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Prevention, Early Dialogue and Education in the Personalised Healthcare Era

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Abstract
In the EU, the "portrait" of healthcare has undergone many changes down the years, with many adaptations as the EU has evolved. The role of patients has become much more significant as they have gained greater knowledge; there have been giant leaps in innovation, while societal changes and issues (such as the ageing population) have led to different priorities. Today's portrait of healthcare features many perspectives, schools of thought and approaches coming from different stakeholders, different Member States and even different regions within those Member States. One thing that has become very clear is that a one-size-fits-all approach to treatment is outmoded, wasteful and often counterproductive to the health of patients. This includes, in these days of increasing co-morbidities, treating one disease separately, rather than looking at the patient's health issues as a whole. Meanwhile, citizens are being bombarded with often contradictory messages regarding what is "good" or "bad" for them, often in a patronising manner, while the realities of extremely effective preventative measures are often obscured, with a lack of emphasis on screening and early diagnosis. The authors argue that, among other matters, better communication and education are key to improving healthcare in Europe.

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Time for a Further Leap in Healthcare

Of course we all want to live longer and in better health. Who's going to argue with that? And of course health policies and healthcare are contributing to that, and can contribute more every day as policy, science, and technology make further progress. We've moved on a long way from the age of "sorry you're sick, hope you get better." The last century saw a big move into the age of "sorry you're sick, here's a pill for you." And now we're moving into a new age where health is recognised to be much more than hitting a disease with a pill [1].

But there are some questions hanging there that don't seem to get the attention they deserve – something like missing the wood for the trees.

For a start, the evidence is increasingly strong that blunderbuss prescribing, attempting to hit many patients with one pill, is an inefficient way to restore health [2]. Differences from patient to patient mean that many of them will not respond positively, and many may react negatively [3]. So why is it still the predominant method? Are we pretending to treat what we cannot treat? Why provide treatment if it offers no benefit?

And are we ignoring the reality that the vast majority of patients are elderly, and consequently invariably suffering from several co-morbidities? In the world of an ageing population, why do we still tend to focus attention on the treatment of individual illnesses?

In patients suffering simultaneously from diabetes and cardiovascular and neurological diseases, perhaps cancer too, what impact will there be from treating one disease without treating the body as a whole? But the tendency among research departments, hospitals, and treating physicians remains a focus on individual diseases [4].

Strategists and policy makers at the European and national level really have to start looking for better answers to these questions. Today they may claim that some treatment is better than no treatment at all – but that is a mentality from an earlier age of eminence-based medicine rather than evidence-based medicine, based on hope rather than evidence, and ignoring both current challenges and future opportunities [5]. Far-sighted policymakers should be smart enough to avoid taking refuge in such blunt recipes. So the next question is where the far-sighted policymakers are, and how far have they got in cooking up new ways of providing a more considered response?

The need for such a more considered response is all too evident from the basic statistics of current healthcare provision [6]. The EU health sector is big – but expensive – business. It represents 15% of public expenditure. Thus there is a public duty to spend the money wisely. It is also big with opportunity. Since it amounts to 10% of the GDP and 8% of the workforce, what happens with the health sector is important for what it can contribute to the economy as well as what it costs the economy. Properly managed, it has huge potential for promoting the innovation and growth that Europe desperately needs to assure its future [7].

But the prospects for getting the equation right are not unlimited. There is – or should be – real urgency in making better use of this potential, since if nothing is done, the cost of healthcare is expected to double by 2050 [8]. And a significant part of this burden is caused by chronic diseases (up to 70%), most of which can be prevented by taking action on the main risk factors (alcohol and tobacco consumption, poor nutrition, etc.) [9]. Prevention of chronic diseases could generate substantial savings on the healthcare budget, and make a positive impact on business and the economy, by prolonging healthy working life and reducing the impact of ill health on the labour market [10].

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Reflections Need Better Actions

It isn't that the health authorities in Europe have never reflected on these questions [7]. There are plenty of pious messages nowadays about prevention – so numerous, in fact, that it would be easy to imagine that this is what the authorities are offering as a sufficient response to the challenge [11]. Thus we all get told not to smoke, not to eat too much or too badly, and not to drink too much [12]. And more and more of us are driven into frenetic activity by the new tyranny of smart watches and fitness clubs. Soon statistics will start to emerge on the accidental injury rate in parks and woods and suburban streets from congestion among myriad joggers and cyclists and intrepid wielders of Nordic walking sticks.

