

Quaternary prevention: a task of the general practitioner

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Quaternary prevention – an (increasingly) important theme in family medicine

“Prevention is better than cure”. This principle is undisputed. New knowledge points to the fact that prevention can also do harm. Under the concept “quaternary prevention” efforts are currently focused on finding the right measure of preventive care, true to the old medical tenet “primum non nocere”.

The Editors of PrimaryCare have pleasure in joining this trailblazing new discussion via the article of Thomas Kuehlelein et al., which in its present form is based on Marc Jamouille’s workshop “About quaternary prevention” at the European Wonca Congress 2009 in Basel. We publish it unabridged.

The contribution appeared in several languages, and can be found in English, Spanish, Italian, Portuguese and Croatian at www.primary-care.ch.

For further information on quaternary care please consult the website http://docpatient.net/mj/P4_citations.htm.

Abstract

Quaternary prevention is the prevention of unnecessary medicine or the prevention of overmedicalisation. The principle of “primum non nocere” is central to the whole of medicine. The task to avoid excess medical interventions is particularly mandatory in the field of general practice. We report on a workshop on this topic held at the 15th Wonca Europe Conference in Basel, in September 2009. In a world of growing obsessions with health matters and rising possibilities of “doing something”, there is a need for someone to give advice about the appropriateness of medical procedures. Mainly in the name of prevention, there has been an explosion of new disease labels and health care measures that warrant a rethinking of the objectives and underlying philosophy of primary care. Especially in an area of high grades of uncertainty and low prevalence of severe diseases, the most difficult thing for the physician is the decision not to pursue further action and to protect our patients from unnecessary medicine. This decision can firmly be grounded on probabilities arising from clinical studies on the one side and the individual life stories and values of our patients on the other. We propose to make quaternary prevention more explicitly the task of the general practitioner.

Key words: quaternary prevention, general practice, overmedicalisation

T.M., 62 years old and up to now a healthy man, comes to see his general practitioner. In a journal distributed by the local pharmacy he has learned about the rising number of men his age, diagnosed with cancer of the prostate gland. He asks for screening for prostate cancer with PSA-testing. As the test is not covered by his health care insurance, he is willing to accept that he will have to pay for it himself. He does not have any problem with voiding or his sexual life. There is no history of prostate cancer in his family. He says: "You know, I was always in good health but I feel I am coming to a certain age now and my wife said that I should start to do something to stay healthy".

What should the advice of his doctor be?

The workshop in Basel

We are reporting on a workshop held at the 15th Wonca Europe Conference in September 2009 in Basel. The title of the workshop was "Quaternary Prevention" (QP). To make it clear in the beginning, QP is the prevention of overmedicalisation or the prevention of unnecessary medicine. One of the fundamental principles of medicine is "primum non nocere". The aim, therefore, is to detect patients at risk for excess medical procedures that will probably do them more harm than good and to offer them acceptable alternatives.

Workshops are places where not only things and ideas are presented, but where they are also further developed by the input from the participants. There were three presentations on the topic, followed by a vivid discussion. In this article, we use the input from the participants to further develop our ideas concerning QP.

Primary, secondary, tertiary and quaternary prevention – patient's illness and doctor's disease

The levels of prevention have been defined and used differently [1]. Even the term QP has been used in different ways [2]. As general practitioners, we refer here to the concept of QP as first published by one of the authors Marc Jamouille (MJ) in 1986 [3]. In 1999, it was accepted as a concept by the Wonca International Classification Committee and published in 2003 in the Wonca Dictionary of General/Family Practice [4].

