new diseases, such as HIV/Aids and to treat those suffering from re-emerging ones, including TB and malaria. They must also respond to the full span of a population's normal health care needs - immunization, health promotion, childbirth, care of the injured, the elderly and the dying.

But too often the sources for information these nurses have are dangerously out of date. The reference materials may not address the new health problems nor have the most recent, best practice information on prevention and treatment. Even nurse educators may be working from old textbooks, recommending practices that research has now proved to be ineffective and in some cases harmful.

Or, the right information may simply be inaccessible - preciously stored in libraries and other institutions, which often do not have the resources to make it available to nurses working 'in the field'. Too frequently up-to-date health reference works may be so treasured that they are stored away under lock and key.

The ICN/MSD Nursing Mobile Library, housed in a transportable trunk resilient to moisture, insects and hard knocks is dedicated to closing the gap between the desperate need for nursing information and its availability. This unique initiative delivers knowledge to the field, providing a key resource and tool for the main health workers in developing countries.

It Takes a Team
An extraordinary team of industry and nursing partners has mobilised to achieve the ICN vision of a Mobile Library. While ICN coordinates the entire project, including sourcing material, funds and designing the support programme, others team members have made key contributions.

Merck (MSD) was first on board, delivering funding for the distribution of 20 Nursing Mobile Libraries in Kenya, Zimbabwe and Botswana and donating multiple copies of the renowned Merck Manual for the libraries.
Elsevier Science joined in with the offer to handle the packing and shipping of the libraries, ensuring their safe arrival at ICN member nursing associations in targeted countries.
Nursing organisations, including schools of nursing, national nursing associations and foundations, have also taken up the project in support of their colleagues and profession, by committing the $2500 required to stock, ship and manage each Mobile Library unit.
Nurses on the ground in the receiving countries have taken on the task of distribution, maintenance and training for support of the library in the field.
Ministries of health and health related NGOs in receiving countries assist in moving the libraries units out from the capital to designated sites in the field.

CHAPTER 4

Making Change Happen –

From Innovation to Practice

Once innovation has been conceived or developed, the process of introducing it into practice begins. The two do not follow as a matter of course. There are a number of complex factors which will influence whether an innovation translates into a change in practice; factors which include personal characteristics and motivations of those involved and the cultural and organisational environment into which the innovation will be introduced.

Perhaps the most influential text on this subject is Rogers' Diffusion of Innovations, which provides a comprehensive overview of the introduction of innovation into practice, and is widely quoted by subsequent authors. Rogers identified that there are a number of stages in the diffusion process: knowledge, persuasion, decision, implementation and confirmation. These stages describe the process which begins with the involved parties becoming aware of the innovation, and then forming a view about it. This leads to the next stage in which a decision is made about whether it should be pursued. Next, the innovation is implemented and experimented with. Finally, in the confirmation stage, the new method becomes part of daily activity or practice, replacing the former approach (Rogers 2003; Van der Weide & Smits 2004).

Not all innovations will proceed to implementation, however. There are a number of factors to be considered in making the decision about whether to proceed from innovation to

> *Results! Why, man, I have gotten a lot of results. I know several thousand things that won't work.*
> *Thomas Edison*

implementation. Some key questions to be considered in making this decision are set out in the very useful guide produced by the Agency for Healthcare Research and Quality, US Department of Health and Human Services, Will it Work Here? A Decision-Maker's Guide to Adopting Innovations (Brach et al. 2008), as set out in Figure 3.

Figure 3: Will It Work Here?

Does the innovation fit? What is the innovation?
Does it further our goals?
Is it compatible with our organisation?

Should we do it here? What are the potential benefits?
What are the potential costs?
Can we build a business case?
What are the risks?

Can we do it here? Are we ready for this change?
What changes will we have to make?
Do we have the ingredients for success?

How will we do it here? How will we measure the impact of the innovation?
Can we try the innovation first?
How will we implement the innovation?

