SUMMARY

In response to the recent demand for quality and safety in healthcare, various approaches have been applied. One of the promising approaches among them is a "quality approach". In what sense is the quality approach promising? How can quality principles be applied successfully to healthcare, giving consideration to specific features of healthcare? This session discusses strategies for a quality approach to healthcare.

The first presentation in this session provides an overall picture of the quality concept, methodology and techniques, and their substance with a view to applying them in healthcare. This paper discusses why a quality approach is useful in healthcare, and the main points in applying a quality concept and methodology to healthcare.

To achieve good quality of products, in general, the necessary conditions include inherent technology (or product-/service-specific technology) and a management that makes the best use of the technology. The second and third presentations provide a model for a management system for quality and safety in healthcare, and a framework for structured clinical knowledge and its tool.

Key Words
Quality in Healthcare, Management System, Structured Clinical Knowledge, QMS-H, PCAPS

1. INTRODUCTION

With the recent social concerns over medical accidents, healthcare quality and safety have drawn considerable and widespread attention around the world. To cope with the issues, one of the approaches is to learn a lot from industry. For example, some healthcare institutions are applying approaches used in industry, such as the SHEI model, human reliability engineering and human-centred system design for ensuring healthcare safety. They also try to apply a quality approach to maintaining and improving quality in healthcare.
There can be a variety of approaches to ensuring quality and safety in healthcare. One of the promising ones is the application of quality management, or TQM (Total Quality Management), which has achieved great success in industry, in healthcare.

However, there can be a question: Is an approach that has been successfully applied in industry also effective in healthcare? Will the quality of healthcare really be improved through a quality approach? Will the management of healthcare institutions become sound? Will the healthcare social system become healthy?

In order to apply a quality approach successfully in healthcare as well, we have to understand the substance of the concept and methodology of a quality approach and specific features of healthcare processes, and study how to apply the essence of a quality approach to healthcare.

2. QUALITY APPROACH

It is quite difficult to express the essence of TQM in short words. TQM includes various profound concepts, thoughts and philosophies that have been established in the process of its development. It also has excellent methodologies, tools and techniques that are results of the blood, sweat and tears of great predecessors.

Without minor details, TQM can be characterized as “an approach to management, putting quality at its core, and putting importance on continual improvement participated in by everyone”. In other words, TQM can be condensed into three essentials: “quality”, “participation by everyone”, and “improvement (KAIZEN)”. These concepts are unique to TQM, as other systematic management improvement methods do not include them explicitly. TQM has been effective in improving management systems in an organized manner.

TQM has repeatedly pointed out the importance of quality in business management. Companies survive on payment from their customers for the products and services they provide. Companies cannot go very far unless customers are willing to buy their products and services. As companies need to satisfy their customers not for a short time, but for a long time, quality, including price, of their products and services is important. Quality has always meant “customer acceptance” and “customer-orientation”, and has been an integral part of the TQM philosophy from the beginning.

To achieve quality, TQM encourages participation by everyone. When the product and service quality of a company is recognized as a reflection of the aggregate quality characteristics of that organization, it becomes obvious that the involvement of everyone is not only necessary but also efficient for achieving quality. In this regard, TQM has advocated efforts to uplift people through education and training, morale enhancement, and proper feedback mechanisms to their consequent work.

Unless a system has a built-in subsystem to improve itself, it is not a good system. TQM emphasizes problem-solving. It emphasizes the importance of continual improvement of products, processes, and systems, but not in dwelling on past failures. This is based on the notion that technologies and management systems can never be perfect, and thus require constant efforts to improve. TQM encourages such efforts through participation by everyone.

The concepts, methodologies and techniques of TQM have been established through a variety
of practices in industry for more than 50 years, and can be condensed into the three key words mentioned above. The overall picture of TQM is indeed wide and deep, consisting of a variety of elements, including fundamental concepts, management system model, tools and techniques, and promotion techniques as shown in Table 1.

### Table 1 – TQM Elements

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<td>Quality Assurance System: QA systems, QA system elements, harmonization with ISO 9000</td>
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<td>Cross-functional management: Cost management, Volume and Delivery management, Environment management, Safety management, etc.</td>
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<td>Resource management: People, information, knowledge, technology, etc.</td>
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### 3. QUALITY IN MANAGEMENT

It is considered that the primary purpose of the management of an organization is to provide value to customers through its products and services. The profit obtained is to be used for rotating a reproducible cycle of customer value provision. Quality is generally defined as “a totality of characteristics of an entity that bears on its needs and expectations”. As the customers have needs and expectations, quality is regarded as the evaluation of the value provided through products and services from customer viewpoints. Then, quality is the primary and direct purpose of the management of an organization.

