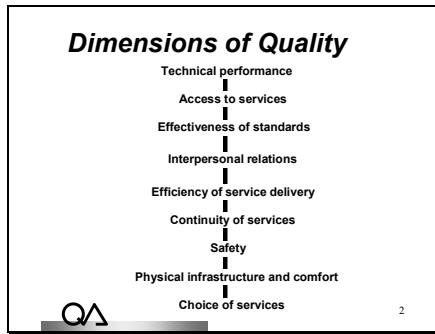


Slide 1

Content	
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Module 2: Cost and Quality	Slides 16 - 26
Module 3: Relationship between Cost and Quality	Slides 27 - 32
Module 4: Analysis of Cost and Quality	Slides 33 - 55

QA 1

Slide 2



Slide 3

Definition of quality

“The quality of technical care consists in the application of medical science and technology in a way that maximizes its benefits to health without correspondingly increasing its risks. The degree of quality is, therefore, the extent to which the care provided is expected to achieve the most favorable balance of risks and benefits.”

• Avedis Donabedian M.D., 1980


QA 3

Slide 4

Definition of quality

“Doing the right thing, right, the first time.
Doing it better the next time.”

- ODI Consulting



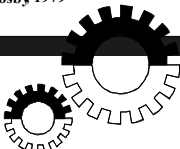
QA 4

Slide 5

Definition of quality

“Quality is conformance to requirements or specifications.”

- Phil Crosby 1979




QA 5

Slide 6

Definition of quality

“...proper performance (according to standards) of interventions that are known to be safe, that are affordable to the society in question, and have the ability to produce an impact on mortality, morbidity, disability, and malnutrition.”

- M.I. Roemer and C. Montoya Aguilar, WHO, 1988




QA 6

Slide 7

Definition of quality

"Quality is compliance with standards."
• QA Project Contract, 1997



QA 7

Slide 8

Perspectives on quality



QA 8

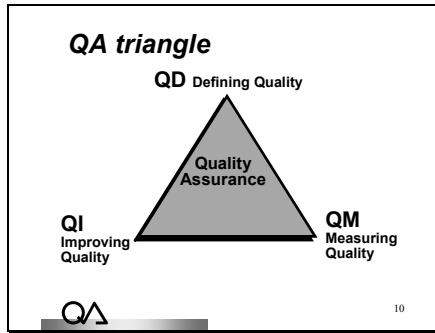
Slide 9

Systems view of quality

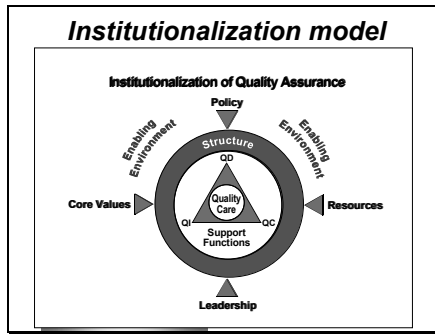
Input	Process	Outcome
<ul style="list-style-type: none">• Right workers for the right job• Availability of drugs• Necessary equipment and supplies	<ul style="list-style-type: none">• Compliance to standards of care	<ul style="list-style-type: none">• Correctly treated patient• Satisfied clients• Increased utilization• Healthy patients• Reduced disability• Death

QA 9

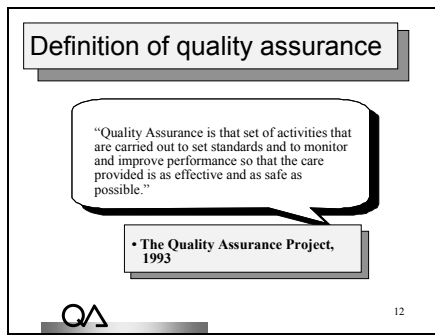
Slide 10



Slide 11




Slide 12



Slide 13

Four principles of QA

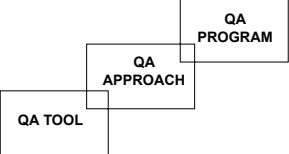


- Customer focus
- Team work
- System thinking
- Data use

QA 13

Slide 14

Quality assurance



QA 14

Slide 15

Systems view of QA

Input	Process	Outcome
QA Specialist	Training in QA	Improved quality of care
Clinical and managerial guidelines	Communication of standards (approaches)	Compliance to standards
Resources to implement standards of care	Quality design activities	Establishment of QA culture

QA 15

Slide 16

What is cost?

