

**Let's Measure and Risk manage Outcomes  
before introducing Benchmarking?**

PREPARED BY

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For

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## 1 ABSTRACT

The key to organisational prosperity in any industry is having an effective continuous quality improvement program. Without any reservations we all agree that the care and service delivery has improved since introduction of continuous quality improvement into aged care industry. However, the misconception of continuous quality improvement concept is still in the industry that authorities, employers and employees believe in numbers and numbers must be higher percentage to accept the compliance. Therefore, data collection tools (questions) are aim to receive higher percentage to demonstrate the higher compliance. Unfortunately, Deming's 11<sup>th</sup> principle; 'learn the capabilities of processes, how to improve them' has been ignored.

Without measurements we can not learn the capabilities of processes. On other words, continuous quality improvement cannot be done without measurements. The most important part of the measurement system is the use of the Statistical Process Control (SPC) tools to identify the variations in the processes. The level of variations can only be identified through the use of indicators. The authorities, employers and employees of the aged care industry are still not clear about appropriate use of the statistical process control tools in continuous quality improvement process in aged care. The 'Bar charts, Pie charts and check lists are used to display results but data are not always collected through indicators to identify the level of variations.

In spite of this, benchmarking is the 'buzz' word use in aged care industry today. Could we really benchmark the care delivery? There are variables which can not be controlled. The care delivery has more intangible factors which can not be measured. The processes and systems are in place to meet the aged care standards are varying from one organization to the other. The needs and expectations of customers are

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different and are depending on the physical and mental (medical) conditions of the person. Thus, risk is high in care delivery and need to manage adequately receive better outcomes. What's more, there is no standard measurement and monitoring tool for aged care outcomes. This issue has been raised in the 'Two year review of aged care reforms' report published in year 2001 by Professor Len Gray. His recommendation was as follows:

## **'Recommendation 7.**

It is recommended that the Department and the Agency:

- (a) consider the introduction of objective measures of continuous improvement, in addition to the current tools, to enable assessment of improvement over time; and ...'

This paper presents the findings of 'Action Research' which has been conducted for a Doctor of Business Administration degree at Southern Cross University. New South Wales. The aim of this research is to develop a measurement tool for aged care outcomes. The 'Improvement Indicators' for aged care outcomes may be one of ways of providing objective measures of continuous quality improvement aged care.

However, this theory can be applied to any industry standards which may be deemed necessary to do so to have an objective measurement tool in continuous quality improvement.

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2

## **BIOGRAPHY**

Devi Ranasinghe is a Doctoral candidate at the School of Business Administration at the University of Southern Cross, NSW. Her research interests are in the areas of service quality especially in the aged care industry and Total Quality Management. In her thesis she argues that there should be an indicator system to drive continuous quality improvement and to monitor and measure its process and impact and also to manage risks in aged care. She strongly argues that the indicator system will provide an objective assessment of the continuous improvement process and it can be used as a guide to monitor, evaluate and improve service delivery. In addition, the data gathered through the indicators can be statistically analysed.

Devi has developed an indicator system which is called 'Improvement Indicators'© to measure the aged care outcomes.

She received the 'Minister's Award for Excellence' in the Aged Care Industry 2003 for Professional Development (Individuals).

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## 3 INTRODUCTION

This paper presents the findings of 'Action Research' which has been conducted for a Doctor of Business Administration degree at Southern Cross University, New South Wales. The aim of this research is to develop a measurement tool for the aged care outcomes. Improvement Indicators© have been developed for the aged care outcomes taking into account risk management and best practice concepts.

'Benchmarking' and 'Risk management' are not new to the business world. There are many theories which have been developed and many books have been written about benchmarking and risk management. Many definitions of benchmarking exist but the most basic definition is 'A standard against which something can be measured or assessed'. Benchmarking health care is often misconstrued and misused. There is an important distinction between benchmarking as a process and specific benchmarks.

More to the point, care delivery can not be benchmarked despite the fact that some organisations claim that they do benchmark clinical care delivery. Clinical care delivery is an intangible product therefore, standards can not be set for acceptable levels to benchmark care delivery. There is no acceptable level of falls or chest infections for individuals not even with certain conditions. By all accounts we need to eliminate or reduce falls and infection rates. However, one might argue that there are some *aspects* of care delivery which have already been benchmarked for years. For example the 'normal' or acceptable level of heart rate for a healthy adult is 60 – 80 beats per minute and a 'normal' electro – cardiograph reading has an acceptable pattern. An average normal body temperature is around 37°C. These standards have been established after a long period of research and study.