Leavell and Clark, in 1958, defined the different levels of primary and secondary prevention as health measures before and after the disease in question comes into existence. Secondary prevention was confined to early disease stages, for example disease detected by screening. Tertiary prevention was related to avoiding complications of already clinically manifested diseases and was used for

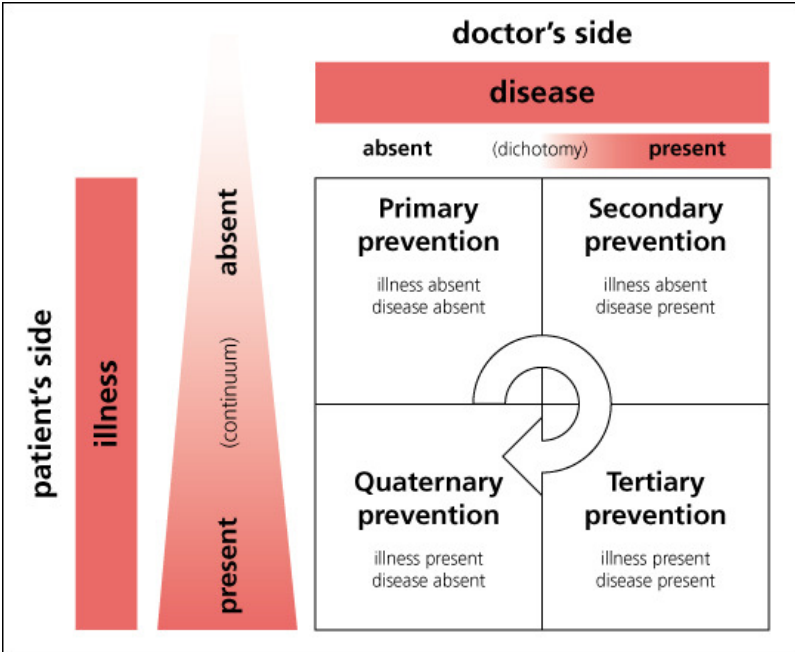
rehabilitation measures [5]. This and similar views have always been driven by doctor centred approaches to health care.

MJ's concept introduces a new strategy, combining patient and doctor's views and elaborating on a prevention concept based on this relationship. His new way of dealing with the prevention concept breaks away from the former chronological way. It can now be seen as the crossing between the patient's mind (illness or health) versus the doctor's appraisal (disease or no disease). When using the terms illness and disease, we here refer to Arthur Kleinman and his famous book 'The Illness Narratives – Suffering, Healing and the Human Condition' [6]. Kleinman made the distinction between illness as "the principal difficulties that symptoms and disability create in our lives" on the one hand. Disease in contrast was defined as "what the practitioner creates in the recasting of illness in terms of theories of disorder. Disease is what practitioners have been trained to see through the theoretical lenses of their particular form of practice. That is to say, the practitioner reconfigures the patient's and family's illness problems as narrow technical issue".

The feeling of being ill does not necessarily meet the doctor's judgment that there is a disease present. However, there are more and more disease labels attached to patients who feel perfectly well. In fact the most common so called "chronic conditions", such as hypertension, diabetes, osteoporosis and many others, are diseases without illness. As Charles Rosenberg once put it: "...contemporary medicine and bureaucracy have constructed disease entities as socially real actors through laboratory tests, pathology-defining thresholds, statistically derived risk factors, and other artefacts of the seemingly value-free biomedical enterprise." [7]

Figure one gives an idea of what this new approach of classifying prevention is about.

Figure 1: The 2 x 2 table model of different forms of prevention in the relational model



As a further development to the original table (http://docpatient.net/mj/P4_citations.htm) we have put disease into the dichotomy and mutual exclusiveness of absent and present. Illness in contrast has a continuum between absence and presence.

Primary, secondary and tertiary prevention are well known tasks of the physician.

In primary prevention there is neither illness, nor disease. Strictly speaking, the patient is not a patient. The prevention measures would be to talk about a healthy lifestyle and to take vaccinations for example.