Excerpt taken from *Will It Work Here?*
A Decision-Maker's Guide to Adopting Innovations
(Brach *et al.* 2008)

Adopting innovation, dissemination and diffusion

The process by which innovations go from creation or development to becoming part of everyday practice involves both 'dissemination' and 'diffusion'. Dissemination refers to the planned, formal communication of information about the innovation, usually through formal channels such as organisational hierarchies. Diffusion is a more informal process, by which ideas become adopted through more informal, decentralised means. It refers to the more organic process of a good idea 'catching on'. Both processes play an important role (see Figure 4).

Figure 4: Conceptual model for considering the determinants of diffusion, dissemination and sustainability of innovations (Greenhalgh *et al.* 2004)
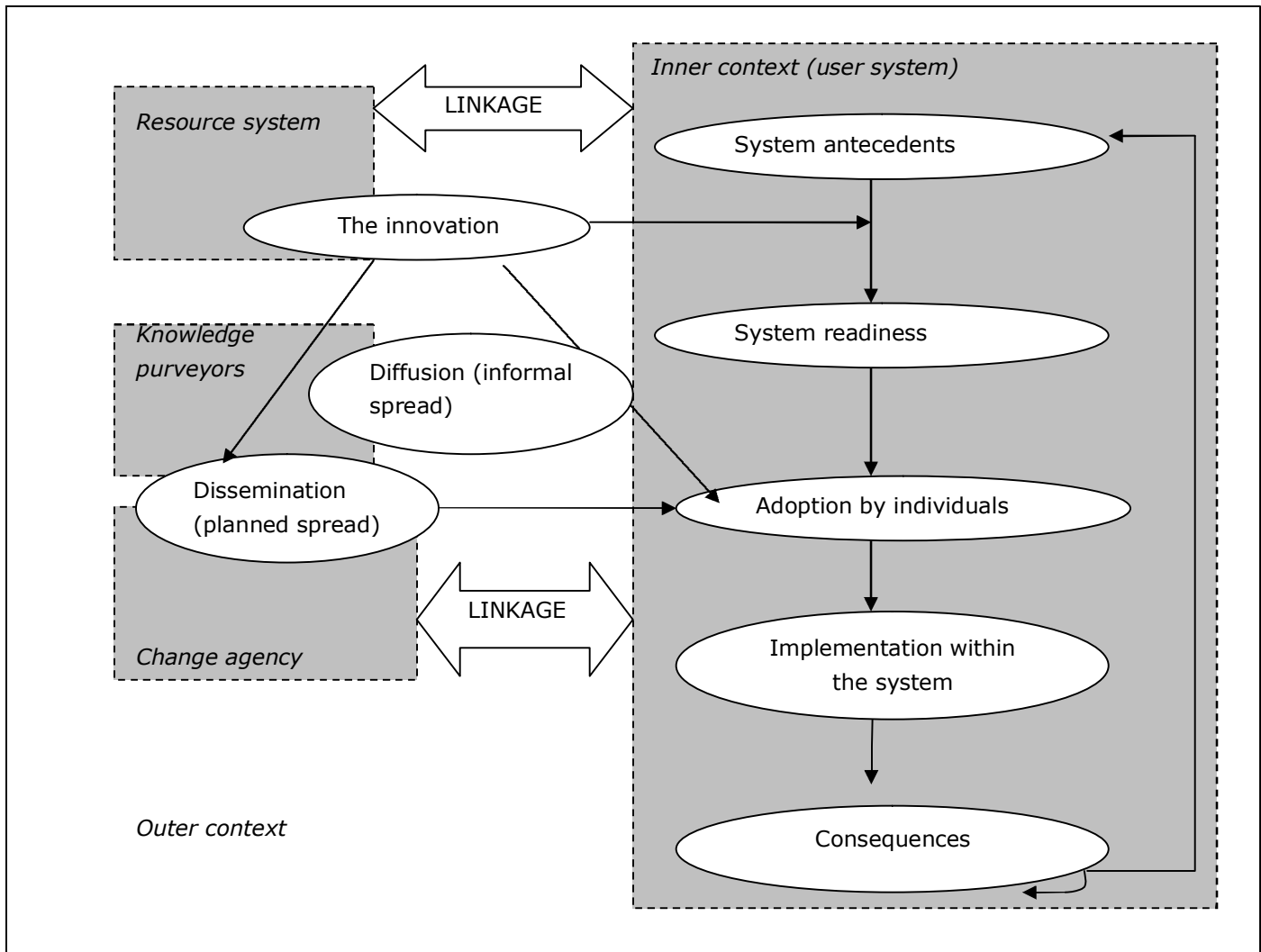
Taken with permission from "How to spread good ideas, April 2004, p. 27, prepared by Trisha Greenhalg, et al.