On the contrary, in general, most people say the purpose of management is profit. For the sake of profit, however, it is essential to enhance the quality of products and services as customer satisfaction to increase sales. Giving consideration that the purpose of establishing an organization is to provide value to society and customers, profit should be regarded as a
measure to keep providing value to the customer and the result of customer acceptance, rather than the purpose of management.

If we define quality management as “management focusing on maintaining and enhancing customer evaluation of the value that is provided through products and services”, namely “management for quality”, quality management will be a management tool covering a wide range of general management.

There are two important leading principles in quality management. One is “quality-centred” and the other is “systems orientation”. Quality management pays attention to “quality”. Quality is essential in comparison with cost, volume, efficiency and others. To achieve quality, quality management focuses on systems, or processes and resources. In other words, it focuses on factors affecting the results. This is a general principle for effective and efficient management.

A well-organized way of “managing for quality” will function as follows:

- An organization is established to provide value to customers.
- The value is provided to customers through products and services.
- Quality management focuses management systems on ensuring quality.
- The management system will be a comprehensive one.
- This will result in improving brand value and financial results.

Then, the fundamental scheme of quality management can be described as follows:

Systems (Processes + Resources) → Customer satisfaction → Financial results

**4. APPLICATION OF QUALITY APPROACH TO HEALTHCARE**

Based on the understanding of quality management, there can be three viewpoints, as in the
following.

(1) Understanding the fundamental concept of a quality approach and its implementation
- Quality: Customer satisfaction
- Management: All activities to achieve objectives

(2) Establishing Healthcare Quality Management Systems (QMS)
- Management: Technology to make use of inherent technology
- QMS: Management system for quality, definition of work processes

(3) Visualizing, structuring and standardizing clinical knowledge
- Visualization of technology and knowledge necessary in clinical processes
- Structuring of technology and knowledge based on substances and characteristics of healthcare
- Standardization as a means of sharing best practices (application of better ways)

5. QUALITY

Quality is defined as “degree of satisfaction of customers/users” or “fitness for use”. The essential point is that quality is determined by the customers’ evaluation, and not by the provider’s criteria.

My favourite definition of quality is “a totality of characteristics of an entity that bears on its needs and expectations”. Anyway, quality is a totality of characteristics of an entity. The main point in this definition is in the clause “that bears on its needs and expectations”. As those who have needs are customers, it is reasonable that the core concept of quality is customer orientation and customer focus. Also, quality can be considered with regard to anything, including product, service, system, people, process, project, task, work, management, organization, etc.

In addition, this definition leads to a profound meaning of quality, i.e. the purpose-oriented way of thinking and doing. The core concept of quality is customer-oriented. That is to say, the quality concept puts importance on external criteria, but not on internal criteria from the supplier’s viewpoint. That is, it is purpose-oriented. This is why methods in quality management can be applied in any category of issues. Methods to achieve quality are, in other words, methods to achieve objectives. Then, once an issue is well defined, the issue in any field can be resolved using methods of quality management.

In quality management, there is an interesting lesson included; the next processes are our customers. This lesson was originally developed in Japan in the 1950’s. In order to achieve quality for customers/users economically and efficiently, each process should:
- Define the quality of its own process (value provided to next processes),
- Determine proper measures for providing the value,
- Implement them and give satisfaction.

If this thought is understood and realized, all people realize their roles and responsibility within the whole organization, and identify the objectives of their own job and perform their job successfully. This incredible way of thinking and doing has resulted in two wonderful concepts: “internal customer” and “process owner”. In the context of “internal customer”, everyone regards all people who are affected by the performance of their own job as customers and assures the quality of their own job. Also, the concept of “process owner”
encourages everyone to understand the significance and importance of their own job in relation to the purpose of the organization, do their duty, take pride in their job, and assure the quality of their own job.

6. MANAGEMENT

Management, in the context of quality management, is defined as “all activities to achieve objectives continually and efficiently”. The main point of this definition is, of course, achievement of objectives. For a sound management, four functions are necessary, as shown in Figure 2.

![Figure 2 – PDCA: Management cycle](image)

In management, standardization is crucial. Standardization is a unification and simplification for the sake of impartial benefit and usefulness among interested parties. Still, standardization is frequently misunderstood as improper uniformity.

