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Family and Community Medicine and its role in preventing health overuse (preventive, diagnostic, therapeutic and rehabilitative)

Juan Gérvas (https://orcid.org/0000-0002-7802-5457) [1]
Lourdes Luzón Oliver (https://orcid.org/0000-0001-5401-115X) [2]
Mercedes Pérez-Fernandez (https://orcid.org/0000-0002-9285-1739) [1]

Abstract *In Medicine, it is critical "to offer 100% of what is needed and avoid 100% of what is not needed." Unfortunately, this primary issue is challenging, and generally, more than required is offered, and everything that is unnecessary is not avoided. This is a nonsystematic review with a teaching objective that reviews the general issue in primary care and suggests ways to avoid overuse and shortcomings concerning preventive, diagnostic, therapeutic, and rehabilitative interventions. Knowing not to do is science and art that is hardly taught and practiced less. The overuse that harm are an almost daily part of clinical practice in prevention, diagnosis, treatment, and rehabilitation. It is essential to promote "the art and science of not doing".*

Key words *Primary care, Medical overuse, Unnecessary procedures*

[1] Equipo CESCA. Pradillo 68. 28002 Madrid España. jjgervas@gmail.com
[2] Centro de Salud de Navamorcuende. Toledo España.

Introduction

Health and wellbeing are not dependent on doctors, except in particular situations. The fundamental thing is education provided by teachers and water supply and purification, besides economic development, the fair distribution of wealth, and access to housing and decent work. It is estimated that the improved life expectancy is due to 10% of the health system, and 90% to other health determinants[1].

Seen from a historical perspective, Medicine offers what may seem like secular miracles. For example, the advice against tobacco use that achieves patient's cessation, the subcutaneous anesthesia that allows removing a skin cancer without pain, the rabies vaccine that avoids a terrible post-infection process, the recommendation to consume iodized salt that prevents hypothyroidism, the use of penicillin in pneumonia, and others. They are examples of a Medicine expected by the population; that is why it seems the minimum, and people require "more and more" Medicine as if more were equivalent to better, and as if everything were avoidable.

We, doctors, do not have the mission of avoiding all suffering and death. Our task is more modest and straightforward: to reduce morbidity and mortality unnecessarily premature and health-wise avoidable (MIPSE)[2]. That is, working in a way that avoids the suffering and death that can decline with our activity. An example of MIPSE is suffering and mortality from tetanus because we can vaccinate and avoid it.

In Medicine, it is crucial "to offer 100% of what is required and avoid 100% of what is not required". That is, one has to achieve the delicate fit of offering just what is needed, and only that.

Good doctors know what they have to do and when and, above all, should know what not to do. However, it is easier to know what to do and when than to know what not to do. As one surgeon said: "It takes three months to learn how to do an operation, three years to know when to do it, and thirty years to know when not to do it"[3].

In this text, we perform a non-systematic review with a teaching objective, analyzing overuse and defects of frequent activities in prevention, diagnosis, treatment, and rehabilitation in primary care.

Longitudinality in Primary Care and "the art and science of doing nothing"

The long-term relationship between the general/family doctor and the patients is longitudinality. It is defined as a) the care by the same doctor throughout the life of most of the patient's problems and b) people's and patients' recognition of a source of care that is available for initial contact and monitoring problems[4].

Longitudinality is essential to having the confidence of patients, families, and communities because, when it exists, doctors are "responsible" for the patient and can correct their decisions over time, that is, adjusting their response with the development of the clinical picture. Longitudinality allows doctors to say to the patients, "It looks like a cold, there is no need to do anything special, just home medicines. However, if something goes wrong, the fever goes up and lasts a long time; there is difficulty breathing or anything that concerns you, do not hesitate to contact me."

Patients' accepts the uncertainty, trusting that "their" doctor will correct the decision if there are reasons for doing so, and doctors can master their clinical uncertainty, trusting that patients will return if the condition does not develop as planned. The excessive response is thus avoided assisted by the development over time; technically, this is what we call "wait and see".

The longitudinality allows the professional practice of doctors who are restrained in their interventions, with sufficient training to be able to "wait and see" and handle the "expectant wait" (when doing nothing and waiting is the best diagnostic and therapeutic option).

