

# Proactive Medicine: An Invaluable Concept for Promotion of Health and Healthcare

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## Abstract

Proactive means acting in anticipation of future needs and before the situation becomes a source of confrontation or crisis. In medical practice it simply refers to an anticipation of what could go wrong and put measures to prevent or avoid it. Proactive medical care is a holistic, structured approach to care, it can influence the way we think, manage and approach medical conditions. It can positively influence the way the medical community looks at and classifies diseases, the way we respond to clinical problems in hospital as well as the way we respond to medical problem as a whole society. The structured thought process and outcome based practice preached by proactive medicine is the way forward in solving some of health care system. Focusing on key process improvements should pave the way toward promotion of health systems.

**Keywords:** Proactive; Health; Healthcare; Promotion; Development

is a holistic approach to care, it can influence the way we think, manage and approach medical conditions.

The principle can positively influence the way the medical community looks at and classifies diseases e.g. heart failure and chronic kidney diseases, the way we respond to clinical problems in hospital e.g. evolution of rapid response teams as well as the way we respond to medical problem as a whole society e.g. diabetes care.

Proactive medicine changes medical thinking: Heart Failure (HF) is an example of how proactive thinking has influenced our approach to a medical condition.

Heart failure places a heavy burden on the patients, their families and the society. Enormous health care resources are utilized [4].

The 5 years mortality is 75% after initial hospital admission. Survival rate of HF is worse than that for most cancer [4]. Seventy- five percent of HF cases have antecedent hypertension [5].

The New York Heart Association [NYHA] functional class classifies Heart failure symptomatically (Table 1).

**Table 1:** New York heart association functional classes\* [6].

| NYHA class | Symptoms  |
|------------|---|
| 1          | No symptoms and limitation in ordinary physical activity    |
| 2          | Mild symptoms, slight limitation during ordinary activity   |
| 3          | Marked limitation in activity due to symptoms               |
| 4          | Severe limitations. Experiences symptoms even while at rest |

This classification reflects the degree of incapacity that has already happened [6].

The NYHA system is an example of a reactive way of pursuing a disease, since we wait for the problem to develop, and then reactively work on it.

## Introduction

Proactive means acting in anticipation of future needs, future problems, or changes [1]. The word proactive was initially used in experimental psychology in the 1930s [2]. In 1989, the term proactive was further popularized in business [3]. The word has come to mean "to act before a situation becomes a source of confrontation or crisis". When contrasted to reactive, the word proactive gets a higher power of connotation.

In medical practice we can reflect on proactive thinking as a structured approach. It simply refers to an anticipation of what could go wrong before it happens and put measures to prevent or avoid it.

Proactive medicine usually follows the traditional medical facets, but the outcome and the weight of the output have a significant contribution in the process. Proactive medical care

In 2001, American college of cardiology and the American Heart Association working group issued their guidelines [7] and introduced 4 stages of heart failure (**Table 2**).

**Table 2:** ACC/AHA stages of heart failure\* [7].

| Stage    | Description   |
|----------|---|
| <b>A</b> | Patients at high risk of HF without structural heart disease or symptoms of HF (HTN, DM, atherosclerotic disease, obesity, metabolic syndrome, using cardio-toxic medication or with family history of HF). |
| <b>B</b> | Structural heart disease without symptoms and signs of heart failure (previous MI, LVH, LVSD, symptomatic valvular disorder).   |
| <b>C</b> | Structural heart disease with prior or current symptoms and signs of heart failure.   |
| <b>D</b> | Refractory HF requiring specialized intervention.   |

When we try to fit NYHA classification groups into these 4 stages system, those with NYHA class 1 will correspond to stage C while patients with stage A & B do not feature at all in the NYHA classification system. The ACC/AHA stages represent a proactive system, which look at patient with pre-clinical heart failure to enable appropriate management to prevent or slow progression of heart failure. If we adopt this attitude we might be able to delay or prevent a lot of heart failure by effectively targeting risk groups. A deeply rooted pro-activity targets those susceptible for the risk factors and ameliorates their susceptibility. A similar proactive system has led to the classification of Chronic Kidney Disease (CKD) into 5 stages (**Table 3**).

**Table 3:** Classification and treatment of CKD\* [8].

| Stage    | eGFR  | Description   | Treatment stage  |
|----------|-------|---|--|
| <b>1</b> | 90+   | Normal kidney function, but urine findings, structural abnormalities or family history suggest kidney disease | Observation, control of blood pressure (<130/80), lifestyle changes. |
| <b>2</b> | 60-89 | Mildly reduced kidney function, and other findings as for stage 1 suggest kidney disease                      | Observation, control of blood pressure and risk factors              |
| <b>3</b> | 30-59 | Moderately reduced kidney function  | Observation, control of blood pressure and risk factors              |
| <b>4</b> | 15-29 | Severely reduced kidney function  | Planning for end-stage renal failure                                 |
| <b>5</b> | <15   | Very severe or end-stage kidney failure (established renal failure)   | Choice of treatment (dialysis, transplantation, palliative care)     |

Where stage 1 describes people with normal eGFR and stage 2 those with only very mild impairment, but are at risk of progression to renal failure [8]. This underscores the importance of proactive measure to avoid deterioration in renal function.

Proactive medicine changes medical practice: The introduction of Rapid Response Teams (RRT) in hospital care is

a good example of how proactive thinking is translated to proactive practice.