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A large amount of research is to be done before it can be determined whether clinical benchmarking is feasible.

However, the objective of benchmarking is to provide opportunities for improvement, to be proactive and to become the best of the best. The most important elements in benchmarking are measuring and understanding one's own performance before comparing results with others whether the comparisons are internal or external. Benchmarking standards have been developed and many companies benchmark their products.

Risk management is also well established in the business world as well as in health care. There are many strategies in the generic areas of risk namely: security; fire; occupational health and safety; equipment and system failures; natural disasters; industrial relations issues; non – compliance of legislative requirements; credit issues; insurance and property damages. This paper mainly focuses on risk management in care delivery rather than benchmarking.

Risk management in care delivery is not new to health care. We may not always do risk management systematically or proactively to avoid undesirable incidents rather, it tends to be done on an ad hoc basis. There is very little guidance for collecting data or methods for risk management even in other industries. This is due to the uncertainty, and unpredictability of the presence of risk. We do not know where or how it happens. We only know the potential of it happening. However, the literature search indicated that identifying potential risk and monitoring risk are the main elements of risk management. So, valid and reliable data collection becomes pivotal in risk management. Data collection tools should be appropriate and adequate in identifying and measuring the risk involved.

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The Aged Care Standards are complex. The complexity of the standards is due to a variety of factors involved in service delivery. First of all, aged care service delivery has many subtle and intangible emotional factors which may not be eliminated or controlled. Secondly, residents' physical, mental and medical problems create higher risks which require close and continuous monitoring.

Thirdly, there is always a gap between the perception of what care delivery should be (perceived quality) and actual care delivery (delivery quality) thus, the greater the gap, the higher the risk for both consumer and care provider. Risk management and the search for best practice are part of continuous quality improvement.

It is important to link these two concepts to the indicator data collection system in order to improve quality of care and service delivery and manage risks.

“The advantage of an indicator system in data collection is that it provides a series of recurring valid and reliable data, which can be used in analyses that focus mainly on two essential dimensions: variations over time and from place to place”. (Harrigan 2000)

In this paper, the writer explains how indicators are used in risk identification and risk monitoring in aged care delivery. She has integrated the risk management concept into the continuous quality improvement process in aged care rather than looking at risk management as a separate issue. The writer highlights the different perspective of risk management especially in aged care. She has developed a simple and practical way of managing operational risks by implementing an indicator data collection system which will monitor measure and evaluate compliance to the aged care outcomes.

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The writer argues that risk management must be based on reducing or controlling variations in the process. This can only be done by collecting appropriate data. The writer believes that this concept can easily be adapted to any industry that is looking for continuous improvement with risk management.

## 4. CONTENTS

### 4.1 What is risk management?

Risk management should be a part of general management strategy regardless of the business. Risk has been defined in many different ways. The risk management standard AS/NZS 4360:1995 defines risk management as:

“A logical and systematic method of identifying, analysing, evaluating, treating, monitoring and communicating risk associated with any activity, function or process in a way that will enable organisations to minimise losses and maximise opportunities. Risk management is as much about identifying opportunities as avoiding or mitigating losses.”

The Australian National Training Authority defined risk management as:

‘The systematic application of management policies, procedures and practices to the tasks of identifying, analysing, evaluating, treating and monitoring risk’. [www.anta.gov.au/glortot.asp](http://www.anta.gov.au/glortot.asp)

This paper focuses mainly on risk management in the delivery of aged care where there is a degree of risk and uncertainty involved in care and service delivery. The concept of risk management which has been adapted for this study is a process of identifying potential “risks” to minimise risks and maximise opportunities for improvement.



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In the course of delivering care and services to our older generation in a residential care setting, decisions are made relating to their medical problems, the level of acceptable care, suitable treatment options with consideration of quality of life issues, comfort and safety and not to mention the cost involved and so on and so forth. There are a number of special areas of risk specific to aged care. These include but are not limited to:

- Resident incidents
- Drug errors
- Treatment errors
- Misdiagnosis
- Epidemic
- Staff injuries
- The lack of qualified staff

Risk management in care delivery is not being discussed in detail in the aged care industry and this is mostly due to a lack of understanding of what constitutes risk management in care delivery. There is very little education available to aged care providers and care givers in identifying risks, analysing risks and risk control in the delivery of care.

## **4.2 Risk identification**

Risk management starts with risk identification. The risk identification task is establishing what can happen, how and why it can happen and the tools and techniques used to identify risks.