Factors affecting diffusion

There are a number of factors which affect diffusion. The innovation itself, both in its form and intention, will have certain characteristics which will predispose it, or otherwise, to successful diffusion. Contextual factors are also important. The nature of the system or working environment has a crucial impact on whether innovation will be successfully fostered. Similarly, the individuals who participate in and comprise the health care system will play different and various roles in diffusion innovation.

What makes an innovation 'stick'?

Most authors refer to Roger's Theory of Diffusion (Rogers 2003) in discussing the qualities inherent in an innovation that will affect the likelihood that the innovation will come to be adopted into practice. The qualities most commonly quoted are

- *Relative advantage,* or the extent to which the innovation is an improvement on the status quo;
- *Compatibility*, or the extent to which the innovation fits in with the existing organisation or approach;
- *Complexity*, or rather simplicity – something that is simple to apply and use will be more easily adopted;
- *Trailability*, or the ability for an innovation to be tested or trialled by potential users;
- *Observability*, or the ease with which the potential users will be able to see the results or outcomes of the innovation; and
- *Reinvention,* or the extent to which the innovation can be 'tweaked' to suit specific environments, circumstances or requirements (Greenhalgh *et al.* 2005).

Following their comprehensive literature review of innovation, published in *Diffusion on Innovation in Health Service Organisations: A Systematic Literature Review* (2005), Trisha Greenhalgh and her colleagues developed a more comprehensive, though not inconsistent, list of key attributes of innovation that will influence their successful adoption, expanding the list to include:

- Fuzzy boundaries
- Risk
- Task issues
- Nature of knowledge required to use it
- Augmentation/support

Innovation in Clinical Practice: Treatment and prevention of HIV/AIDS

Papua New Guinea
A nurse-led primary health centre delivers services in a remote area with a high rate of HIV and AIDS. The nurses identified key local stakeholders, including youth and women's groups and community leaders, in 14 villages to increase awareness about HIV/AIDS. They used short-wave radio services, community-based outdoors remote broadcasting systems and local newspapers to deliver information about health and health services, as well as offering remote clinics in each village.

The centre also conducts workshops on HIV and AIDS and works with local people on prevention and other primary health care topics such as diabetes, hypertension, prenatal care and immunisation. Following one of the workshops, 365 people came to the health centre for HIV testing. Any who tested positive were referred on to the hospital for counselling and treatment.

It is important to recognise, however, that simply designing an innovation that meets all these criteria will not guarantee its adoption or success. As the authors go on to note:

'the attributes are neither stable features of the innovation nor sure determinants of their adoption or assimilation. Rather, it is the interaction between the innovation, the intended adopter(s) and a particular context that determines the adoption rate'. (Greenhalgh *et al.* 2005 p.8)

Innovative people – groups and individuals

Even an innovation of perfect design and applicability will go nowhere without people to make it happen. The adoption of an innovation will be influenced by the character and personality of the individuals involved, the roles they play in their social groups, the norms and values they share, and the way in which they communicate with each other.