In secondary prevention there are conditions present in the form of disease labels. Most of them will be risk factors and as such, it is debatable whether they should be disease entities in their own right. Another example would be early disease stages detected by screening, such as early prostate cancer. The now called patient feels perfectly well, except for being threatened by the knowledge of a disease. Disease labels such as hypertension, diabetes mellitus type II, hypercholesterolemia or osteoporosis are defined by arbitrary cut-offs in a continuum of measurement readings. The aim of secondary prevention is to reduce the risk of certain endpoints of these conditions, such as myocardial infarction, stroke or fractures. Thus, strictly speaking, the treatment for hypertension for

example is prevention not treatment, as there is no illness present. The concept of risk factors is quite new, but has gained wide popularity within a fairly short time [8]. Most of the patients with risk factors will, in fact, never develop the complications they are at risk for. Nevertheless it is possible to define these patients as having chronic diseases or, if they have more than one of them, even multimorbid. We should not frighten our patients by making them aware that life itself is a risk factor for death, when in fact it is a predisposition for death (Fig 2).

Fig. 2: Helping the patient to manage uncertainty?



Helping the patient to manage uncertainty

Much has been learned about the importance of risk factors being relative. One example is that we should not treat hypercholesterolemia as a measure of secondary prevention by itself, if the overall risk for cardiovascular complications is low. However, we might try to protect patients with relatively low cholesterol readings by prescriptions of a statins if their overall risk is high. Another form of secondary prevention would be cases of early disease stages found by screening. The majority of men over 80 will have prostate cancer [9]. Only few of them will die from it [10].

Tertiary prevention is the only point where illness and disease coincide. An example would be a patient having had a myocardial infarction. These patients not only have risk factors for myocardial infarction, but, for whatever reason, they have developed one. They now have the highest risk to

suffer a second one in the future. We should clearly try to prevent this with all the measures we have, provided this makes sense according to the life circumstances and will of the patient.

In QP we have the problem of illness without disease. While the patient experiences illness and deserves a disease label, doctors, as newly proposed, would label a majority of these illnesses as MUS (medically unexplained symptoms) [11]. Many terms and underlying concepts have been used for these illnesses in medical history [12]. One is psychosomatic illness. Despite containing the word somatic, the concept sees the cause clearly on the psychic side, with the effect being only felt somatically. However, there are efforts to construct somatic disease labels, such as fibromyalgia, which is highly welcomed by most patients who feel relieved from the perceived blame of a psychiatric disorder. All these symptoms and illnesses widely open up the doors for endless diagnostic procedures. Most of them will have normal results, but many will have borderline or false positive results. The consequences are endless further diagnostic tests and prescriptions of never proven therapies with well known side-effects. The problem is also that, as shown in figure 1, there is a continuum between health and illness in contrast to a dichotomy between not having a disease and having a disease. Most people in fact do have symptoms at a given point in time [13]. Most of them will not consult a doctor in spite of that, but they can be made to do so. We might call these patients the “worried well”. In fact the media, the pharmaceutical industry, politicians and the medical professions in a weird mixture of best intentions and economic profit have the potential to create doubt and worries about even the most robust health of the people [14,15]. As one of the authors Juan Gérvas (JG) once put it in a presentation: “I am going to prove, that you all are dead”. Next he told us about a new guideline for heart failure [16]. It defines four stages of heart failure. Stage A is for people without structural heart disease or symptoms of heart failure, but who are “at risk” for it. At the end of his presentation on heart failure, he came back to his statement from the beginning: “Now you can see that you are all dead – but fortunately only stage A!” There is a lot of truth in this joking. Stage B of heart failure is for people with structural heart disease, but without signs or symptoms with heart failure. Are the people labelled as having heart failure stage A and B really patients? Is it really the worry for our patients that drives us? Or is it the cynical broadening of the narrow spectrum of patients by doctors who are more and more specialised and by this rising specialisation have less and less patients? Or is it the seemingly moral free activity of pharmaceutical companies in search of new consumers for their products? Probably it is neither only this, nor only that. It is a danger we are all in. The consequences of this danger will be felt mainly by our patients or by the people whom we,

more or less intentionally, make our patients. This is what we should keep in mind with every action we take, and this is why we think it is important to have a name for this task: QP.