There are many tools and techniques used to identify various types of risk. Generally there are four types of risk in business world: Strategic risk; Market risk; Credit risk; Operational risk

Strategic risk management is an area that deals with an organisation's strategic direction.

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Market risk deals with the risks associated with movements in prices and rates.

Credit risk is associated with losses that occur when debtors are unable to meet their repayment obligations.

Operational risk is an area that deals with the day to day risks faced by organisations in all areas (Walker, 2001)

In this research, the operational risks have been taken into account in detail. However, operational risks cannot be managed without having an overflow effect or influence of other areas of risk and vice versa.

It is important to look for the sources of risk and areas of impact when identifying risk. The sources of risk in the aged care industry are no different to sources of risk in general business.

They are:

- Commercial and legal relationships,

These relationships are between the aged care organisation and other parties namely; residents and families, the suppliers, advisors, contractors and other external services.

- Economic circumstances,

The aged care organisations receive funding from the commonwealth government and the accreditation agency and RCS (Resident classification Scale) review office are the watch dogs for the government funding. The funding can be cut back due to not meeting the aged care standards and or not having adequate documented evidence to justify funding claims.

- Human behaviour,

This applies to those in the aged care organisation such as residents, families, staff and those not involved in the organisation.

- Natural events,

Any disasters such as fire, storms or earthquakes

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- Political circumstances

A change in government may bring legislative changes to care and service delivery, the funding arrangement, monitoring system or building regulations etc.

- Technology and technical issues

The aged care industry is lacking in technological advancement compared to other industries. However, the introduction of continuous improvement has paved the way to *consistent* improvement in care and service delivery. This means service providers are now forced to look for new methods and new techniques in delivering quality care and services.

- Management activities and control

Leadership is important for any industry. Management changes in the aged care industry are known to be high. Changes can be good and bad. If the effects of the changes lower standards or controls, this will have an inevitable negative consequence.

- Individual activities

The individual activities of management, staff, residents and families may create risk. Some times other sources of risk may have an impact on this item.

Source: Risk Management. Study Guide & Reader 2001

The immediate disciplines of my research are the continuous quality improvement process, the use of statistical process control tools, methodology for the identification of process variation to reduce risks, best practice methods and the exploration of the benefits of indicators as measurement instruments.

Dr. Deming, the forefather of continuous quality improvement, indicated that continuous quality improvement must be focused on learning the capabilities of processes, and improving them by understanding the variations that may occur in the process.

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Variation in process must be identified by using statistical process control methods and constantly improving the system/s. Variation may occur before or during the process of making the product / service; or delivering the product / service to the customer. The following three principles are amongst those elucidated by another quality improvement theorist.

Feigenbaum (1987) in his “eight principles of total quality control” stated that:

- All systems exhibit variability
- Control the process not the output and
- Management of processes should be based on facts and data.

(Gilmour et.al 1995 p 57)

Utilization of simple statistical methods to analyse data provides valuable insight into problems arising from within the process and systems. Berry (1995) stated that it is difficult to monitor, analyse, control and improve variance in a service industry because structures and processes are developed in front of the customer as part of delivery of the service. Manufacturing industry structures and processes, on the other hand are developed long before the product is presented to the customer.

Thus there is a need to modify the continuous quality improvement approach in order to adapt Deming’s principals into the service industry may it be food, health, education etc.

As stated before, the Australian Aged Care Standards are broad and complex. The standards provide a baseline for care and service delivery to enable improved quality of life of our older citizens living in residential aged care facilities. Quality of life is difficult to conceptualize and it varies from person to person. There are many factors/ aspects of care delivery included in one outcome.

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In light of this complexity, the objective of this study is to explore the development and use of improvement indicators as measurement instruments in aged care. The instruments should identify issues and monitor and measure processes and systems against the Australian Aged Care Standards. Indicators also will identify and monitor risks in aged care delivery in the health and lifestyle outcomes. Importantly, the study examines the impact of staff education and training on the development and use of improvement indicators and statistical process control tools.

Deming developed 14 Principles to follow in continuous quality improvement. These principals are rooted in an understanding of the power and pervasiveness of variation and how it affects the process - that delicate interaction of people, machines, materials, and the environment. *This variation in the process cause the Operational risks.*

Quality improvement leaders state that all systems are subject to some amount of variation that leads to inconsistency and eventually, to an erosion of both process and product quality. Inconsistency makes it difficult for management to predict how its systems and strategies will perform and whether the quality of the product or service will fail with ultimate loss to the organisation. However, Deming's teachings on variation give management the vital knowledge it needs to recognize deep-rooted systematic problems. Thus, an understanding of variation is vital to managing change. (Gabor, 1990)

There are many managers, employers, employees, authorities and quality improvement consultants especially in the aged care industry who do not fully understand variation in processes and the use of statistical process control tools in identifying the variation.