Individuals adopting innovation

Studies in agricultural innovation have found that the process of adoption follows an 'S-curve', which describes the process by which adoption progresses – first with a few, then a few more, followed by rapid up-take as others see its benefits (Cain & Mittman 2002).

> *'Innovation has to permeate an organisation, be owned by everyone…'*
> Rosabeth Moss (Kanter 1997)

One explanation offered for this is individuals' different attitudes to innovation. Rogers divides technology adopters into five main groups: 'innovators', 'early adopters', 'early majority', 'later majority' and 'laggards' (Rogers 2003). However, this simple classification has been criticised in subsequent work as being 'stereotypical and value-laden', as well as an inadequate representation of the complexity of interacting factors that influence the take-up of innovation (Greenhalgh *et al.* 2004 p.15).

The propensity for individuals to adopt innovations is influenced by a range of personality traits including intellectual ability, tolerance for ambiguity, motivation, values and learning style (Greenhalgh *et al.* 2004). It will also be influenced by how meaningful the innovation is to the individual, the process by which the decision to innovate is made, and the nature of the individual's concerns about the innovation, and how they are addressed before, during and after adoption. Greenhalgh's literature review suggests that provision of effective information and feedback at all these stages will therefore play an important role in whether or not an innovation will be successfully adopted.

Communication and influence

Different people communicate and learn in different ways. Similarly, different forms of communication and influence have different strengths and weaknesses.

The evidence suggests that while mass media, publications and other generalised communications can provide a good and cost-effective means of informing people and creating an awareness of an innovation (Greenhalgh *et al.* 2004; Cain & Mittman 2002), interpersonal approaches through professional or personal social networks will be more influencial in persuading people to actually adopt an innovation.

Greenhalgh *et al.* (2004 pp.17 -19) have identified some key factors relating to communication and influence that effect the uptake of innovation:

- The nature of the network. Different groups have different social networks, and these work in different ways. For example, horizontal networks are effective for spreading peer influence, vertical networks will be more effective for authorative messages.

- Adoption of innovation is more likely if groups are 'homophilous'. That is, if they are similar in terms of socioeconomic, educational, professional and cultural background.

- Opinion leaders are very influential. This includes both peer opinion leaders, who carry a lot of personal credibility with their collegues, and opinion leaders acknowledged for their 'expertise'. Identifying these leaders is important to promoting an innovation (Greenhalgh *et al.* 2004).

- Innovations will benefit from 'champions', key individuals who are willing to enthusiastically back the innovation. These people are often instrumental in creating the environment in which the innovation can be fostered through creating alliances or implementing helpful procedures and systems.

> *'The nature of innovation – the inherent definition of innovation – has changed today from what it was in the past. It's no longer individuals toiling in a laboratory, coming up with some great invention. It's not an individual. It's individuals. It's multidisciplinary. It's global. It's collaborative.'*
>
> *Sam Palmisano*
> *Chairman, president and CEO, IBM*
> *Chapman 2008)*

- Boundary spanners, who have good connections both within organisations or networks and beyond them. These individuals will be more likely to capture ideas from other areas and bring them into play.

In practice, there is also evidence to suggest that different forms of formal or informal communication will be more effective for different kinds of workers. For example, in his study of health care innovation behaviour in Norway, Amo found differences in the way registered nurses, nurses aides and unskilled health workers perceived the attitudes of management and collegues to innovation. He also found that nurses were more influenced by how encouraging the management is towards innovation behaviour, than by innovative behaviour of the colleagues. Conversely, auxiliary nurses and unskilled health care workers were more influenced in innovative behaviour by collegues than by encouragement of innovation by management (Amo 2006). This suggests that individuals in each group will have a different influence on the innovation process, and that different approaches should be considered for different groups of workers in a health care organisation when seeking to promote the adoption of innovation.