A standard is a plan for the continual achievement of objectives. In Figure 2, item (4) of “plan” indicates “procedure”. In fact, “plan” consists of two parts; one is objectives, and the other is measures to achieve the objectives. If these objectives are set out repeatedly, almost the same measures will be determined to achieve these objectives. These measures will be standardized as a procedure.

Standardization is a measure to reuse knowledge. There are two types of standards. One is a standard that must be determined to prevent confusion by adopting uniformity. One example is a signal; the blue is to go and the red is to stop. Either is OK, but these must be determined in whatever way. The other type is a standard that had better be determined. This is a reuse of experiences and simplification of planning. This type of standard is defined as “a thing or method that has been found to be good based on experience”. Standardization is really a reuse of knowledge, effective use of experience, a method to save thinking, and a measure to share best practices.
The purpose of standardization is to save thinking in preparing implementation plans that are repeated, and to apply a proper method that has been demonstrated as being good. In this sense, standardization is a basis for improvement. For effective improvement, it is necessary to determine a current method, identify the causes of a problem, if any, in the method, and revise the method for the improvement. Standardization is also a basis for originality. One of the key points for a successful job is to focus on new, difficult and important things. To make this possible, the best way is not to spend time thinking about what is already known how to do, but to reuse a good thing that has been found to be good.

Management principles in quality management teach “building quality in the process” or “process control”. To obtain good results, it is better to focus on processes that produce the results and to control the processes. To do this, it is necessary to identify relationships between the results and process factors, standardize the process factors, and perform work following the standard procedures. And, when the results are not desirable, the relevant process conditions are to be revised for improvement.

In the PDCA of the management cycle, quality management stresses the importance of “A: Act”. It distinguishes three types of actions: immediate remedy, recurrence prevention and preventive actions. Immediate remedy removes, in principle, an undesirable situation or symptom, while recurrence prevention removes the causes of the undesirable symptoms. To make this possible, it is necessary to identify the real causes that brought out the symptoms, through the process of deep analysis. For preventive actions, it is necessary to extract essential knowledge from experience.

7. HEALTHCARE QUALITY MANAGEMENT SYSTEM

To achieve quality of product and services, in general, it is necessary to have two conditions:
- Inherent technology, or product-/service-specific technology, and
- Management systems to utilize the inherent technology as a whole organization.

A methodology related to the second one is called “management technology”, which is a technology or methodology to make the best use of inherent technology. Of course, the inherent technology is more important than management technology, but management technology must not be slighted. A typical management technology is a procedure, manual, instruction, guidelines, templates, and worksheets. They specify and recommend the measures necessary to achieve objectives. The representation of the technical contents necessary to achieve objectives, i.e. inherent technology, is also essential, as a management technology, to support an application of proper inherent technology.

These management technologies should be established in a well-organized manner as the management system of an organization. To ensure quality and safety in healthcare, a quality management system should be established and implemented. Dr. Masahiko Munechika presents a model for a quality management system for healthcare and reports on joint research done with hospitals, which introduces and promotes healthcare quality management systems.

8. STRUCTURING CLINICAL KNOWLEDGE

As mentioned above, the inherent technology is essential for quality of products and services.
Actually, the level of any management system cannot exceed the level of the inherent technology which is embedded in the management system. And, for the effective management system, the level of visualization, structuration and systematization of the inherent technology is essential, as well as the contents of the inherent technology.

Also, in healthcare, clinical knowledge is crucial in clinical processes. For the effective healthcare quality management system, it is necessary to establish a body of knowledge and technology basis necessary to ensure the quality of healthcare processes. In addition, a methodology is necessary to fully utilize inherent technology which has already been established. We should have systematization of clinical knowledge in suitable structures, taking into account the specific features of healthcare processes.

Dr. Satoko Tsuru proposes PCAPS (Patient Condition Adaptive Path System), which is a representation of a body of knowledge for clinical processes in a form of healthcare intervention adaptive to patient condition.

9. QUALITY MANAGEMENT AS A MOVEMENT FOR ORGANIZATIONAL IMPROVEMENT

A quality approach can be one of the best management tools for organizational improvement and innovation, because quality management is a management tool to enhance the value the organization provides to its customers by focusing on management systems as well as inherent technology. It will upgrade organizational capability in providing value to the customer, a basis for long-term success. In this sense, a quality management system should be read as “a management system for customer value provision”.