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Carey (2002) stated that “it is not uncommon for an improvement team to measure the effect of an improvement effort by summarising the average scores before and after the intervention and comparing the two numbers. If the results of a t- test or chi- square shows the difference to be “statistically significant,” the team concludes that the intervention (or change effort) resulted in an improvement. However, the only valid inference to be drawn from a difference in two numbers is that one number is higher than the other! No valid conclusion can be drawn without examining the stability of the processes that produced both summary statistics.”

Most managers, quality coordinators, quality consultants, quality assessors in the aged care industry today use bar charts to identify variation in the process. There are very few appropriate data collection tools available in the aged care industry to collect data which can be statistically analysed (t – test or analysis of variance) to determine effectiveness of the change.

Most of the time bar charts pretend to describe the changes. However, they do not indicate whether the processes that make changes are stable or not? If they are not, the comparison is meaningless. The run chart rules for detecting the stability of the process may indicate a different picture. Therefore, the important factor here is that bar charts comparing aggregate data can be misleading unless the processes that produced the data are stable (Carey 2002).

Identification of variation in the process plays a major role in continuous quality improvement and risk management. Variation reduction is a key aspect to improve quality. Data analyses focus on all of the data and will differentiate between a common cause and a special cause of variation in processes.

# Qualcon 2004

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Fields et al. (Meisenheimer, C.G. 1997) indicated that numbers do three things:

1. increase,
2. decrease or
3. remain the same.

There is always a range of normal fluctuation in data, and that range is a common cause of variation, while special cause variation is the result of special circumstances that cause some of the data to fall outside the range of normal fluctuation.

*Analysis must be done to identify the cause of the fluctuation. Analysis is focused only on the data outside the normal range. Changes are made to prevent the special circumstances from recurring. Overhauling the entire process creates unnecessary work and change if the overall performance is satisfactory.*

Walter A. Shewhart (1931) originator of the Statistical Process Control methodology distinguishes two types of variation: special cause of variation and common cause of variation. He developed run and control charts to distinguish one type of variation from the other. He taught that managers need to use a different approach to improve a process with common cause variation than one with special cause variation. He theorized that the way to improve a process was to reduce variation and, when feasible, to move the entire process in the right direction.

Errors are regarded as risks in any industry. Risk could take place at any stage of the task: input or process. When risk occurs at the input stage, it would be easier to control or eliminate. However, when risk occurs at the process stage, it would be difficult to control or eliminate. Reliability is most important in the service industry (Berry 1995).

# Qualcon 2004

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Berry (1995) stated that service reliability creates some challenges which are different from manufactured goods reliability. Goods are first manufactured, then sold and consumed. Services are sold and consumed simultaneously.

The buyer of tangible products never sees what goes on in the factory. Manufacturing mistakes can be corrected before the customer experiences the product. With service, the customer enters the "factory" and is more likely to experience firsthand any production mistakes.

Another very important factor he discussed was the human factor. Many services are labour intensive, introducing a greater degree of variability in the production process than if machines dominated the process. Human beings deliver a more variable service than machines. This is a reality of the human condition.

Service providers not only differ from one another in their technical skills, service attitudes, and personalities, but the same server can provide quite a different service from one customer to the next depending on the circumstances of each situation, taking into account customer attitude, server fatigue and the complexity of the service requested. Labour-intensive services are more error-prone. Therefore, risk occurring in the process is inevitable.

Berry (1995) agrees that errors occur in every organisation but an organization that continuously nurtures the values of accuracy and dependability prevent many errors caused by carelessness. Wanting to be reliable is a key to actually being reliable.

Many writers (Parasuraman, A., Zeithaml, V.A., and Berry, L.L.1988, Grönroos, C. 1982, McNeil's 2000) state that customers view service quality in many different ways; Perceived quality, expected quality,



# Qualcon 2004

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experienced quality and delivery quality. Parasuraman, et.al (1985) stated that service quality falls assumes three characteristics.

They are:

1. Intangibility,
2. Heterogeneity, and
3. Inseparability.

The following table illustrates the summary of earlier writers and their explanation of the three characteristics.

Table 4. Explanation summary of the three characteristics.

