

The Introduction of Quality Tools into Dentistry

Good Practice or Defensive Medicine?

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Summary

The adoption and use of recognised quality tools into dentistry and whether such an introduction is merely good practice or is "defensive medicine" is discussed in the paper. The methods of introduction necessitated by the adoption of quality tools is discussed though the actual tools themselves are only briefly mentioned and not defined.

Quality tools can be used in every process whether manufacturing or service industries. Dentistry is a service industry and the question that is asked is whether the introduction of accepted quality tools is good practice or defensive medicine? The answer is that the adoption of almost universally recognised methods of improving quality is good practice and if quality tools were introduced it would be good practice rather than defensive medicine.

The adoption of quality tools on the macro level would undoubtedly raise standards and improve the quality of service. Indeed, the failure to move with "the times" could render practitioners more liable to legal actions as the methods they use in practice would not be satisfactory if dentistry is compared to those manufacturing and service industries that have adopted quality tools.

The conclusion being that the introduction of quality tools into dentistry would be good practice rather than defensive medicine.

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The Use of Quality Tools in Dentistry

Good Practice or Defensive Medicine?

The quality of dental treatment and the standards aspired to by dental surgeons are those of continuous improvement. This paper is intended to be both controversial and informative in opening the debate on the role that recognised quality tools can have in the provision of dental services and whether their introduction can be seen as a positive step or a negative defensive step with the aim of reducing legal actions against dental practitioners. Given the limitations on size, it is not possible to give more than an overview of the subject and to open the debate on the introduction of such tools as are used throughout other service industries as well as manufacturing industries.

Aims and Objectives

The aims and objects of this paper are:

1. To examine the concept that the adoption of recognised quality tools from manufacturing industry and other non health care service industries will lead to an improvement in the standard of the quality of dental care.
2. To determine whether the adoption of quality tools in dentistry is defensive medicine or good practice.

Introduction

"Defensive medicine", as is well recognised is a phrase which has very emotive connotations with concepts of excessive, expensive and unnecessary treatment undertaken for no good clinical reason, but to protect the health care practitioner from the threat or the perceived threat of legal action.¹

However, clinical standards and treatments are "not fixed in stone", but could and should be the subject of continual improvement with raised standards and treatments being the consequence of such progress. The use of such treatments should not necessarily be considered as defensive medicine, but as part of the process of improvement in patient care. The possibility however, does exist that many of the "advances" in treatments can have two aspects; firstly that of improving patient care and secondly protection of the practitioner from legal consequences by being "state of the art" treatment at the fore front of contemporary knowledge.

However, not all advances are for the benefit of patient or practitioner, but may be a fashion which is acceptable at one time, but not another.² In other industries, quality tools have been adopted as methods of advancing quality standards; that is, the adoption of a Total Quality regime. This paper will look at how they can be adopted and whether their adoption in dentistry can be construed as defensive medicine on a grand scale or good practice which will benefit both patient and practitioner.

To achieve the aims it is necessary to examine both what defensive medicine actually means and what quality tools are available and how they are used and then to discuss them in the dental context.

1 Thomas GR The Influence of Legal Issues on the Dental Profession 1988.

2 The removal of non-symptomatic Wisdom teeth is a prime example of the changes in attitude with time and fashion.

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1. What is defensive medicine?

A great deal has been written about legal issues affecting medical practice, through the practice of defensive medicine. Defensive medicine has been defined by different people in different ways:

"Defensive medicine, is the practice of medicine, modified or influenced by anxiety regarding legal action or complaint." Dictionary of Medical Ethics³.

or

"It is deviation from what the physician believes is sound practice and is generally so regarded, induced by a threat of liability... Not all practices motivated for liability considerations result in poor quality care. It is therefore, difficult to draw the line between where good medicine stops and where defensive medicine begins." per Hershey.⁴

or

"The practice of defensive medicine is essentially the management of a patient's care not only with an eye for the patient's welfare, but also in an effort to pre-emptively fashion an unassailable record in anticipation of possible future malpractice litigation. Excessive diagnostic test and X-rays, unnecessary surgery and inordinate use of antibiotics are to name a few, the expensive and potentially dangerous concomitants of defensive medicine." per Joseph H. King Jr..⁵

or

"...the practice of 'defensive medicine', by which is meant the practice of doctors advising and undertaking the treatment which they think is legally safe even though they may believe that it is not the best for their patient. per Lord Scarman.⁶

or

"...the phrase implies a practice of patient care which is designed to protect the doctor against allegations of negligence as much as to achieve the best interests of the patient.. . so called defensive medicine may be good medicine... as it leads to a more thorough examination and therapeutic regimen for the patient,..." Butterworths Medico - Legal Encyclopaedia.⁷