One reaction of our patients, followed by many of our colleagues in general practice, in face of the often frightening technical character of modern medicine is the romantic retreat to so called alternative or complementary forms of medicine. We believe that there is no alternative to good medicine founded, as far as possible, on robust science on the one hand and respectful understanding of the fears and wishes of our patients on the other. If modern medicine is missing empathy and human understanding beyond measurable and technically manageable things, this is a deficit. If there is a deficit, we should call it that and not try to add what is missing as a seeming alternative or complement.

How to promote QP

What then can we do to promote QP? In the discussion at the workshop, there was a colleague who argued that little can be done by a sole general practitioner faced with the overwhelming power of so many profiteers of the contrary. However, we are not alone. UEMO, the professional representation of general practitioners/ family physicians in Europe, supports the idea of QP [17]. We think that there is a lot that can be done. The first would be to further promote the concept of QP and thus to keep it in mind ourselves as one of our genuine tasks and to discuss it with colleagues. We believe that QP is so inherent in the world of the generalist, that most of us will have practiced it already in one way or another, without explicitly calling it like that. What we will need to follow further will be the concept of strong weapons on the one hand and allies on the other. The most difficult thing for doctors and their patients is the decision not to pursue further diagnostics and therapy [18]. The human mind seems to be more open to action, even if it turns out to be useless or even harmful, than to no action or a 'wait and see' approach. This can turn into absurdities such as women continuing to have Pap-smears in 69% of cases after having had a complete hysterectomy in the US [19]. In these cases it seems relatively easy to be convinced of QP. However, what can be done in so many other conditions with floating boundaries and a huge overlap of benefit and harm? A meaningful benefit at the population level does not automatically translate into a meaningful benefit at the level of the individual patient. This probably holds true for many cases of secondary prevention. Geoffrey Rose distinguished the causes of incidences and the causes of cases in his famous article on sick individuals and sick

populations [20]. Preventive medicine was readily misunderstood by so many, such as to apply the high-risk strategy for individual patients to bigger and bigger parts of the whole population [21].

One of the strongest risk factors for many diseases and for the still inevitable outcome, death, is age. Yet, there is no clear boundary of when it is futile to try to prevent one disease, when the probability to die from so many other diseases strongly related to age becomes overwhelming. Few people would still discuss the usefulness of statins for a patient with severe dementia and a high grade decubital ulcer. Polypharmacy and thus patient safety is a major concern in the care of the elderly. The question which preventive medication can be stopped and when is the task of the general practitioner together with the patient or maybe his or her relatives. QP, thus, can also be the prevention of unnecessary prevention.

One of the strongest methods to avoid unnecessary medical processes is Evidence based Medicine (EbM) in the sense that it was originally developed by David Sackett and colleagues [22]. The knowledge of the probabilities of effect sizes of benefit and harm from clinical studies, can provide us with confidence about the possibility to leave out many diagnostics and medications in concordance with our patients. If we keep stuck in the dichotomy of “works/ works not”, we will not be able to leave out a given medication.

However, it is not only about therapy. Chris del Mar and colleagues from Australia mentioned in a highly recommendable book about clinical thinking [23], a new and dangerous syndrome called VOMIT. VOMIT is an acronym for “**V**ictim **O**f **M**odern **I**maging **T**echnology”. It is far easier to recommend any useless diagnostic test “for safety reasons” than to discard it. The difficulty lies in the possibility to be wrong when seemingly ruling out any disease as the cause of the patient’s illness. Additionally how do we tell the patient that we did not find anything as an explanation and as a consequence will not be able to help? It is important not to leave the patients alone with their illness, simply because we have no disease label for the problem. The positive predictive values of diagnostic test results in areas of low prevalence for the most severe diseases are fairly low, even if their sensitivities are high [24]. If we as general practitioners had been taught more about the consequences of Bayes’ theorem for the validity of positive test results in our setting, we probably would be more restrictive in ordering tests in many cases. The problem has been that our most specialised teachers did not know about it. Knowledge, not mistrust, is the best means for QP.