Characteristic of the service	Writer's Name & year	Explanation
Intangibility	Bateson 1977, Berry 1980, Lovelock 1981.  Zeithmal 1981	Services: <ul style="list-style-type: none"> <li>• Are performances rather than objects</li> <li>• Can not be set precise specifications similar to the manufacturing industry</li> <li>• Can not be countered, measured, inventoried, tested, and verified in advance of sale to assure quality.</li> <li>• Find it difficult to understand how consumers perceive their services and evaluate service quality.</li> </ul>
Heterogeneity	Booms and Bitner 1981	Services: <ul style="list-style-type: none"> <li>• Generally high labour content.</li> <li>• Performance of labour often varies from producer to producer, from customer to customer and from day to day.</li> </ul>

Source: Parasuraman et.al 1985

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Table 4. Explanation summary of the three characteristics. Ctd.

Characteristic of the service	Writer's Name & year	Explanation
Heterogeneity cont.		Intentions to deliver may be entirely different from what the consumer receives because service personnel behaviour is not consistent and difficult to assure.
Inseparability	Carmen and Langeard 1980, Grönroos, 1978, Regan 1963, Upah 1980  Lehtinen and Lehtinen 1982	The production and consumption of many services are inseparable.  Quality in service is not engineered at the manufacturing plant then delivered intact to the consumer. In labour intensive services, quality occurs during service delivery, usually interaction between the client and the contact person from the service.  The managerial control over quality in services is less where consumer participation (e.g. hair cuts, doctor's visit) is intense because the client affects the process. The consumer input (description of how the hair cut should look, description of symptoms) becomes critical to the quality of service performance

Source: Parasuraman et.al 1985

This table illustrated how difficult it is to provide quality service to the customer and how common cause of variation or special cause of variation could disrupt the process of service.

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Gitlow, et al. (1989) agreed that all processes exhibit variation. It is unavoidable, yet like a "wild beast" it must be controlled. Variation happens as the result of either common causes or special causes. Common causes of variation are inherent in a process.

Common variation is comprised of a myriad of small sources that are always present in a process and affect all elements of the process. Management should not hold the workers responsible for such problems in the system; the system is management's responsibility.

If management is unhappy with the amount of common variation in the system, it must act to remove it. Professional estimates are that common variation causes about 85 percent of the problems in a process with the remaining 15 percent being caused by special variation.

Special variations are created by causes that lie outside the system. Frequently their detection, possible avoidance, and removal are the responsibility of the people directly involved with the process. People using the system should be educated and trained to identify the variation. However, management must acknowledge these special causes and when identified, policy must be developed to ensure that if undesirable, they do not recur. If on the other hand, these special causes are desirable, policy must be set so that they do recur.

Ryan (1989) indicated that statistical techniques are needed:

- to determine if abnormal variation has occurred in whatever is being monitored
- to determine changes in the values of process parameters
- to identify factors which are influencing process characteristics.

He has emphasized that control charts can be used to determine if a process has been in a state of statistical control by examining past data. This is frequently referred to as retrospective data analysis.

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Control charts alone cannot produce statistical control; that is the job of the people who are responsible for the process.

There are many benefits from the use of control charts. Ryan (1989) believes the most important benefits of control tools are:

- good record keeping
- reduction in product variability
- identifying special causes of variation.

However, Taylor (1991) warns that false understanding and myths about variation are dangerous. They lead to inappropriate actions or to the failure to act. He says that one must need to know the means of measuring the variation before one can understand the variation, determine its causes, and ultimately reduce variation. He states that the basic principle to understand is that all variation of output results from variation of input.

The type of variation will determine management's approach to risk management and continuous improvement. Risk can not be identified without understanding of the process variation. Bear in mind neither type of variation is good or bad in itself. If a special cause was not planned for, it will usually be undesirable. How then should the type of variation determine risks and opportunity for improvement? When a process exhibits only special cause variation, the change effort should focus on investigating the origin of the special cause and not on changing the process.

The risk of not taking action on variation in the process may pose a cost to business, life and property.

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## 4.3 Relationship between risk management and continuous quality improvement

Deming's Plan Do Check Act (PDCA) cycle provides a systematic approach to continuous quality improvement. Risk management is also based on Deming's principal.

Comparing a control chart and Deming's PDCA cycle Gitlow, et al. (1989) indicated that the attributes of both the control charts and **PDCA** cycle provide important guidelines

At the **Plan** stage, the object or purpose of the control chart must be carefully delineated for its use to effectively act as a vehicle to reduce the difference between customers' needs and process performance. Therefore, a plan must be established that clearly shows:

- what will be control charted
- why it will be control charted
- where it will be control charted
- when it will be control charted
- who will do the control charting
- how it will be control charted.