However, the above definitions fail to convey the fact that the practice of defensive medicine can consist of omissions as well as acts. It can be negative as well as positive in nature. Defensive medicine may be better defined:

"**An act or omission** which is performed by the practitioner in the knowledge that the deliberate act or omission in question will be advantageous to the practitioner in any subsequent legal action, involving the patient and the treatment they received under the direction of that particular practitioner." Gareth R. Thomas⁸

Defensive medicine, is however, generally regarded as the provision of more radiographs and diagnostic tests and longer courses of medication than that which is absolutely clinically necessary.

There is another side to this argument some practitioners may regard as good practice that which other practitioners regard as excessive treatment and defensive medicine. This aspect will be developed below when the use of quality tools and their role in dentistry will be discussed. This is **positive aggressive** treatment, which in some circumstances can be regarded as positive aggressive defensive medicine.

3 Darton, Longman and Todd 1981.

4 The Defensive Practice of Medicine: Myth or Reality. Milbank Memorial Quarterly 1:1; 1972.

5 The Law of Medical Malpractice p324. West Publishing Co., 1977.

6 Sidaway v Bethlem Royal Hospital Governors [1985] 1 All E.R. 643 at 653.

7 J.K. Mason and R.A. McCall-Smith, 1987.

8 The Influence of Legal Issues on The Dental Profession, 1988.

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Conversely, the treatment provided by some practitioners can be thought to be below the standard that practitioners should aim for. The stories of supervised neglect especially with regard to the periodontal condition of "middle aged" patients is an example of this. This is treatment in a **negative defensive** manner and could be regarded as negative non-aggressive defensive dentistry in that by doing as little as possible there is little to go wrong and little to be sued for though this fails to take into account the fact that omissions as well as acts can be a cause for legal action.

The standard of care is not fixed, but constantly changing and it is the duty of practitioners to remain up to date in their methods and techniques. Raised standards of treatment, due to improved materials and techniques have led to a changing base line of what is excessive treatment and what is now the acceptable minimum standard of treatment. Indeed, what could once have been construed as defensive medicine may now be the accepted normal standard of treatment that a practitioner should aim to achieve.

2. How can quality tools improve dental practice?

It is necessary to introduce concepts of quality or "total quality" generally before applying them to dentistry. To meet the criteria, the following needs to be addressed:

1. What are the recognised quality tools?

Subsequently to this:

2. Can some or all of the recognised quality tools be applied to the practice of dentistry?

3. If the use of quality tools can be applied to dentistry, can they apply at both the individual level as well as that of the profession as a whole?

Management of Total Quality and the Practice of Dentistry

Traditional quality control methods are dependent on detection whether manufacturing or service industry and dentistry for the most part is no different, failures usually being identified by the patient post treatment or a dentist at the follow up stage.

Total Quality is different and needs three components if it is to succeed.

1. A quality assurance system
2. Quality tools and techniques
3. Teamwork

A Quality Assurance System

The keystone to the successful introduction of a Total Quality system is for customer (patient) and supplier (dentist) to work together for their mutual benefit. Total Quality management does however, extend beyond the immediate customers and suppliers to all those in the quality chain (e.g. technicians etc.). This requires consistency throughout the practice and the organisation must organise itself to achieve this.

This concept necessitates a quality system that meets the objectives set for it in the practice's quality policy. The system in place must however, be appropriate for the activity or service provided.

Consistency can only be achieved when the process is "under control". This is dependent upon the same materials, equipment, methods and procedures being used each time in exactly the same manner. If these aims are met then the system is "under control". The aim of a "good quality management" is to provide the "operator" with consistency in "working environment" to maintain the highest overall standard which can be expected from the process.

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There are internationally recognised standards and these are the International Standards Organisation (ISO) Standard 9000 Series which are applicable to dental practices who can apply for registration if they so wish. These set out the methods by which a management system incorporating all the activities associated with quality can be implemented by an organisation to ensure that the needs and requirements of the customer are met.

The system requires audits and review to ensure:

1. the people involved are operating to a documented system (a system audit)
2. the system meets the requirements (a system review)

Quality Tools and Techniques

All processes can be monitored whether they are manufacturing processes or service industries. Monitoring allows improvements to be made by effectively gathering and using data effectively. Measurement is of the performance of the process and if necessary the feedback required for corrective action.