Blunt advice is not very sophisticated, and ultimately not very efficient. "Don't drink whisky, and go for a run" is taking the place of "here's a pill" as a blunderbuss response to society's healthcare challenges. Do these approaches really match the scale of the problem – and, crucially, do they take advantage of new assets and resources in terms of the understanding of health? The crude preventative mantras need to be elaborated in light of the development of science, and to exploit new avenues that put to good use the emerging awareness of innovations in genetic testing or nutritionist expertise [13].

And how will the preventive health experts manage to regain credibility after the years they have spent in self-contradiction? Citizens can be forgiven for their scepticism about health messages in the face of the mercurial shifts they have witnessed in advice from authorities. One day salt is bad for you, and the next day it's good for you. Too much coffee/butter/sugar/red wine is bad for you/could be necessary for you/could be good for your heart/liver/nerves… And exercise is good for you – but not too much, not when it's hot, not when the pollen count is high… These knee-jerk reflexes to the publication of every passing fad or short-lived theory have brought the prevention business into disrepute.

Farewell to "One-Size-Fits-All"

We are approaching a tipping point in the understanding of prevention, just as we are in the understanding of health [14]. We all have a lot in common; but we don't have everything in common: a mass of distinctive characteristics, tendencies, and susceptibilities are imprinted, predestined as it were, in our genetic make-up, and those secret codes are becoming increasingly legible as science moves on [15]. So in the bluntest terms, what's sauce for the goose may not be sauce for the gander. Or as Oscar Wilde presciently remarked: "Do not treat everyone the same. Their tastes may be different." But are health systems still treating everyone the same?

It may be obvious that you are not going to take your 89-year-old grandmother on a 20-km race, and that you'll think carefully about which of your teenage children you might enrol. It's less obvious that your sister may be suffering from a weakness that could argue against her taking part. Does she know? Has she benefited from testing to identify a risk? And if so, has she been told about it, and advised about how to best cope with it? There are many unanswered questions in this area of healthcare. And one of the leading questions is how quickly health authorities are beginning to act in line with the need to respect individual constitutions, on the basis of factors more refined than just age? [16].

This recognition that we are not all the same may fly in the face of contemporary political correctness, which prefers to ordain that – as in the world of Alice – everyone must have prizes. But the unquestionable merits of equality in moral or social or political terms should not be invoked to justify a "one-size-fits-all" approach to healthcare or prevention. That would be to fail to use new techniques to tailor the preventative messages so that they fit the needs of the individual [17].

The Medium Is the Message

The same differentiation should be taken seriously in the delivery of health messages too – whether for care or for prevention [18]. Different people in different places and of differing backgrounds will inevitably have different responses to a single message – thus it is necessary to adapt messages accordingly. Is this discrimination? Not in any negative sense [19]. It is simply the pragmatic acceptance that not all citizens are the same, in terms of health literacy as in many other respects. This becomes increasingly relevant in the rapidly developing area of healthcare apps and the information they can deliver – properly used – to patients, medical staff, and the health system in general [20].

But while younger people may be adaptive to this new technology, many older people will need education and assistance to permit its correct use and enjoy its benefits [21]. Appropriate regulation will also be needed for oversight that can facilitate innovation in this field while ensuring validation of any health information or advice provided (to guard against, for instance, a person with a cardio issue doing too much exercise because of obtaining a faulty read-out, or misinterpreting an accurate one) [22].

For the sensitive issue of how information collected with these apps is to be secured so that privacy is guaranteed while future policy is supported, the EU is an ideal location to find the right rules, since it has a sophisticated and advanced understanding of the importance of strict controls on data sharing [23].

There are still bigger questions that need to be confronted.

The Realities of Prevention

Are we trying to prevent what cannot be prevented? What, really, is the ultimate aim of all these attempts to influence health behaviour? Because nothing is ever totally preventable. There are degrees of prevention, of course. It may often be possible to stave off a disease until later, to have a better quality of life for longer, or to palliate the effects of disease when it occurs [24].