In general, risk occurs during the process of performance. The organisation must decide which variables to measure. These decisions require the cooperation and input of all those directly or indirectly involved with the process.

Data collection and the calculation of control chart statistics constitute the **Do** stage for constructing variable control charts. After the initial data has been collected, the centreline, control limits and zone boundaries (if applicable) should be computed for both portions of the control chart.

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Indications of special sources of variation may be found in the chart dealing with variation, the chart dealing with location, or in both. Once an identified cause of the variation has been found, whether it is a common process variation or a variation resulting from special causes, then progression to the Act stage occurs to set policy to formalize process improvements' resulting from the analysis of the control chart.

If the variation found in the **Check** stage results only from common causes, then efforts to reduce that variation must focus on changes in the process itself. When indications of special causes of variation are present, the cause or causes of that special variation should be removed if the variation is detrimental, or incorporated into the process if the variation is beneficial.

The focus of the **Act** stage is on formalizing policy that results directly from the prior study of the causes of process variation. This will lead to a reduction in the difference between customer needs and process performance (Gitlow, et al., 1989. pp 290-293).

## **4.4 Risk identification tools and techniques**

A risk identification method is imperative in risk management. What data collection tools can be used to identify risks? Measurement is critical to identifying risk and improving quality. The foundation of continuous improvement and risk identification is data collection. Data helps an organization to understand variation in a work process not only to determine how well it is meeting customer requirements or expectations; it will also identify the risks involved. The continuous quality improvement leaders have reduced risks to business by constantly monitoring performances.

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They used customer satisfaction, loyalty, reduced cost, reworking cost, measuring inventory accuracy and many other factors as indicators to measure and monitor the products and services. Indicators therefore became the representation of measurements.

Alberta Heritage Foundation for Medical Research, 1998 stated that “----  
*indicators should actually measure what they are intend to (validity); they should provide the same answer if measured by different people in similar circumstances (reliability); they should be able to measure change (sensitivity); and they should reflect changes only in the situation concerned. In reality, these criteria are difficult to achieve, and indicators, at best, are indirect or partial measures of a complex situation*”. (Harrigan, 2000).

Carey (2002) stated that we need to monitor our treatment processes and determine whether they are functioning at a consistent and acceptable level as measured by one or more criteria. Determining the effectiveness of our care under clinical conditions requires a different approach than that used in basic research. By using parametric statistics, such as a t- test or analysis of variance, one can determine whether the treatment had a statistically significant effect. Such a study is valuable to determine the efficaciousness of an intervention but not its effectiveness under clinical conditions of practice (pg 81).

The literature search indicated that risk management is required to link into the continuous quality improvement process in aged care. After an extensive literature search, it was clear that an indicator data collection system is necessary to obtain valid and reliable information to monitor, evaluate and improve care delivery.

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The information collected through indicators highlights what is happening in a system because they are signals and can help us to understand where we are, where we are going and what risks are involved in care and service delivery. Indicators also provide direction and potential impact on a system in a given time frame.

There are many clinical indicators and performance indicators in the health care industry. The clinical indicators aim to measure part of the clinical process, procedure or outcome whilst performance indicators aim to measure the achievement of organisational goals, (some aged care organizations have been known to use the terms “performance indicators” and “clinical indicators” interchangeably).

On the other hand, the current trend in the health care industry is to focus on evidence based (research based) ‘best practice’ models. If we are to reduce risks in care delivery, we require research based best practices.

I came to the conclusion that when indicators are developed to monitor and measure aged care outcomes, two factors need to be considered:

1. The integration of risk factors
2. Where possible incorporate best practices

Prior to developing the Improvement Indicators © I catalogued the following questions to ensure that the indicators were constructed around these issues so they could provide valid and reliable data.

1. How do we know that care is improving?
2. What are the operational risks in care delivery?
3. Could the indicator data collection system be set up to identify the risks in each aged care outcome?



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4. Could we monitor risk involved in resident care with indicators?
5. What are the core characteristics with which we must comply in each outcome?
6. What are the best practices in care delivery to reduce risks?
7. Could we produce meaningful data with improvement indicators to show that to day resident care is better than a year ago?
8. Do the indicators measure what they actually intend to measure?
9. Should they provide the same answer if measured by different people in similar aged care organisations?
10. Could the data collected through the improvement indicators be statistically analysed?
11. Could these indicators provide a series of valid and reliable data over period of time?
12. Could these indicators be used as a guide to monitor, evaluate and improve resident care and service delivery?
13. What impact has continuous quality improvement had in resident care, staff knowledge and skills or the overall organisational improvement?
14. Is the care and service delivery process controlled and performing at acceptable levels? What are the acceptable levels of care?
15. Are these collected data valid and reliable?
16. How do I make it easy for staff to determine whether their organisation's performance (care and service delivery) is satisfactory or whether there are opportunities for improvement?