This is called "deliberate clinical inertia" in English, the art and science of doing nothing as a logical and prudent option so typical of the good general/family doctor who does not even need to "diagnose-label" to solve a high percentage of health problems but which also serves in fields as diverse as emergencies and psychiatry[5-7].

In Primary Care, longitudinality provides a safety net that allows the prudent and sensible "wait and see" practice, with the consequent decrease in the unnecessary use of resources. In unequal countries, such as Brazil, longitudinality allows adapting the offer to the need due to

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the deep understanding of patients, families, and communities served. It also facilitates the proper use of resources, since longitudinality allows rational decision-making with significant economic efficiency due to the accumulation of prior information.

How to avoid preventive overuse?

The key to avoiding preventive overuse in Primary Care is to ensure that the general/ family doctor is clear that prevention is not a basic primary care characteristic. "Prevention is not a function of primary care but a complementary and necessary activity for the fulfillment of its clinical purposes"[8].

Concerning prevention in Primary Care, the real advantage is that the doctor knows his patients, families, and communities in-depth so that he can offer them exactly what they need, adapting it to their beliefs, expectations, and culture. Thus, for example, check-ups are avoided, those routine examinations that lack a scientific basis[9], or unsubstantiated screening[10].

Medical interventions are increasingly powerful, early, more varied, and applied by more different professionals, and their final image, as we have pointed out, seems omnipotent in the sense that everything can be avoided.

Suffering, illness, and death seem to be due to prevention failures[11]. Thus, it is essential to establish a new commitment with society and patients to offer only what is "worthwhile" (100% of what is required and nothing of 100% that is not required) in the case considered and for society, and practice a Medicine based on the ethics of refusal and the ethics of ignorance.

Working with the ethics of refusal means saying "no" in an appropriate and justified manner, with gentleness and courtesy, in the face of excessive requests from patients and family members, colleagues and superiors[12]. The ethics of refusal demands enormous professionalism, a strong commitment to the profession and the sick, and an inexhaustible flow of scientific knowledge.

Working with the ethics of ignorance means frankly and timely saying, "I don't know", "we don't know", "there is no scientific knowledge about it"[13]. That is, it means sharing with the patients and family, colleagues, and superiors the limits of Science and Medicine.

The more we know, the more aware we are of our ignorance. The more ignorant, the more arrogant, and reckless. It is convenient to restrain the excessive expectations that in prevention are almost infinite, sometimes fueled by a Medicine that promises impossible, almost eternal youth; for example, with Precision Medicine and the "Big Data"[14].

Frequent preventive excess, often stimulated by institutional incentives and clinical practice guidelines, is the use of risk tables as decision tables. For example, there is no scientific knowledge to support the use of cardiovascular risk tables as decision tables, since they lack a "clinical impact analysis" (the impact of their application in improving the health of patients). That is, the risk tables do not allow us to predict who will be more likely to have a cardiovascular event.

The clinician mistakenly transforms cardiovascular risk tables into decision tables even though it has been shown that assessing cardiovascular risk does not lead to better patient health[15].

Finally, it is necessary to take into account, against popular belief, that prevention is not always better than cure[16] to avoid preventive overuse, and that is why the precautionary approach to preventive proposals, often based on the Beveridge fallacy (to believe that prevention lowers costs)[17].

How to avoid diagnostic overuse?

It is a great mistake to follow mantras as simple as "if in doubt, ask for evidence", or "if in doubt, at least label". Students and residents of health sciences, and doctors, are taught, theoretically and practically, that it is always preferable to do more than less, under the good assumption that medical intervention has few or no risks. Also, the diagnosis is imposed on us as a barrier to therapeutic decision-making, so that we are taught to work with "the tyranny of diagnosis"[18].

Running tests is the norm, with range whose most significant difficulty is the interpretation of unexpected abnormal results; thus, for example, between 30 and 60% of the abnormal results found in the usual tests of preoperative protocols must still be clarified and explained (which, moreover, generally lack scientific basis)[19]. It is also known that performing diagnostic tests does

not reassure the patient. In concerned patients, about which doctors have few doubts concerning the need for various tests[20], the performance of such tests, and their normality, does not appease the patients' concerns or anxiety.

It is useless to ask for diagnostic tests when the probability that they are abnormal is low. These tests neither reassure patients nor decrease their anxiety or help solve their symptoms.