A quality approach will make people and organizations wise. What is meant by “wise”? “Being wise” has the following meanings;

- **Purpose**: Can understand purposes/objectives, Follow purpose-/objective-oriented way of thinking and doing
- **Cause**: Consider cause-and-effect relationship, Think about purpose-and-means relationship, Know methods to identify these relationships
- **Essence**: Can extract and grasp essences from things, Can apply essences to various things, Have a good sense of generalization and abstraction
- **Reflection**: Can rotate PDCA cycle appropriately, Can perform deep analysis, Can conceive broader range of recurrence prevention, Can predict and prevent

As described in previous sections, a quality approach has the following features;

- **Quality concept**: Purpose-oriented
- **Methodology**: Cause-and-effect relations, Purpose-and-means relations
- **True causes, common causes**: Deepest analysis, Generalization, Horizontal deployment
- **Actions**: Recurrence prevention, Preventive actions

People who learn the quality concept and methodology will become wiser if they understand the essence of the quality approach. Also, an organization which introduces and promotes the quality concept and methodology in a sincere manner will upgrade its management level and become wiser as a whole organization.
Quality management is also useful in healthcare, if applied giving consideration to the features of healthcare processes.
Quality Management Approach to Healthcare

Yoshinori Iizuka
Masahiko Munechika
Satoko Tsuru
Quality Management Approach to Healthcare

1. Quality Approach to Healthcare – Fundamentals (25’)
   Yoshinori Iizuka, The University of Tokyo

   Masahiko Munechika, Waseda University

3. A Framework for Structured Clinical Knowledge – PCAPS (20’)
   Satoko Tsuru, The University of Tokyo

4. General Discussion (20’)

Masahiko Munechika    Satoko Tsuru    Yoshinori Iizuka
Quality Approach to Healthcare – Fundamentals –

Yoshinori Iizuka
The University of Tokyo
Quality Approach to Healthcare

- Attention to healthcare quality and safety
  - Approaches for safety applied in industry (e.g. SHEL model, human reliability engineering and human centered system design)
  - Quality approach (e.g. TQM: Total Quality Management) successfully applied in industry

- An approach successfully applied in industry also effective in healthcare?
  - Quality of healthcare really be improved?
  - Management of healthcare institutions become sound?
  - Healthcare social system become healthy?
What is TQC/TQM?

- **Quality**
  - Importance of quality in business management: “quality” is a source of long-term profit
  - Quality losses: Variety of losses due to poor quality
  - Quality problems that do not look quality problems: cost problems, delivery time problems, …..

- **Participation by all people**
  - Participation by all members of the organization: “quality” can be achieved by contribution of all personnel
  - Upgrading people’s competence: quality of people

- **Improvement (KAIZEN)**
  - Continually upgrading oneself in “technology” (reproducible methodology) and “management” (organizations mechanisms to make the best use of technology)
TQM Elements

(1) Fundamental concepts
- Quality, Management, and People

(2) Management systems model
- Top management’s Leadership, Vision, and Strategy
- Management systems: Administration of management systems, Daily management, Management by policy
- Quality Assurance System: QA systems, QA system elements, Harmonization with ISO 9000
- Cross-functional management: Cost management, Volume and Delivery management, Environment management, Safety management, etc.
- Resource management: People, Information, Knowledge, Technology, etc.
TQM Elements

(3) Tools and Techniques

- Statistical techniques, Seven basic QC tools (Q7), Seven management tools (N7)
- Product planning seven tools (P7), Strategic planning seven tools (S7)
- Quality function deployment (QFD), Failure Mode and Effect Analysis, Fault Tree Analysis, Design Reviews, Reliability Engineering
- Other management tools

(4) Promotion techniques

- Introduction and promotion: Standard steps, organization, training, assessment, diagnosis
- Enhancing people and organization’s ability: Level-up of individuals and department, recognition
- Mutual enlightenment, information sharing: Nation-wide promotion, opportunity for mutual enlightenment, Bench-marking
Quality in Management

Management System

Quality Management System

Organization

Products
Services

Customer

Quality

Quality of products/services
= Products/services accepted by customers
= Basis for success in business management

Management

Purpose of an organization: Customer value provision through products
Purpose of its management: Provision of good quality of products
Profit: Source for reproducible cycle for customer value provision
Quality management

- Quality Management
  - Management for quality: Management for good quality of products
  - Quality of management: Quality of organization, generic management

- Principles of quality management: System approach
  - Manage systems (processes/resources) to achieve objectives
  - Focus on the causal mechanisms to produce results

- Management for quality
  - Organization: Established to provide value to customers
  - Value: Provided to customer through products
  - Quality of products: Focusing on management systems
  - Comprehensive systems: Improve brand value and financial results

- Systems (Processes + Resources)
  \[\rightarrow\] Customer satisfaction \[\rightarrow\] Financials
Application of Quality Management to Healthcare

(1) Understanding fundamental concept of quality approach and its implementation
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What is “Quality”? 