Improvement Indicators© have been developed for each aged care outcome by taking into account the above factors. Each individual outcome has an action plan. Staff collects the data required, examines the data and writes an action plan for identified issues. The improvement Indicators © data collecting system provides for a proactive decision-making environment. (See Appendix 1 for a sample of improvement)

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The indicator data collecting system:

- Assesses continuously what can go wrong (risks).
- Identifies the impact of continuous improvement in care delivery and opportunities for improvement.
- Monitors strategies which are implemented to address improvements required and those identified risks.

Action research methodology has been used to implement these indicators.

“The action research is a flexible spiral (cyclic) process which allows action (change improvement) and research (understanding, knowledge) to be achieved at the same time. This understanding allows more informed change and at the same time is informed by that change. People affected by the change are usually involved in the action research. This allows the understanding to be widely shared and the change to be pushed with commitment. (Dick 2002).”

The benefit of the action research is involvement of participants in the project. When participants:

- provide data;           they are informants;
- interpreting data;       they are interpreters;
- planning change,       they are planners and decision makers;
- implementation;        they are implementers
- managing the process of data collection and interpretation; they are facilitators
- designing the overall projects;       they are co-researchers.

Dick 2000

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The action research empowered staff to:

- identify opportunity for improvement
- identify risks and
- implement improvement project and
- manage risks.

Continuous quality improvement was never meant to be paper based. It is more about looking at own performance and changing practices in order to improve processes.

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## 5. CONCLUSION

The action research cyclic process has greatly improved staff knowledge levels in continuous quality improvement in the aged care outcomes. The first cycle was focused on staff education and training in continuous improvement in the aged care outcomes and data collection system with the improvement indicators. The aged care organisations involved became action learning organisations.

The Improvement Indicator © data collection system has also improved since it's inception in the year 2001. Three cycles have occurred now and at the reflection stage of each cycle the opportunity is provided to examine the level of the impact of improvements and to adjust the indicators to the next level. Most importantly, each cycle provides an opportunity to innovate and introduce 'best practices' as they become available to keep up with improvement and reduce risks in care delivery. They do not simply lead you to running out last year's tools and methodologies, rather, they enable organisations to keep moving forward and provide a sustainable framework by which to improve and manage risk.

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## 6. ACKNOWLEDGMENTS

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## 2.11 Skin Care Outcome: – Improvement Indicators Monitoring Tool

Facility Name:..... Auditor's Name:.....Date:.....

**Instructions: Random Sample – Ask the family if the resident is unable to answer**

No	Indicators	Indicator Value	Res 1	Res 2	Res 3	Res 4	Res 5	Res 6	Res 7	Res 8	Res 9	Res 10	Total Score	Data to be collected from
		<i>Resident Code</i> ⇔												
1	Have you assessed the resident's skin integrity?	≥ 12 months = 0 < 12 months but > 3 months = ½ ≤ 3 months = 1 <b>Total value = 1</b>												Assessment
2	Have you conducted a risk assessment (Norton / Waterlow/ Brandon) of this resident and developed appropriate strategies?	No risk assessment = 0 Risk assessment conducted but no appropriate strategies have been developed = ½ Risk assessment has been conducted and appropriate strategies have been developed = 2 <b>Total value = 2</b>												Risk assessment
3	Does the <b>current care</b> plan indicate the daily skin, hair, nail care needs and assistance required by the resident, including family consultation?	Care plan is current and family has been consulted = 1 Care plan is current but family has not been consulted = ½ Care plan is not current but family has been consulted in the past = 0 Care plan is current and has been developed by the RN Div 1 – no family members to consult = 1 <b>Total value = 1</b>												Care Plan