> *'A universal characteristic of innovative companies is an open culture. A culture that reaches out to relationships in all directions: across functions and departments internally, and with every potentially beneficial external connection.'*
>
> *Rosabeth Moss (Kanter 1997)*

Innovative environments

No innovation, and no health worker, lives in a vacuum. Innovation occurs in the context of, and in response to, a shared environment, and the nature of that environment will affect the likelihood of worthwhile innovations emerging, and whether or not they will be adopted. Some have argued that 'the context within which evidence-based innovations are implemented are as influential in the outcomes as the individual practitioners who attempt these changes" (Angus *et al*. 2003 p.218).

There are a number of factors that have been associated with innovative organisations, including decentralised decision-making structures. An organisation must also have the capacity to capture and absorb new knowledge, and be receptive to change. Greenhalgh *et al.*'s literature review identified six key elements that indicate innovation 'readiness':

- Tension for change, or a perception that change is needed;
- A good fit between the proposed innovation and the values, norms, goals and capacities of the system;
- An ability to adequately assess implications of the innovation, and cater for them;

- The system includes supporters and advocates for the innovation, including those who can act as 'champions' and opinion leaders;
- The system has the ability and capacity to devote time and resources to the innovation; and
- The capacity to effectively evaluate the innovation's intended and unintended consequences, and feed this information back. (Greenhalgh *et al.* 2004).

> *'Innovation has nothing to do with how many dollars you have. ... It's not about money, it's about the people you have, how you're led and how much you get it'*
>
> Steve Jobs
> US computer engineer
> and industrialist
> (www.quotationspage.com)

Innovations can be achieved in the absence of some of these elements. New ideas can be big or small, and can come from all parts of the organisation. A small change to the way appointment bookings are made in a small rural health service, for example, can create large improvements in patient and staff satisfaction at minimal cost. An effective organisation is one that is able to capture this idea, recognise its value, and support the innovators and the rest of the organisation to translate the innovation into practice.

Organisations must also support innovations to ensure that they are sustained. Evidence suggests that this requires involvement and commitment of staff at all levels. Staff must be motivated, capable and competent, and supported by training as required. An organisation with a structure that supports devolved decision making and good internal communication will also be more likely to sustain and support the adoption of innovation (Greenhalgh *et al.* 2004).

Nurses as innovators

Innovation is not a new concept to the nursing profession. As the examples cited above have shown, nurses worldwide are engaged in innovative activities on a daily basis; activities motivated by the desire to improve patient care outcomes and the need to reduce costs to the health system. Many of these initiatives have resulted in significant improvements in the health of patients, populations and health systems. However, nursing's contribution to health care innovation is seldom recognised, publicised or shared among nursing and the wider public.

Nurses work in all settings with all types of patients, families, communities, health care personnel and personnel in other sectors. As such, nurses are critically positioned to provide creative and innovative solutions that make a real difference to the day-to-day lives of our patients, organisations, communities and our profession (Amo 2006).

Novel solutions by nurses also represent a vital element in efforts to address current and future global health challenges - challenges such as aging populations, HIV/AIDS, tuberculosis, malaria, an increase in non-communicable diseases, poverty, inadequate resources and workforce shortages.

Nurses as Innovators - Florence Nightingale

Florence Nightingale's work provides a great example of leadership in innovation.

Among her many innovations was the introduction of systematic handwritten records for the medical profession (Hughes 2006).

She was also an 'innovator in the collection, tabulation, interpretation and graphical display of descriptive statistics.' (Audain 2008). She developed the "polar-area diagram" as a means to present evidence to support her arguments for reform, in an era when the measurements and mathematical analysis of social phenomenon was in its infancy.

In 1860, in acknowledgement of these efforts, Florence Nightingale became the first woman elected a fellow of the Statistical Society. (The Florence Nightingale Museum 2008).