- Quality is …. 
  - Degree of satisfaction of users/customers 
  - Fitness for use 

- Quality is determined by …. 
  - Customers’ evaluation 
  - Not by supplier’s criteria 

- Who are the customers? 
  - Purchasers: Those who purchase the product 
  - Users: Those who actually use the product 
  - The third party: All those who are affected by the product in its processes of produced, used and disposed, except customers and users
Profound meaning of Quality

Definition (My favorite one)
- Quality = a totality of characteristics of an entity that bears on its needs and expectations
- A point: that bears on its needs and expectation
  - Those who has needs are customers … customer oriented, customer focus
- Can consider about anything
  - Products, services, systems, people, process, project, task, work, management, organization, …..

This definition leads to a profound meaning of quality, i.e. the purpose-oriented way of thinking and doing.

Quality concept is …
- Customer oriented
- External criteria
- Purpose oriented
Next processes are our customers

- Achieve quality economically and efficiently

- Each process should:
  - Define quality of its own process (value provided to next processes),
  - Determine proper measures for providing the value,
  - Implement them and give satisfaction.

- Internal customer
  - Everyone regards all people who are affected by the performance of its own job as customers and assure quality of its own job

- Process owner
  - Everyone understands the significance and importance of its own job in relation with the purpose of the organization
  - Do its own duty, take pride in its job, and assure quality of its own job
Management

- Management
  - All activities to achieve objectives continually and efficiently

- Good management is ....
  - Objectives are achieved
  - Performed efficiently
  - Repeated continually

- PDCA
  - For a sound management, four functions, making a plan (PLAN), doing as planned (DO), checking the results (CHECK), and take corrective actions (ACT), are necessary.
PDCA：Management Cycle

Plan
(1) Determine objectives
(2) Define control items
(3) Set target (control level)
(4) Determine procedure

Do
(1) Perform training
(2) Do as in the procedure

Check
(1) The target achieved?
(2) Any other nonconformities?
   (Undesirable side effects?)

Act
(1) Immediate remedy:
    remove nonconformity
(2) Recurrence prevention:
    remove causes
Standardization

- Standardization
  - Unification and simplification for the sake of impartial benefit and usefulness among interested parties.
  - Still, standardization is frequently misunderstood as improper uniformity.

- Standard is ..... 
  - A plan to achieve objectives continually
  - PLAN is consisting of two parts;
    - Objectives
    - Measures to achieve the objectives
  - If the objectives are set out repeatedly, almost same measures will be determined to achieve the objectives
  - This measure will be standardized as a procedure
Standardization is …

**A measure to reuse knowledge**

- Two types of standards
  - **Must** be determined: Prevention of confusion through uniformity
  - **Had better** be determined: Reuse of experiences, Simplification of planning

- Standard and standardization
  - (Technical) Standard
    - A thing or method which has been found to be good based on experiences
  - Standardization
    - Reuse of knowledge
    - Effective use of experience
    - Saving thinking
    - Sharing best practices
Standardization is …

**Basis for originality**

- Basis for continual improvement
  - Determine a current method
  - Identify causes of a problem, if any, in the method
  - Revise the method for the improvement.

- Basis for originality
  - For successful job: focus on new, difficult and important things.
  - Do not spend a time in thinking about what has been known how to do
  - Reuse a good thing that has been found to be good.
Building quality in the process, Process control

- Fundamental way of thinking
  - To obtain good results, it is better to focus on processes that produce the results and to control the processes.

- Standardize at the desirable process conditions
  - Identify relationships between the results and process factors
  - Standardize the process factors
  - Perform works following the standard procedures

- Control and improvement
  - When the results are not desirable, the relevant process conditions are to be revised for improvement.
Actions

- Immediate remedy
  - Removes undesirable situation or symptom

- Recurrence prevention
  - Removes causes of the undesirable symptoms
  - Need to identify real causes that brought out the symptoms through deep analysis.