Also, in many cases, abnormal results from unnecessary tests trigger a "cascade" of interventions to clarify them, which can end very badly. That was the case of an elderly patient who received from his family a "smartwatch" to check his pulse[21]. He was leading a full independent retiree life; the watch showed a minimal pulse anomaly, the patient was submitted to a coronary angiography, which moved an arterial plaque, causing a stroke, and leading the patient to seclusion in an asylum and wheelchair-adapted. This is an example of the "cascade effect" where an irrelevant finding leads to significant harm.

In the case of magnetic resonance imaging (MRI) and computed tomography (CT), casual findings, "incidentalomas", occur in up to 38% of cases, which must then be studied with the resulting cascades[22]. In another example, to get an idea of the frequency of the cascade effect after requesting unnecessary tests, it occurred in 16% of patients with pre-operative electrocardiogram in cataract surgery[23].

In a Canadian study, comparing with low-risk patients who did not undergo an ECG, those who did were more likely to undergo further tests later: stress tests (6.5 times more likely), echocardiograms (7.1 times more likely) and referral to cardiology specialist (5.4 times more likely), and all this was unnecessary because there were no significant cardiovascular events[24].

Likewise, the overuse of diagnostic imaging methods has been shown for patients with non-specific back pain, without alarming signs, which, besides increasing costs, exposes patients to unnecessary harm such as irradiation and therapeutic cascades. However, patients and professionals tend to underestimate the harm caused by the excess of preventive, diagnostic, and therapeutic tests[25,26].

It is important to teach students, residents, clinicians and patients about the cascade effect on clinical care. These cascades harm the patient and are initiated by irrelevant signs and symptoms, by excesive preventive interventions and/or unnecessary diagnostic-therapeutic decisions generated by guides and protocols. Ignoring cascades is ignoring the implicit yatrogeny of any medical intervention and decreases the effectiveness of professional activities, by diluting the effort of doctors on patients and diseases of very different severity[27,28].

How to avoid therapeutic overuse?

The key to therapeutic intervention is to keep in mind that any medical recommendation can have adverse effects. Medical intervention is justified only when the balance between benefits and damages is very likely to be positive.

The interventionist attitude that favors the preferential acceptance of errors due to excess activities is not innocent and leads, for example, to millions of patients being misrepresented and treated as hypertensive, with the morbidity and mortality involved in simple mislabeling of sick and hypertension medications[29].

In another example, the unnecessary use of vitamin D supplements, and the diagnosis (plasma determination) overuse are mixed with the therapeutic ones (the administration of supplements). "The exogenous contribution of vitamin D does not provide clinical benefit in mortality, cardiovascular, metabolic diseases or cancer"[30]. The medical contribution of vitamin D can lead to toxicity with severe hypercalcemia, which led to the launch of a warning of the Spanish Medicines Agency: "Vitamin D: severe cases of hypercalcemia due to overdosing in adult patients and in pediatrics"[31].

The overuse of antibiotics causes additional problems, due to the negative externality that entails the establishment of bacterial resistance, so that harm is not only individual, but also of third parties, and, ultimately, society as a whole. Antibiotics are not required, in general, neither in otitis, nor in sinusitis, pharyngitis, bronchitis, cystitis, or (perhaps) tonsillitis. Antibiotics are also not required in the prophylaxis of endocarditis, as their use causes more harm than benefits. The use and abuse of antibiotics is a public health issue, with negative externality such that it causes thousands of deaths annually[32].

To end with the examples of treatment overuse, nothing like the "fierceness" with diabetics and impossible goals in glycemic control, especially glycosylated hemoglobin levels[33]. Hgb A1C levels should be low enough to decrease symptoms, but not enough to run the risk of hypoglycemia, for many patients, at 8-9%, with a fasting blood glucose level of less than 200 mg/dl[34]. Unfortunately, many incentive systems and clinical

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guidelines just propose aggressive glycemic control.

The problem is that overuse are often part of the "state of knowledge", and even forced by guides and protocols and incentive systems. The complacent and comfortable professional attitude of accepting the usual and established guidelines, commonly erring in excess, completely breaks the ethical commitment of acting as an agent of the patients, which implies deciding how they would decide if they were could act with a correctly formed clinical judgment.