So the prevention mantra should be rephrased. It should focus more on screening and early diagnosis, so that citizens are aware of a susceptibility or a fragility at which preventive action can be aimed. How many days, months, or years are lost by misdiagnosis or failure to diagnose, when more effective action would have allowed a preventative strategy to make a more positive impact?

But in any case, is this only short-term thinking, merely playing the tune in a minor key? Is it not merely answering the question by sleight of hand? It can amount to no more than saying: "We stepped up. We are doing something. So don't come knocking to ask us to do more!"

As a response, it does have the convenient benefit for politicians of fitting neatly enough into the four- or five-year political cycle before a new government is elected [25]. Thus it can provide the semblance of action, can even provide officials with a sense of fulfilment, in that a box has been ticked and lip service duly paid to the idea of earlier action on prevention [15]. It can even fool some of the people some of the time that action is being taken to give citizens the chance of having a better quality of life.

There are still more fundamental messages, however, that a more enlightened – and perhaps more courageous – health policy should be transmitting. Here it really is a question of the trees obscuring the vision not just of the wood, but of an entire forest. The basic premise of the current health maintenance message misses out a literally vital element: it more or less tells people that by following all these blunderbuss preventive measures, they can avoid getting sick – and it implies, in that way, that people can live for ever.

Patronising the Populace?

What is the reason for this? Is there a fear of communicating to citizens that they can get sick, that they will need support, that life will end? Is this something that springs from a new politically correct version of the truth – that one will never get ill? Is the presumption behind it that citizens cannot handle the truth?

Why focus on such a misleading message when so much more could be conveyed in terms of really valuable preventive advice? In effect, it is failing to respect people. Everyone is faced with the same fate of mortality – and nearly everyone will also suffer periods of morbidity [26]. There are no grounds here for sparing anyone from this inescapable truth – and to attempt to beguile with distractions and false messages is to do people a disservice, to condescend to them, to patronise them, and to mislead them into inevitable disappointment.

Is it not more helpful to everyone, irrespective of emotional or intellectual maturity or intelligence, to communicate the realities as they are? That way no one is under any illusions about the downsides of being alive – but by the same token everyone is empowered to maximise what they can derive from the upside of being alive. That is a more coherent approach to urging people towards more healthy – physically and mentally healthy – approaches to their lives [27].

There is some analogy here with the increasing prevalence of asthma, allergies and other auto-immune disorders, widely attributed to hyper-sensitivity developed among populations whose immune systems are little challenged and therefore have little chance to develop appropriate responses to allergens and similar assaults. If people spend less time outside when they are young, and live in super-clean and super-hygienic homes, and are consistently protected from contact with the natural environment, the reduced exposure does not allow the body to build up the normal defence that can circumvent such problems [28].

The question has to be raised as to whether developed societies are providing too much comfort and protection, with the result that any challenge will cause distress, anxiety, overreaction of a physical or mental nature [29]. Are we developing populations who have the hypersensitivity of the spoilt young girl in *The Princess and the Pea*?

Or does the reticence about the realities of life spring from another source – perhaps the reluctance of authorities to accept that, for all their presumptions and aspirations, they are ultimately impotent in the face of certain unavoidable forces beyond their control?

Are our elected political representatives, our appointed officials, our chosen professionals in the health system, afraid to admit that they are not able to deliver? Do contemporary pretensions to omniscience make it unfashionable to accept the limits of official ability? Or make leaders afraid to communicate the truth for fear that in the eyes of a population grown soft and comfortable, they would be blamed for causing the predicament, when they are in fact nothing more than the messenger, and therefore carry no more burden of guilt than those they deliver the message to?

Or does the hesitation about honestly confronting the truth arise more from a scruple about inciting fear in populations about the predictability of disease – accentuated by the fact that in many cases there is no suitable treatment yet available? Or perhaps from a paternalistic concern that there are certain things that the elite or professionals should know, but not the populace? Some may argue that providing people with information about upcoming disease risks may dramatically reduce their quality or enjoyment of life. But how realistic is that as a policy principle [30]?