Hospitalized patients are vulnerable to bad outcomes partly because of the underlying illness and partly because of the complexity of hospital care. Many obvious delays and inefficiencies in the traditional system of acute hospital care are reported. Up to 17% of hospital admissions are complicated by serious adverse events [9]. Review of charts of several patients who suffered cardiac or respiratory arrest in hospitals revealed that most often you will find alterations in subjective complaints and vital signs in nursing documentation that precede the event from hours to days in advance, these alarming features often pass unnoticed until patients deteriorate to a critical stage.

It is clear that if outcomes are to be improved, prompt and accurate assessment immediately followed by competent and efficient treatment is essential [10]. There is strong evidence that early detection and response to physiological deterioration can improve outcomes for hospitalized patients [11]. Many health systems adopted a system where appropriate monitoring in general words identifies signs of impending deterioration that triggers early and timely intervention by RRT. Rapid response team is a team of clinicians who bring critical care expertise to the bedside. Data showed that implementation of RRT improve the outcome (**Table 4**) and reduce ICU admission [12, 13].

**Table 4:** Effect of implementing rapid response team\* [12].

| Measure                                | Before | After | Risk Reduction: |
|--|--------|-------|-----------------|
| Number of cardiac arrests              | 63     | 22    | 65% (p=0.001)   |
| Deaths from cardiac arrest             | 37     | 16    | 56% (p= 0.005)  |
| Number of days in ICU post arrest      | 163    | 33    | 80% (p=0.001)   |
| Number of days in hospital post arrest | 1363   | 159   | 88% (P=0.001)   |
| Inpatient deaths                       | 302    | 222   | 25% (p=0.004)   |

It was quickly realized that the RRT waisted a lot of precious time wondering around to see patients in different parts of the hospital. Therefore, further steps were taken to reconfigure care delivery by gathering vulnerable patients in Acute Medical Assessment Unit (MAU) to ensure that ill patients are in appropriate and safe environment. Introduction of RRT was a proactive step in early recognition of those who are at risk of bad outcomes. The key process improvement was to deliver early expert care. This triggered a further change in practice by the creation of MAU to concentrate patients who may need special care in the same place with those who are able to deliver it. It seems RRT set the stage for the next step.

Proactive medicine is a holistic approach: Healthcare providers, patients, policy makers and health insurance provider should all work together in a proactive way to reduce the impact of medical conditions on the society as a whole.

Type 2 Diabetes Mellitus (T2DM) provides a good example of this concept.

Globally, the prevalence of T2DM is rocketing. It poses a massive health problem in both developed and developing countries [14]. The total number of diabetic patients is expected to grow from 246 million in 2006 to 380 million by 2025 [15-17].

Type 2 diabetes mellitus is one of the leading causes of morbidity and mortality. It is a major source of expenses for patients. In 1994, 1 of every 7 health care dollars in the United States was spent on patients with DM. Approximately two thirds of people with diabetes die from heart disease or stroke. Diabetes mellitus is the leading cause of blindness in working-age adults, End-Stage Renal Disease (ESRD), and non-traumatic lower limb amputations in the United States [15, 18].

As the disease constitutes a huge burden on the individuals, their family and the society we need to target all of them with educational, therapeutic and preventive measures.

As a medical society, we know that screening and educating the at risk group help in prevention and early detection of diabetes. By targeting this group by intense educational program, we might be able to reduce the medical, social and financial burden of the disease. Appropriate strategies include promotion of a healthy life style; healthy eating and exercise e.g. ensure availability of easily accessible, well prepared exercise area for both adults and kids. An incentive program from insurance in a form of a rebate or reduction of insurance premiums for those who achieve healthy life style and demonstrate weight loss could reflect a proactive socially responsive insurance business.

A proactive patient would be one who is well informed and empowered to look after him/herself and positively influence others. A proactive physician is the one who get his patient to such a state.

## Proactive and Kaizen

Kaizen is a Japanese term referring to a philosophy or practice that focus upon continuous improvement in manufacturing business and even life in general, depending on interpretation and usage [19]. The two major components in this practice are maintenance and improvement. Kaizen shares with the term innovation the same goal which is improvement. Innovation involves a drastic improvement in the existing process and requires large investments. Kaizen is a gradual process of implementation of small component at a given time. The essence of kaizen is a gradual and continuous improvement. This makes kaizen a suitable way for change in low resource area.

The integral part of kaizen is structured thought process. Its tools are Define, Measure, Analyze, Improve and Control (DMAIC) [15]. These tools enable kaizen process to establish itself in health care in many countries. In the above example of RRT we defined the problem as bad hospital outcome. Measurement and analysis pointed out the defect which was inappropriate response to early clinical manifestation. The

impact was to create an RRT, which was an improvement. The story does not end here as the initial response has set a new standard which has to be either maintained (controlled) or re-improved. The process keeps on and becomes a way of organizational development. It is conceivable to view proactive medicine as a kaizen process in healthcare. It is a process of continuous improvement rather than a single point in health care. In conclusion, in Sudan, as a developing country we are still suffering from the burden of endemic diseases and we get hit by affluence related problems. The projected impact of both conditions is tremendous. The structured thought process and outcome based practice preached by proactive medicine is the way forward. Understanding the steps taken by other health care systems during their transformation and progress will help us to focus in what will make the difference. Focusing on key process improvements should pave our journey toward a better end results and promote our health and healthcare systems.

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