- Something expended to obtain a benefit (expense, disbursement)
- The quantity of one thing that is exchanged for a service or a product (price, charge)
- A loss incurred in the course of gaining something (toll, sacrifice, loss)

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What is cost?

<u>Cost Type</u>	<u>Definitions</u>
Monetary or financial (e.g., wage rate of employees)	• Actual expenses incurred for an input or to provide a product or service, at a given time
Economic or opportunity (e.g., value of employee's time engaged in work outside of primary job duties)	• The value of benefits foregone by using resources to provide alternate products or services
"Accounting" (e.g. depreciation allowance)	• Artificial costs applied to reflect the real value of a product or service at a given time; cost is not <i>actually incurred</i>
Shadow prices, for non-monetary (e.g., donated time and equipment)	• Costs applied to subsidize goods and services whose true value is not the same as listed

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Major cost categories


QA 18

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Cost dimensions

- Direct vs. Indirect Cost
- Obvious vs. Hidden cost
- (Investment or Capital or Fixed) Cost vs. (Recurrent or Variable) Cost
- Unit cost
- Average Cost
- Incremental Cost

Note: Some costs are "unknown and unknowable" (Deming)




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Cost of quality

- Costs incurred in achieving/maintaining quality standards, and
- Those costs resulting from not achieving/maintaining quality standards

Source: Juran, Shewhart



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Cost of quality

Prevention + Appraisal + Failure

Costs incurred to prevent 'defective' units of services from being produced


Costs incurred to detect 'defective' units of services before they are given to clients

Internal External

Costs incurred when services are identified as 'defective' before they reach the client

Costs incurred when services are identified as 'defective' after they reach the client

Not included: Cost of 'doing business' or providing services



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Example - use of drugs


PREVENTION COST : Drug use protocol

APPRAISAL COST : Inspection of drug stock

FAILURE

Internal : Use of nonessential list drugs

External : Adverse drug reaction


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Slide 23

Assumptions

Improved Quality Requires Additional Resources, But ...

- Increased efficiency or reduced re-work may save resources
- Standards may decrease variation and save costs
- Additional inputs or complex technology will require additional resources
- Increased resources do not guarantee improved quality


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Assumptions (cont'd)

Costs Of Poor Quality Are Easily Seen And Fixed, But ...

- Most costs of poor quality are hidden
- The causes of poor quality are often complex, systems-related issues
- Costs of correcting problems are diminished when actions are taken as close to the problem as possible


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Quality in cost terms

Poor Quality:
 Care "that falls short of customer expectations... Time or money spent on something that doesn't help the (client)... Cost of not doing things right the first time and having to do them over" (Webster)

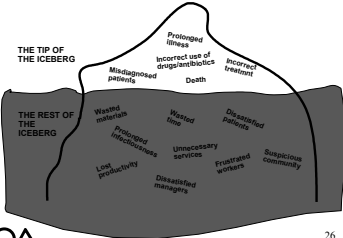

"Costs associated with (poor) quality are those costs that would not be expended if quality was perfect" (Wares)



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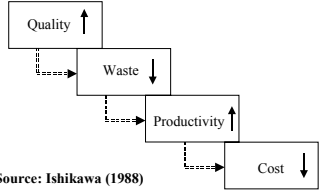
Cost of poor quality


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Theory of quality economics



Source: Ishikawa (1988)



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Effect of a change in cost on quality

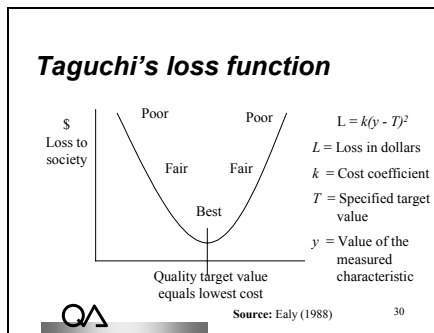
	Quality ↑	Quality ↓
Cost ↑	• Necessary resource is added	• Harmful or redundant resource is added
Cost ↓	• Harmful or redundant resource is removed	• Necessary or redundant resource is removed

Source: Donadabian, Wheeler, Wyszewiaski (1982) 28

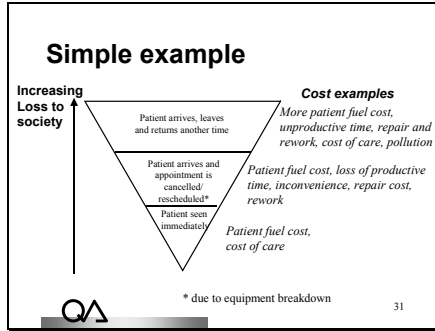
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- Taguchi's laws**
- We can improve quality without increasing cost
 - We can reduce cost by improving quality
 - We cannot reduce cost without reducing quality
- QA 29