Appropriate Legislation

The same protectionist argument has been used in the past with negative effects – look how long it took for public health authorities to steel themselves to begin effective promotion of safe sex as a protection against HIV/AIDS. It is still being advanced, with downsides rather than upsides for the public and for health – for instance in countries that refuse to provide adequate sexual education for young adults, or that permit laxity over vaccination and ambiguity over the justification for it. But the fact is that just as ignorance of law is no defence, ignorance of the factors governing health will not give you good health [16].

Or is it a consequence of the gaps in adequate data privacy, exposing individuals to the risk that the existence of such information might create risks of it falling into the wrong hands, or of being abused by, for instance, the insurance industry? Is it linked to exaggerated concerns that there are industrial or commercial interests working against rather than in favour of public health [31]?

If that is the case, then surely the more appropriate answer is to put adequate regulation into place rather than preclude advances in understanding of reality. If there is a leak in the pipe carrying water to a village, is it not better to fix the leak than to turn off the water supply?

The food and pharmaceutical and medical devices sectors already operate under comprehensive regulation at national and EU level. Their capacity to innovate and make their contribution to improved public health by making available new concepts, products and services is heavily dependent on a mature and stable yet innovation-friendly regulatory environment [32].

There are more than 1,700 pieces of legislation, with legal, political, societal, trade and economic dimensions, and important implications both for health protection and for the economic interests of the sectors concerned in the EU. Again, if the rules are not strong enough, then fix them. But by the same token, if the rules are no longer fit for purpose in promoting innovation in public health, they need fixing in that case too [33].

Education and Communication

Amidst so much timidity, confusion, and even obfuscation, the best hope is for wider embrace of a more robust approach to the realities of life – and of death. Because only then is it possible to deal honestly with the public on the opportunities of health and the risks of sickness, and to engage the population in the issues that matter, at the end of the day, more to them than anything else does. How to extract the most from the years that each of us are given, how to act in ways that make possible profitable exploitation of all that life offers, and that minimise the risks of throwing it all away unthinkingly.

Much of this is a matter of education, in the broadest sense of the word. And, increasingly, much of it is also making the best use of new chances that advances in science and technology put at society's disposal [34]. Preventive measures can be increasingly guided by screening and early diagnosis of disease, anchored in the increasingly refined perceptions of each subgroup or even each individual's susceptibilities, in the short- or longer-term future. In many cases, the technology is already there – accessing its benefits depends on the same technique as someone with a pair of binoculars: they merely have to pick them up, put them to their eyes, and adjust the focus to the target [35].

So the need to communicate earlier is key. But so too is earlier education. This has to become a central focus of the bid to make a positive experience of real prevention campaigns [15]. There is a need to have increased education for children about what they should be aware of as they grow taller, get older, and move into adulthood, and, later still, as the years

catch up with them, so that throughout their time on earth they have a better quality of life. This has to start in pre-school, and should link in to programmes that are routine elements of primary and secondary education, and on to university and beyond. The process should tie into that established concept of life-long learning [36].

Many attempts have been made to build communication with specific groups and to deliver specific messages – as in the efforts to work with the silver economy in the health ageing programme. With better education, there can be more of an effective dialogue with citizens about the potential of their life choices in the realm of prevention so that they can be fully informed and understand the risks [37].

But so far it has been a piecemeal approach, and has consequently had only partial success. An overview, a strategy, has yet to materialise.

The educational effort has to extend wider than the general public. Physicians, as the principal interfaces between people and the health system, have a major role. And for this they not only need to be able to communicate adequately with their patients, but they will in many cases need continuing education themselves to be able to play their role to the full [38].

Policy makers too must come to understand better both the potential for constructive engagement with the public and with their health, and the chances that switching to newer technologies and newer approaches can offer [39]. They must also keep a sharp eye open for where their own regulations can make or mar the process, by empowering or emasculating the public, by promoting or preventing change.

So they too need to be open to education, and early education, so that they, as policy makers and legislators, can be educated partners of the healthcare community at the local, regional, national and EU level in promoting the interests of the public [40].

Overall, the health system stands to gain by a refocus on where the opportunities lie for improvement. An unquestionably valid starting point is better prevention, making greater use of early diagnosis and screening, and developing as a result better evidence – about the health of individuals and of the population at large [41].