Quality improvement techniques and Statistical Process Control (SPC) methods together with good organisation provide the means of controlling any "transformation" process be it a manufacturing process, the provision of services or the transfer of information.

These techniques and control methods are used as part of the overall strategy of reducing variability in product, the cause of most quality problems. Variation in product can have various ways of showing itself as existing. These include amongst other factors delivery times, methods used, people's attitudes, equipment and its usage and especially product failure in usage. Indeed anything that can vary can produce variation and have a positive or negative impact on the quality of the product produced.

Control by itself is however, not sufficient for Total Quality which has a fundamental requirement that the process should undergo continuous improvement by reducing variability. It is a helix of continual improvement rather than a cycle. The helix is known as the **EPDCA (evaluate, plan, do, check, amend, evaluate, plan, do etc.)**

To achieve this all aspects of the process should be studied and analysed in the never ending process of continual improvement. Measurement to conformance is not the sole criteria for use of tools and techniques they need to indicate action on processes to reduce variability.

An essential part of a Total Quality strategy is process control and the tools and techniques form a vital part of the control process. If the processes are inconsistent and incapable then however good the design it can be rendered useless and any supplier quality assurance meaningless. In whatever field, the process must be reliable and consistent. This objective can be and is achieved through the use of statistical process control.

Statistical Process Control relies on a number of tools. Not all the tools are applicable to dentistry in the first instance though they all have a role to play. The recognised tools are identified below and their use or otherwise to dentistry in the opinion of the author will be indicated. These are:

1. *Cause and Effect Diagrams*: are also known as the "fish bone" diagram because of its shape or the Ishikawa diagram, named after its originator. It represents the relationship between an "effect" and the possible "causes" influencing it. This is a most useful tool in that the Pareto Analysis (see below) can identify areas of concern. If a problem has been identified then these diagrams can be used to identify the prime causes of the likely effects and action can be taken to eliminate the effects.

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These are particularly applicable to dental treatments and the practice of dentistry in identifying where a practitioner has recurring difficulties and problems.

2. *Flow Charts*: are pictorial representations of all the steps in a process. These are of limited value in dentistry, but can have a role in the provision of more complicated processes where the whole process is not under the control of a single person. A prime example being their use when the dental treatment has to use laboratory work.
3. *Pareto Charts*: are among the most commonly used graphic techniques and can be used to determine priorities for action and to distinguish between the important few and unimportant many. It is a commonly accepted statistic that eighty per-cent of problems arise from twenty per-cent of the process. These charts permit that twenty per-cent to be identified and in conjunction with Ishikawa diagrams, the causes of the failures of the twenty per-cent may be identified and consequently rectified to give an improved product to the benefit of both patient and practitioner.
4. *Run Charts*: are perhaps the simplest of the statistical tools. They display observation points over a specific period of time and have limited usage in dentistry.
5. *Histograms*: are used to display the frequency of an event and to present the distribution of data. These have their uses and can be used with Pareto analysis to illustrate failures in the processes.
6. *Scatter Diagrams*: are used to study the possible relationship between two variables. These again have limited use in dentistry, though their use cannot be ruled out.
7. *Control Charts*: are charts that control and analyse a process. They are time-ordered charts with statistically determined upper and lower control limits on either side of the process average. These are not strictly applicable to the everyday practice of dentistry as such, but have uses in the provision of materials and prostheses.

Whilst not all of these tools are applicable to every process and system, they provide the information necessary to control the system. The actual methods of use are outside the scope of this paper.

In many organisations that use SPC emphasis is placed on the techniques themselves rather than on the managerial responsibilities which are an integral part of a Total Quality system with the emphasis on continual improvement. Emphasis on the SPC tools at the expense of management responsibilities will negate many of the positive effects that result from the adoption of a Total Quality regime.

The presentation and interpretation of statistical data is important and communication can be through graphs, charts and other forms of presentation representing data concerning the control of the process, here the provision of dental treatment. To do this a number of questions need to be answered:

1. Is there the potential to do the job correctly?
2. Are we continuing to do the tasks correctly?
3. Have we ever performed the task better?
4. Is it possible to achieve greater consistency?

SPC will then allow identification of non-conforming outputs and provide the requisite knowledge of process capability (patient treatments).

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Teamwork

In many organisations, the operations and processes are such that no one individual can control all of them, dentistry is no different though many practitioners try to control all aspects of the practice of dentistry. The way to successfully deal with problems is through the use of teamwork. Teamwork permits:

1. A greater variety of problems to be addressed. The problems may be beyond the capability of any one person.
2. A greater range of knowledge, experience and expertise can be brought to bear on the problem.
3. A teamwork approach gives greater satisfaction to members and can boost morale.
4. If problems cross functional boundaries they can be addressed more easily.
5. Team recommendations have a greater chance of being implemented in comparison to individual suggestions.