Another lever of QP is the person or life story of the individual patient in front of us. Many medical processes won’t make any sense or are even absurd in face of the life circumstances of some of our

patients. This approach has been named “Narrative based Medicine” [25]. It automatically leads to the strongest means we have to effectuate QP: communication and the trust of our patients, that we hopefully have earned over a long period of time.

However, before we try to convince others of the importance of QP, we should easily begin with it in our own practices. We can begin, for example, by ordering less useless laboratory tests when doing check-ups, less X-rays in cases of uncomplicated back pain or less prescriptions of antibiotics in cases of acute bronchitis or rhinosinusitis, where they are clearly of little or no benefit. There is enough evidence and enough guidelines to protect us from malpractice claims in the rare cases of complications. The threat of malpractice suits is one of the major drivers of useless medical procedures. We hope that our judges “will be kinder on [our] sins of commission than on [our] sins of omission” [26]. There is no sense in treating many patients with possibly harmful medications, “for safety reasons” to possibly prevent rare complications of a very few. Guidelines from our own national colleges of general practice are mostly seen as proscriptive and are therefore rejected [27]. They should not be seen as a prohibiting “you must not”, but should be seen as a protecting “you need not”.

A patient asking for testing PSA

Let us come back to our patient from the beginning. What will we tell him? We might tell him that it is true that there are more and more people of his age diagnosed with prostate cancer, but that this is only a logical consequence of more screening activity. The rate of death from prostate cancer has been declining in countries with and without screening [28]. We might tell him that this year two big trials have been published of which one showed no effect of prostate cancer screening concerning mortality [29], and the other showed a minimal effect [30]. We could give the patient the URLs of some websites giving reliable information about the topic or an information leaflet. As male physicians, we could tell him how we would decide for ourselves. We should always be fair and open to the possibility that the patient wants screening to be done in spite of our objections against it. QP can only be accomplished in concordance with our patients and never against them. The patient will usually be our strongest ally for QP if he or she sees that we are not arguing out of self interest or ideology. The aim should not be a crusade against medical technology and progress but a reasonable aid concerning the appropriateness of medical procedures.

Conclusion:

QP is the prevention of unnecessary medical interventions and as such a foundation block of medicine (*primum non nocere*). The strongest means to accomplish this is to listen better to our patients. This is what has been termed Narrative based Medicine, which means to adapt the medically possible to the individual needs and wants. What we need is a strong and sustainable relationship with our patients and their trust in our honesty and specific knowledge. The other important means is called Evidence based Medicine. The knowledge of the probable predictive values of diagnostic tests and the probabilities of effect sizes of benefit and harm of therapy and preventive measures give us the opportunity to leave out many useless procedures. We think that QP is a genuine task of the general practitioner. It should be more openly discussed. There should be more research and teaching about it.

For further information on QP we refer the reader to the website http://docpatient.net/mj/P4_citations.htm

References

1. Froom P, Benbassat J. Inconsistencies in the classification of preventive interventions. *Preventive Medicine* 2000;31:153-58
2. Starfield B, Hyde J, Gervas J, Heath I. The concept of prevention: a good idea gone astray? *J Epidemiol Community Health* 2008;62:580-83
3. Jamouille M. [Computer and Computerisation in General Practice] *Information et Informatisation en Médecine Générale* in: *Les Informa-g-iciens.*: Presses Universitaires de Namur; 1986:193-209
4. Bentzen N (Ed.). *Wonca Dictionary of General/Family Practice*. *Maanedsskrift for Praktisk Laegegerning*, Copenhagen 2003
5. Cited after Cohen L, Chavez V, Chehimi S. *Prevention is Primary: Strategies for Community Well Being*. John Wiley and Sons, San Francisco 2007
6. Kleinman A. *The Illness Narratives – Suffering, Healing and the Human Condition*, Basic Books, New York 1988