The Florence Nightingale International Foundation, established in her honour, continues to promote and strengthen nursing worldwide through a range of activities, including its support for the International Council of Nurses.

The role of National Nursing Associations

National Nursing Associations (NNAs) represent a key force in fostering and supporting innovation, and the types of working environments in which it can flourish. NNAs can provide leadership by:

- Promoting nursing as a profession with a long-standing and respected tradition of creating, driving and supporting innovative approaches to health care, and celebrating nurses' innovative achievements.

- Supporting innovative cultures in the workplace, collaborating with other key players to promote Positive Practice Environments, which have a high 'readiness for change' and where innovative ideas can be openly discussed.

- Providing input to health care organisations, researchers and policy makers on the implications of proposed innovations for nurses, for both short-term implementation and long-term costs and benefits, and contributing to discussions about how these implications can be effectively managed.

- Advocating for key innovations in the broader external environment, among key opinion leaders and communities and within the field of political and industrial debate.

- Providing a space/forum for exchange and discussion of innovations.

- Recognising/acknowledging nurse innovators.

- Disseminating nursing innovations to nurses and others.

Nurses in the workplace

As this paper has shown, every nurse can play a role in ensuring that innovations are effectively implemented and adopted, by providing feedback on their usefulness and applicability, contributing suggestions as to how innovations can be altered to make a better 'fit' with local circumstances and needs. As well, through their professional conduct and relationships with colleagues, nurses can play a role in creating a working environment which is receptive and ready for positive changes to practice.

Nurses also take important leadership roles in health care organisations whether in senior executive roles or at the ward or unit level. In all of these leadership positions, nurses are well-placed to disseminate information about innovations and innovative practices that are occurring

> *'Strong consistent leadership that 'clears the way' for creativity is a significant predictor of whether or not innovation can occur.'*
> Hughes 2006

within the organisation or in other organisations. As well, in these roles they can make a significant contribution toward creating the environment in which innovation is encouraged and supported among peers and more junior staff.

As the many examples cited in this kit have shown, every day nurses are developing new and innovative approaches to improving health care services and health care outcomes for local people. This is occurring in a huge variety of ways, and across an enormous number of settings, ranging from major acute health providers in large cities to the smallest villages in rural and remote areas. By continuing to tackle their work with courage, determination and creativity, nurses across the globe will continue to play a critical role in the task of ongoing health care innovation.

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SOME USEFUL RESOURCES AND FURTHER READING

There are a number of useful resources available for those wishing to learn more about innovations in health care.

The following is by no means a comprehensive list, but provides a useful starting point for those who wish to learn more about the theory of innovation, are seeking guidance or tools to help them to develop or implement innovations, or who wish to learn from the experiences of others who face similar challenges.

For further reading, see for example *Will It Work Here? A Decision-Maker's Guide to Adopting Innovations* (Brach *et al.* 2008), a practical, accessible step-by-step guide to implementing innovation in health care settings, published by the Agency for Healthcare Research and Quality in the United States. This document also contains a number of links to other resources and tools.

Another useful guide, blending practical advice with background information on diffusion theory is *Diffusion of Innovation in Healthcare* (Cain & Mittman 2002), developed on behalf of the California HealthCare Foundation.

For those wishing to learn more about innovation theory Greenhalgh *et al.*'s *Diffusion of Innovation in Health Services Organisations: A Systematic Literature Review* (2005) provides a thorough and comprehensive review of published work.

Useful websites for further information, particularly practical examples of innovations and their outcomes include (but are not limited to):

- The International Council of Nurses Innovations Database
  http://www.ich.ch/innovations/about.htm

- The Agency for Healthcare Research and Quality (AHRQ) Healthcare Innovations Exchange (US)
  http://www.innovations.ahrq.gov

- NHS Innovation Centre (UK)
  http://www.nic.nhs.uk

- Australian Resource Centre for Healthcare Innovations (ARCHI)
  http://www.archi.net.au