The keystone to this approach is that individuals are more likely to support any effort or proposal when they have had an input into its development. Indeed, properly formed and managed teams improve the problem solving process producing results quickly, efficiently and economically.

Total Quality is reliant upon teamwork if it is to succeed. It builds up trust, improves communications and develops interdependence. In the west, the concept of **interdependence** is alien, the culture being one of **independence** with little, if any, exchange of ideas and information between members of the dental team. Teamwork which is devoted to quality improvement has been shown to change the independence to interdependence through improvements in communication, trust and the free exchange of ideas, knowledge, data and information between all team members as well as those who are not part of the team, but are affected by the actions brought about by the team in its problem solving mode.

How to Implement Total Quality

Effective Leadership

Develop and publish clear objectives

Effective leadership requires the "leaders of the revolution" to express the vision through the beliefs which they hold for the development of the practice and what the objectives are to ensure the vision comes to fruition. The vision, beliefs and objectives define the dental practice, team, unit or organisation.

To achieve the vision the beliefs and objectives must be clearly defined and communicated. This can take the form of a *mission statement*. It is however, essential that all dentists and support staff work together as a unit if a "winning team" is to emerge.

In developing the vision with its associated beliefs and objectives, the following should be included:

1. The practice's commitment to effective leadership and quality
2. Target sectors, customers, market and position
3. The relationship with patients
4. Internal relationships
5. The relationship with suppliers and others
6. Monitor performance against patients' needs and expectations
7. Develop the processes of continuous improvement.

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Develop clear and effective strategies to meet the objectives

If the practice is to achieve the objectives that it has set itself, then it needs to develop strategies, including that of strategic positioning. Plans need to be developed to meet these strategies. These plans can be developed by senior practitioners alone, but greater commitment is likely to be achieved if all are included in their development and implementation.

Identify the critical processes

The Critical Processes which are essential to the vision need to be identified; that is the activities which **must** be done well if the objectives are to be met and the vision to come to fruition.

Review the management structure

Having identified the practice's objectives, strategies and critical processes, it is a **must do** to review the management structure. Dentists of whatever standing can only be truly effective if there is an efficient, effective management structure. To achieve this, the responsibilities for management and the operational procedures need to be defined. The operational procedures must be the best agreed method of performing the identified critical processes.

Empower employees

For Total Quality implementation to succeed there should be no demarcation boundaries. Effective communication channels need to be developed up, down and across the practice and with patients. Action needs to be taken on what is communicated. Note:

1. Attitudes - Total Quality is about communication and continuous improvement
2. Abilities - all need to do what is needed and expected of them - if not they need to be trained
3. Participate- Do suppliers evaluate, plan, do, check amend, evaluate, plan, do, check, amend, evaluate etc.. This is not a never ending circle, but an " **EPDCA helix**" of never ending improvement.

People must:

1. Say what they do
2. Do what they say
3. Check they do what they say they do

To support this philosophy, good project management, planning techniques and problem solving methods also need to be encompassed. Project management permits changes to be made successfully and problem solving can remove the obstacles in the way of the proposed changes.

Quality

To successfully implement Total Quality

1. There must be a commitment to satisfying customer's needs and expectations. This commitment must start from the top. It is a top down not bottom up approach, but must have a commitment from each and every person within the organisation.
2. Be close to the patients
Patients needs and expectations can only be fully understood, if there is effective communication. This applies to all within the organisation and people should be trained to do this.
3. Do it right first time every time
The customer's needs and expectations need to be fully understood and the **EPDCA** helix used.

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EVALUATE - PLAN - DO - CHECK - AMEND

4. Agree the performance standards expected

For people to meet the standard expected of them, it is essential to define the standard so that the task will be performed right first time every time in accord with agreed needs and expectations.

5. There must be a commitment to a practice wide quality improvement process

The commitment must include all, internal and external customers and suppliers. It will not succeed if not adopted by all whatever their status. The place to start is at the very top and lead by example and progressively expand the concepts throughout the whole practice.

6. Measure performance

At all times it is necessary to know how successful the "practice" is in satisfying the patient's needs and expectations. Each and every person needs to know how well they are doing. All need to measure and evaluate their performances and know how to report how they are performing. Practitioners need to benchmark not only against their peers, but also against themselves to ensure that their standards are not slipping.