7. Rosenberg CE. The Tyranny of Diagnosis: Specific Entities and Individual Experience. *The Milbank Quarterly* 2002;80:237-60
8. Aronowitz R. *Making Sense of Illness – Science Society and Disease*. Cambridge University Press, Cambridge 1998
9. Soos G, Tsakiris I, Szanto J, Turzo C, Haas PG, Dezso BE. The prevalence of prostate carcinoma and its precursor in Hungary: an autopsy study. *Eur Urol.* 2005 Nov;48(5):739-44
10. Damber JE, Aus G. Prostate cancer. *Lancet* 2008;371:1710-21
11. Rosendal M, Olesen F, Fink P. management of medically unexplained symptoms. *BMJ* 2005;330:4-5
12. Shorter E. *From Paralysis to Fatigue – A History of Psychosomatic Illness in the Modern Era*. The Free Press, New York 1992
13. Green LA, Fryer GE, Yawn BP, Lanier D, Dovey SM. The ecology of medical care revisited *N Engl J Med* 2001;344:2021-25
14. Thaler RH. Gauging the Odds (and the Costs) in Health Screening. *The New York Times*. December 19, 2009 <http://www.nytimes.com/2009/12/20/business/20view.html>
15. Heath I. Combating Disease Mongering: Daunting but Nonetheless Essential. *PloS Medicine* 2006;3:448-53
16. Hunt SA, Abraham WT, Chin MH, Feldman AM, Francis GS, Ganiats TG et al. ACC/AHA 2005 Guideline update for the diagnosis and management of chronic heart failure in the adult – summary article. *Circulation* 2005;112:1825-52
17. UEMO, European Union of General Practitioners / Family Physicians, Santiago LM. Quaternary prevention. Document 2008/040, October 2008. Accessed at 12. January 2010 at http://www.uemo.org/members/official_documents/dwds08_2.htm
18. Siebolds M. Evidenzbasierte Medizin als Modell der Entscheidungsfindung in ärztlicher Praxis. *German Journal for Evidence and Quality in Health Care* 2003; 97: 257-62
19. Sirovich BE, Welch G. Cervical Cancer Screening among Women without a Cervix. *JAMA* 2004; 291: 2990-93
20. Rose G. Sick individuals and sick populations. *Int J Epidemiol* 1985;14:32-38
21. Gérvas J, Starfield B, Heath I. Is clinical prevention better than cure? *Lancet* 2008;372:1997-

22. Sackett DL, Haynes BR, Guyatt GH, Tugwell P. Clinical epidemiology. A basic science for clinical medicine. 2nd Ed, Little, Brown and Company, Boston 1991
23. Del Mar C, Doust J, Glasziou P, Clinical Thinking - Evidence, Communication and Decision Making. Blackwell Publishing Ltd, Carlton 2006
24. Schneider A, Dinant G-J, Szecsenyi J. Stepwise diagnostic work-up in general practice as a consequence of the Bayesian reasoning. German Journal for Evidence and Quality in Health Care 2006; 100: 121-27
25. Greenhalgh T, Hurwitz B (ed.). Narrative based Medicine – Dialogue and Discourse in Clinical Practice, BMJ Books London 1998
26. Payer L, Culture and Medicine. Holt Paperback, New York 1996
27. Carlsen B, Glenton C, Pope C. Thou shalt versus thou shalt not: a meta-synthesis of GP's attitudes to clinical practice guidelines. British Journal of General Practice 2007; 57: 971-78
28. Oliver SE, Gunnell D, Donovan JL. Comparison of trends in prostate-cancer mortality in England and Wales and the USA. Lancet 2000;355:1788-9
29. Andriole GL, Grubb III GL, Buys SS et al. Mortality Results from a Randomized Prostate-Cancer Screening Trial, N Engl J Med 2009; 360:1310-19
30. Schroeder FH, Hugosson J, Robol MJ et al. Screening and Prostate-Cancer mortality in a Randomized European Study N Engl J Med 2009; 360:1320-28