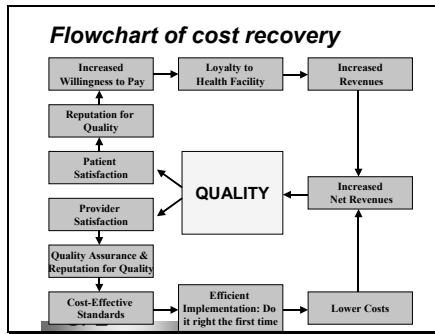
Slide 30



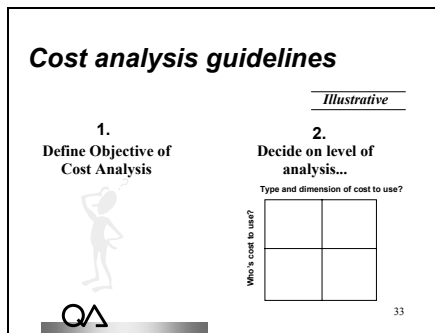
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Cost analysis guidelines (cont'd)

- **Decide on level of analysis (for cost and quality):**
 - clinic, hospital, regional, national (health systems and sub-systems)
 - intervention (e.g., for improving quality), QA tool, approach, program
 - by cost category, activity, process, department, organizations or and/or program
- **Measure what is relevant to decision to be made or objective of analysis**
- **Decide on level of precision required**
- **Set time period of analysis (e.g., prospective or retrospective)**

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Spectrum of methodologies for analyzing cost and quality

Evaluate cost relative to benefit
e.g., Cost-effectiveness analysis
Cost-Benefit Analysis/
Return on Investment
Cost-utility analysis

Evaluate cost and cost of poor quality
e.g., Cost management
Activity-based cost management
Cost of Quality analysis
Analysis of inefficiency

QA 35

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Definitions

Effect	• <i>Change among individuals, families or communities as a result of an activity, project or program</i>
Benefit	• <i>Advantages in dollar terms resulting from various actions</i>
Utility	• <i>(Perception of) satisfaction from consuming a specific bundle of goods and services (subjective)</i>

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Why cost-effectiveness (C-E)?

- Useful for comparing alternatives
 - alternative interventions to achieve the same goal
 - alternative means for intervention to achieve its objectives
 - trade-offs in varying size, scope or composition of a given strategy
- Identify optimum alternative

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Cost-effectiveness analysis (CEA)

	Intervention A		Intervention B
Cost	C_A		C_B
Effectiveness	E_A		E_B
C-E analysis	C_A / E_A	vs.	C_B / E_B

Other possible analysis:
Difference in C vs. Difference in E

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General measurement guidelines

COST	EFFECT
<ul style="list-style-type: none"> • Concentrate on costs that are relevant to the decision (i.e., those that depend on the choice made) • Focus on costs that will vary with each alternative 	<ul style="list-style-type: none"> • Decide which outcome criteria to use (output, effect, impact) • Develop measures for criteria that can be quantified, feasibly measured, and will change depending on the alternative selected

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Some limitations

- 1. Conceptual limitations**
 - when alternatives are not exactly comparable
 - when multiple effects exist for an alternative
 - deciding which costs and effects to measure
- 2. Interpretational limitations**
 - not the only component for making decision
 - risk of overgeneralizing results
- 3. Measurement limitations**
- 4. Data limitations**
- 5. Calculation limitations**

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CBA and ROI

- **Cost-Benefit Analysis:**
comparison of cost of resources and health benefits in terms of a common unit of measurement, usually monetary
- **Return on Investment:**
the amount of cost benefits (savings) achieved by an intervention over the incremental cost of that intervention

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Cost-utility analysis

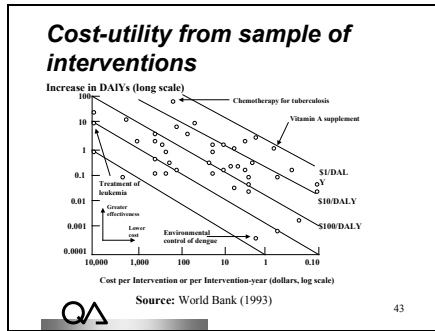
- Used when effectiveness cannot be measured
- Compares cost of alternatives with subjectively derived ratings of those alternatives