7. Measure the level of "fire fighting"

Fire fighting and the cost of quality mismanagement **can be measured**. These are excellent indicators of internal efficiency and are easy to measure and understand. Failures cost money and time. Failures take many different forms whether it is the failure of restorations that need to be replaced or dissatisfied patients who resort to legal actions which need to be defended.

8. Continuous Improvement is a "Must DO"

Continuous improvement is the aim for each and every individual for all tasks on all occasions. The product should be continuously improved whether through an improvement in techniques or materials or greater experience.

9. Achievements need to be recognised

Human nature being what it is, criticism is easy to make, but praise difficult. Praise those who do it right and publicise it. Criticise in private.

Discussion

1. Will the adoption of quality tools lead to improvements in practice with a consequent raising of standards in quality of patient care?
2. Can quality tools be used throughout the whole of dentistry?
3. Is it defensive medicine to adopt quality tools in practice or just good practice in striving for ever increasing improvements in the quality of dental treatment?

Dentistry much to the chagrin of many of its practitioners is a service industry. All service industries are there to cater for the needs of their customers and in this respect dentistry is no different to other industries. All service industries need to improve their products to satisfy the enhanced expectations of their customers; that is, to be successful a product needs to be continuously improved. Dentistry is no exception to this golden rule.

The adoption of quality tools may be undertaken at the individual level or adopted by the dental profession as a whole. The adoption of quality tools if correctly implemented undoubtedly has the potential to raise the quality of service and product offered by the dental profession to the public. Quality is about the continuous improvement in performance of the product and service. These are the aims which all professions should aspire to. The improvement in products and services offered to patients is not defensive medicine, but good

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professional practice as the aim is not to protect the practitioner against legal actions, but to provide an improved service to patients who are customers of the dentist.

If the experiences of other manufacturing and service based industries are used as examples, quality tools can be used throughout a process from inception, through conception to fruition. The processes and tools of total quality can be used throughout any process and dentistry is no different to other processes. Some of the tools may not be suitable, but others will be more than suitable and there is little doubt that the adoption of such tools will raise the standard of service and product provided to patients.

The adoption of total quality tools and management in no way can be construed as defensive medicine as the aim of adoption of such a regime is to improve the services provided to clients and customers or in this instance patients.

The aim of the dental profession should be to improve the services and products provided to patients. This improvement in quality of services and products is a never ending aim. It is a continuous cycle of improvement and one that any profession can ignore only at its peril!

Given the success which quality tools have achieved in other fields, the argument should now be, can the dental profession as a whole afford not to adopt quality tools as a standard of improvement in provision to patients? Thus, the adoption of quality tools is not defensive medicine, but good practice, conversely, the failure to adopt quality tools can be construed as bad practice or negative non-aggressive defensive medicine in that the dental profession is not prepared to move with the times and learn from the experience of other industries and professions.

Conclusions and Recommendations

The conclusions to be drawn are:

1. In the author's opinion, the adoption of quality tools will improve the quality of product provided by the dental profession to its patients.
2. Not all quality tools are appropriate for use in dentistry, but those that are will be of benefit in the continuous pursuit of improvement in the provision of products and services.
3. The adoption of quality tools is not and cannot be construed as defensive medicine as the aim is to improve the quality of service and product, not to prevent legal actions arising against the practitioner.
4. Failure to adopt and use quality tools can be taken as a sign the dental profession as a whole is not prepared to learn from other industries and professions experiences and no amount of bluster from the dental authorities and institutions can remedy the failings in aiming for the best standards. Dentistry cannot become an insular profession immune to the changes occurring in total quality management throughout the rest of the world.
5. The individual dentist should appreciate the role of quality tools in improving the product offered to patients and that failure to continuously improve one's practice of dentistry is bad practice and could lead to actions against the dentist in that the dentist would have failed to meet the standards expected of such a person.

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The recommendations are very simply, namely that:

1. the dental profession as a whole should adopt appropriate quality tools to improve the service to patients;
2. the individual dentist as the leader of the dental team should be trained in the use of quality tools to improve the product and service at the individual level; and
3. quality tools if introduced into dentistry need to be introduced correctly otherwise they will fail as do most things which are introduced in an inappropriate manner.

A total quality regime needs to be introduced as a total quality regime in practice, not in name only.

The correct adoption of quality tools will provide a better product to patients in the short, medium and long term. It is however, the choice of the dental profession as a whole whether it will adopt a total quality regime or not!

Suggested Reading

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