How to avoid rehabilitative overuse?

Approximately 50-70% of the population will show some musculoskeletal problems throughout their life. Among them, the most frequent are neck, lumbar and shoulder pains[35], taking into account that most of these health problems are related to working and socioeconomic conditions.

There is considerable variability in clinical practice regarding prescribed rehabilitative treatments. Thus, for patients with similar characteristics, the treatments are different depending on which professional has treated someone first (rheumatologist, rehabilitator, family doctor, physiotherapist, and the like), the portfolio of services offered in the region of residence, and the availability and waiting list of such treatments.

Some studies such as Elshaug's[36] listed 150 of low-value health care practices (practices that would generate little value or cause harm). An example of low-value practice is arthroscopy, of which 33,682 were performed in Australia despite randomized clinical trials showing their poor effectiveness concerning placebo in patients with meniscal tears[37].

Back pain is one of the most frequent causes of appointments in the world, and there is evidence of the low value of the practices used in its management[38]. For example, in Spain, it was shown that 60% of the resources spent in the treatment of neck, back, and shoulder pain had been in treatments for which there was no evidence of effectiveness.

A systematic review showed the improvement of nonspecific low back pain when performing primary care educational interventions with an excellent NNT (necessary number of patients to be treated) of 17, and results were better when family doctors perform the interventions instead of other professionals (nursing or physiotherapy)[39].

Another clinical trial[40] in Primary Care showed that "education" group programs improved functional capacity, quality of life, and catastrophic thoughts in patients with low back pain. In institutionalized older adults, it has been shown that active management education is effective in improving the restriction of daily activities due to low back pain, both in the subjects who suffer from it and in those without pain, and is more efficient than postural hygiene education[41]. When studying the effectiveness and cost/effectiveness of the GDS (Godelieve Denys-Struyf) for the treatment of low back pain in Primary Care, they observed that the level of disability improved in the "collective GDS" group slightly more than in the "control" group, and in the individual group[42]. These are simple, group, and low-cost interventions that do not harm the patient.

The issue traverses the lack of action to do and finance what has proven to be more cost-effective. Much of what is done does not follow scientific evidence[43]. There is no scientific basis for using ultrasound or shock waves to treat low back pain. There is also no valid scientific evidence that they are better than placebo[44], nor is there any for intradiscal electrothermal coagulation (IDET), which also carries risks for patients[45].

The Australian Physiotherapy Association listed six practices that should cease to be performed because of the low value they provide. Among them would be x-rays requests without clear indication, low back pain electrotherapy, or pressure maneuvers in adhesive shoulder capsulitis.

In 2014, the American Physical Therapy Association published a list of five low-value rehabilitation practices. These practices included jacuzzis for the management of wounds, deep or superficial heat to improve muscle conditions, and devices that exert passive continuous movements in patients with knee prostheses[34].

Conclusion

The causes of low-value practices that lead to overdiagnosis and over-treatment include the provision of technology and cultural, professional, and commercial factors. For example, having technologies with greater sensitivity means that images that may be present in large part of the asymptomatic population are diagnosed and treated. In this way, the patient is "labeled", and a defined treatment and follow-up are recommended

(which sometimes imply access to certain social rights)[46].

Both professionals and patients have difficulty coping with the uncertainty and non-specificity of the symptoms, and the response can be very different depending on the place of the health system where the process begins[47]. Fear and concern for the disease lead the patient to have more visits and undergo a greater number of tests and treatments with the blind belief in technology and Medicine and thinking that it is better to run more tests and at the earliest convenience, regardless of harm.

Fear of patients not being understood by their doctors, fear of doctors to fail or being sued, fear of the uncertainty that paralyzes and prevents them from exercising freely[48]. Unnecessary care replaces the necessary care, especially when the second is less paid[49].

It would be necessary to adapt incentives to quality and results of the practices because, in the end, all these problems have a huge impact on society, the health system, and the patient[50,51]. Knowing not to do is science and art that is rarely taught and practiced less. The harmful overuse are an almost daily part of clinical practice in prevention, diagnosis, treatment, and rehabilitation. It is essential to promote "the art and science of not doing".

Collaborations

J Gérvas, LL Oliver y M Pérez-Fernandez worked together to produce the manuscript.

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