Example of utility measures:

DALYs	- Disability Adjusted Life Years
YHLL	- Years of Healthy Life Lost
QALYs	- Quality Adjusted Life Years

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Evaluation of CUA

PROS	CONS
<ul style="list-style-type: none"> Enables comparison of interventions across different sectors Useful for guiding policy decision 	<ul style="list-style-type: none"> Results depend on assumptions made in calculation Raises ethical questions about value of life May not lead to equitable decisions

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Sample calculation

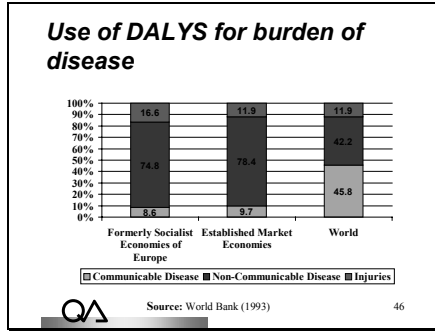
$$YHLL = I * [(CFR * E(Af)) + (CDR * D\% * Dt)]$$

per 1000 per year

I	Incidence rate per 1000 population per year
CFR	Case Fatality Ratio (proportion of those developing the disease who die from the disease)
Af	Expected average age of death
E(Af)	Expectation of life for age of death
CDR	Case Disability Ratio (1 - CFR)
Dt	Duration of Disability
D%	Extent of disability

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- Activity-based cost management**
- Method for allocating resources to services/products using activities performed to produce services/products
 - More accurate product costing and insight into the production process itself.
 - ABC and Activity-Based Management (ABM) map out these cause-and-effect relationships in production of services/products

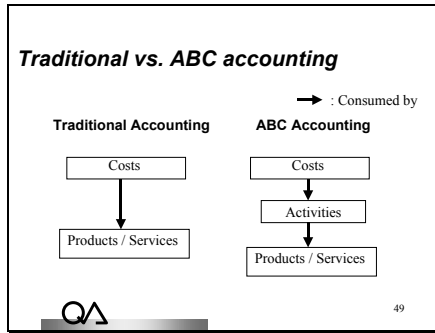
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Example

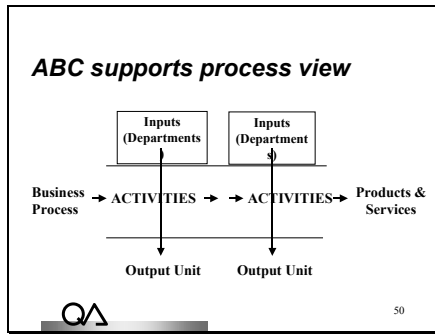
- Company XYZ makes two products - blue cars and red cars
- 900 blue cars produced per year, 100 red cars
- Red cars are more specialized and consume 60% of personnel time

<u>Traditional Accounting</u>	<u>ABC Accounting</u>
Assign 90% of overhead/support costs to blue cars	Assign 40% of overhead/support cost to blue cars

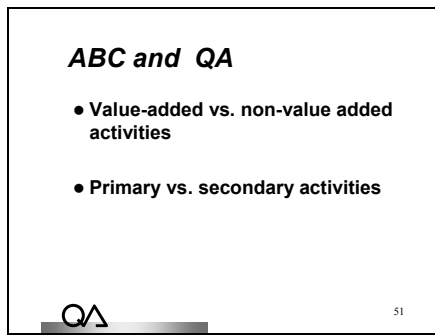
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Slide 51



Slide 52

Cost and quality report

Illustrative

Company XYZ	
Cost of Appraisal	20%
Cost of Prevention	20%
Cost of Failure	60%
Total Cost of Quality	100%

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Analysis of inefficiency

Definition of efficiency

- The achievement of objectives without wasting resources
- The relationship between output and input

For example:

- Two programs, A & B, use the same amount of resources
- Program A screens 10 mothers/day;
- Program B screens 5 mothers/day
- Program A is more efficient than Program B

QA Source: Reynolds and Gaspari 53

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Sources of inefficiency - examples

- **High variation** in the processes for delivering a product/service
 - may itself be due to lack of standards or procedures, or lack of knowledge of these and therefore non-compliance with standards and procedures, among other things
- Using **unnecessarily high cost** inputs.
- **Poor productivity**
 - may be due to a myriad of issues, not excluding, poor processes, a poor match between skill and performance expectation
- **Non-value added activities**, e.g., repetition

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