**Monitoring Tool 2.11/1**

No	Indicators	Indicator Value	Res 1	Res 2	Res 3	Res 4	Res 5	Res 6	Res 7	Res 8	Res 9	Res 10	Total Score	Data to be collected from
4	Is this resident's level of skin integrity monitored and documented on an ongoing basis as stated in the policy and process? (Documented skin condition such as: healthy skin, dry skin, frail skin, wound / skin tear / excoriation / bruises)  (Note: Residents at risk must have a minimum of 3 entries in the progress notes per month).	No entries = 0 < 3 entries /month = ½ ≥ 3 entries/ month = 2  <b>Total value = 2</b>												
5	Does this resident have a wound / skin tear / excoriation / bruises and if so, has an incident report been completed and action taken to prevent such incidence?	Skin alterations have been documented on an incident report = 2 Skin alterations have been documented but not on incident report? = 0 No skin alterations = 2 <b>Total value = 2</b>												Incident reports
6	Have you used contemporary practices to successfully protect the skin integrity of this resident?	No contemporary practices employed = 0 Contemporary practices employed but no success = ½ Contemporary practices employed with success = 1 <b>Total value = 1</b>												Care Plan
7	Have you referred to other health professionals other than the doctor for advice/support to alleviate this resident's skin problems? Who did you refer to?	Input from other health professionals = 1 Input from Dr and nurse only = ½ In process of referring to other health professionals = ½ No other health professional advice required = 1 <b>Total value = 1</b>												Referrals
	<b>7.2</b>	<b>Total out of 10</b>												

	<b>7.3</b>		Staff 1	Staff 2	Staff 3	Staff 4	Staff 5	Staff 6	Staff 7	Staff 8	Staff 9	Staff 10		
7	<p><b>7.4 Ask 10 staff members (2 of whom <i>must</i> be RN Div 1 staff).</b></p> <p>Have you had education and training in any form or by any method on skin care?</p>	<p>≥ 12 months = 0</p> <p>&lt; 12 months but ≥ 6 months = ½</p> <p>&lt; 6 months = 1</p> <p><b>Total value = 1</b></p>												<p>In- service education or seminars, conferences or workshops (Please state)</p>

**Compliance Levels:** (100 - 81%) Excellent    (80 - 61%) Good    (60 - 41%) Marginal    (40 - 21%) Poor    (20 - 0 %) Unacceptable

Data reliability and validity verified by: -----

**Monitoring Tool 2.11 / 1**

Symbol definition: ≥ = **Greater than or equal to**    ≤ = **Less than or equal to**    > = **Greater than**    < = **Less than**

Pre – determined acceptable level of performance (e.g. 80%) = -----

**2.11 Skin Care Outcome: - Action Plan**

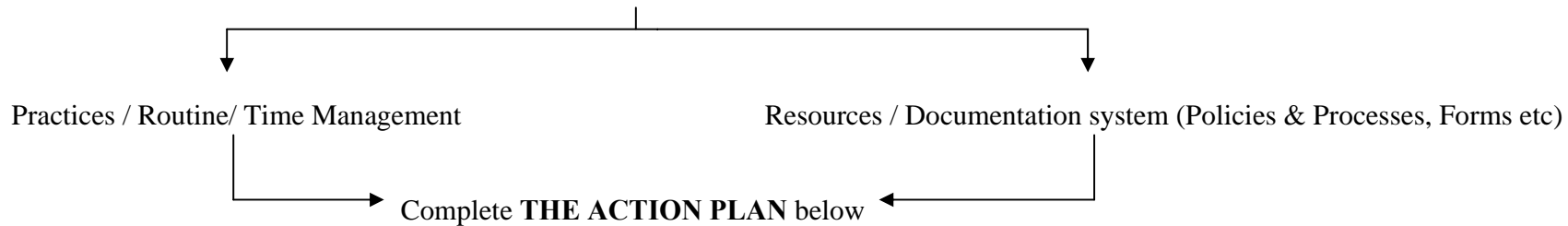
Analyst’s Name:..... Date: .....

Population size:..... Sample size (N):..... How did you choose the sample? (E.g. Random or 1-10 bed or room order or target):.....

Is the information collected through the indicators adequate to monitor the process of this outcome? (**Please circle**) **YES** **NO**

If “**YES**” Complete the action plan below – 1. What indicators need to be standardised to control the process (PDSC\*\*\* Cycle). 2. How to standardise the process. 3. Set the re-audit date.

If “**NO**”: Determine what we need to improve and how- (PDCA\* or PDCS\*\*Cycle)



Indicator No/s	Are the results within acceptable levels? Results & Y / N	The Action Plan (Standardise the process or take action/s) What action/s could be taken to further improve this indicator? Review survey / audit questions and determine activities and then prioritise.	Action/ s to be taken by whom	Action / s to be taken by when	Set re – audit date.	Set new Acceptable level of improvement

\* PDCA = Plan Do Check Act Cycle – 4 to 6 weeks / \*\* PDCS = Plan Do Check Standardise Cycle – 6 to 8 weeks / \*\*\*PDSC = Plan Do Standardise Check Cycle = 8 to 12 weeks or up to 24 weeks.