- Preventive action
  - Extract essential knowledge from experiences
  - Prediction and prevention
Application of Quality Management to Healthcare

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(3) Visualizing, structuring and standardizing clinical knowledge
   - Visualization of technology and knowledge necessary in clinical processes
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   - Standardization as a meaning of sharing best practices (application of better ways)
Necessary conditions for quality

(1) Motivation (Incentives, Driving forces)
- Being convinced

(2) Thoughts (Concept, Philosophy)
- Technology with rationale to be standardized
- Standardization of methods with technical rationale

(3) Technology
- Methodology
- Knowledge

(4) Management
- System
- Process
- Infrastructure

(5) People
- Competence
- Awareness
- Morale

(6) Promotion (Movement, Drive)
- Encouragement
- People being able to implement as planned
- Values
Technology and management

- To achieve quality of product and services
  - Inherent technology, or product/service specific technology
  - Management systems to utilize the inherent technology as a whole organization

- Management technology
  - “Inherent technology” and “Management technology”
  - Management technology = Technology or Methodology to make use of inherent technology

- Typical management technology
  - Procedures, manuals, instructions, guidelines, templates, worksheets
  - Specify and recommend the measures necessary to achieve objectives
  - Support effective application of proper inherent technology by well organized representation of technical contents
Significance of Management Systems

- Management system
  - Management technologies should be established in well organized manner as a management system of an organization.

- Quality management system
  - To ensure quality and safety of healthcare, quality management system should be established and implemented.

- Dr. Masahiko Munechika
  - presents a model for quality management system for healthcare (QMS-H, Quality centered Management System for Healthcare)
  - reports on a joint research done with hospitals, which introduce and promote QMS-H
Application of Quality Management to Healthcare

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Technology and Management

- For the effective management system
  - The level of any management system cannot exceed the level inherent technology which is embedded in the management system.
  - The level of visualization, structuration and systematization of the inherent technology is essential as well as the technical contents of inherent technology.

- For the effective healthcare QMS
  - Need to establish a body of knowledge and technology basis necessary to ensure quality of healthcare processes.
  - Need to fully utilize inherent technology which has been already established.

- Dr. Satoko Tsuru
  - Focuses on systematization of clinical knowledge in suitable structure taking into account the specific feature of healthcare processes.
  - Presents PCAPS (Patient Condition Adaptive Path System), which is a representation of a body of knowledge for clinical processes in a form of healthcare intervention adaptive to patient condition.
PCAPS
Patient Condition Adaptive Path System

Quality Assurance System for Clinical Processes

- Process quality assurance adapting to patient conditions
  - A method for building quality in the clinical processes adapting to patient conditions

- Standardization of methods based on technical rationale
  - Standardization = Unification and simplification for the benefit of persons concerned
  - Standard = A thing or method which has been found to be good based on experiences

Structured Clinical Knowledge
Quality Approach

- Quality approach
  - One of the best management tools for organizational improvement and innovation

- Quality management
  - a management tool to enhance value the organization provides to its customers by focusing on management systems as well as inherent technology
  - will upgrade organizational capability in providing value to customer, a basis for long term success.

- Quality management system
  - Management system for customer value provision
Making people and organization wise

- Wise …!  
  - **Purpose**: Understanding purposes/objectives, purpose oriented  
  - **Cause**: Cause and effect relationship, purpose and means relationship  
  - **Essence**: grasping essences, applying essences, generalization and abstraction  
  - **Reflection**: Can rotate PDCA cycle appropriately, Can perform deep analysis, Can conceive broader range of recurrence prevention, Can predict and prevent

- **Quality Approach**  
  - **Quality concept**: *Purpose* oriented  
  - **Approach**: *Cause and effect* relationship, purpose and means relationship  
  - **True causes, common factors**: Deepest analysis, *generalization*  
  - **Actions**: Recurrence prevention, Preventive actions
Integrated system of technology and management

- Contribution to quality and safety
  - “Technology” and “management” that makes the best use of it
  - Complementary relations of inherent and management technology
    - how to make inherent technology useful technology (i.e. reproducible methodology to achieve objectives)
    - how to make management technology practical in daily work
- The first organizational knowledge: Inherent technology
  - Body of knowledge and technology basis necessary to ensure quality and safety of healthcare
  - Structuring organizational knowledge on inherent technology taking into account specific features of healthcare
  - Example: Patient Condition Adaptive Path System (PCAPS)
- The second organizational knowledge: Management technology
  - Body of knowledge on models for healthcare management system
  - Structuring organizational knowledge on management technology
  - Example: Quality centered Management System for Healthcare (QMS-H) model