Data, Evidence and Innovation

Acquiring better evidence will also support the modernisation of national healthcare systems. Country-by-country data and comprehensive analysis are indispensable to underpin decision-making in the health sector. Member States and the EU could substantially increase their capacity to support and inform healthcare system reforms, notably by making greater use of the European Semester and the (revised) Europe 2020 strategy. This would deliver stronger country assessment, benchmarking, reference networks, knowledge exchange and technical assistance [42].

In order to support and inform health system reform, innovation is needed – including through smart investment in new technologies and the optimal use of existing ones, as well as in human capital and social systems. Five areas immediately present themselves for priority attention: facilitating the establishment and operation of infrastructures through investing in the European Reference Network; supporting the increased interoperability of digital health solutions; reinforcing Member States' cooperation through Joint Actions in the EU Health programme; optimising existing regulatory tools for sharing of evidence and best practice to explore new authorisation pathways for medicinal products; and monitoring the proper transposition and implementation of the directive on patients' rights in cross-border healthcare, to improve prevention and access to healthcare across the EU [43].

Partnerships and Better Regulation

Success also depends on building a better partnership between business, academia and regulatory authorities, with early diagnosis as the common point of focus. As with all innovation-driven sectors, the health and food industries require a predictable and fit-for-purpose regulatory environment conducive to growth, high-skilled jobs and higher global standards [44]. The best balance must be maintained between the necessary safety and quality requirements and permitting timely access to market, while avoiding unfair competition [45]. To do this effectively, the EU regulatory framework must simultaneously meet demanding criteria of efficiency, effectiveness, transparency and accountability while introducing the right incentives to promote growth, create new jobs and trigger productivity gains through new technologies and treatments. At the same time it must maintain and enhance the EU "brand name" of high-quality, safe products that third countries value so highly [46].

Nutrition is a key health determinant. Given the evidence on the close correlation between the consumption of trans fats and heart disease, DG SANTE proposed an initiative to reduce consumption (via legal limits, labelling or voluntary efforts of the sectors concerned, depending on the conclusions of the forthcoming report). Regulation of the food sector must make the best use of science and technology, both for aligning industry's contributions with the best opportunities, and equally for ensuring that its contributions respect the latest developments in nutritional and medical science [47].

A realignment of the European approach to health, the adoption of a clearer view of how technology can bring a powerful new dimension to life choices, can bring incalculable benefits to European citizens [48].

By opening up the possibilities that a personalised approach can bring to health, policymakers can make gains for the public and for the health systems they operate. But it depends largely on a common will to face up to the realities of health and of life, to look them honestly and squarely in the eye, and to make the best possible provision across Europe for grasping the best chances.

Reasons for Optimism

In the EU there are good reasons to hope for the emergence of an enlightened approach to these fundamental questions. Because the EU is, for all its current travails and turbulences, far and away the best example in history of the triumph of reason and a concern for the common good, over superstition and sectional interest [49].

The EU has long displayed a willingness to explore the best path among many competing paths, to favour discussion and debate rather than destructive dissent. It has established mechanisms of communication, has found terms and modalities to negotiate, to compromise, to create a common tongue with a sense of shared values. This has been the creative genius of Europe's diversity, the fruit of millennia of struggle for the supremacy of ideas. With no disrespect to the Euro or the single market or the customs union, this is Europe's greatest strength. This is why the EU's achievement is so great in arising, on the basis of honest communication, from the aftermath of the world's most destructive conflict, finding a channel to a re-imagined and mutually beneficial future on a continent still smouldering with the bitterness of recent strife.

If the EU partners in those days were willing, in the interests of a brighter tomorrow, to share their most precious resources – the coal and steel facilities that were at the root of the conflict – then surely it is inconceivable that EU partners should now be incapable of working together, and with the same honesty, to confer on its citizens a benefit comparable to peace:

their best chance for health and for a life lived in the awareness of health. After all, it is now accepted that the EU can circulate detailed corporate financial data, plunge into the entrails of commerce to ensure fair competition, exchange personal data to combat terrorism, and establish systems to allow confident financial transactions online.

To seize this prize, the EU needs to engage in increased communication in the same sort of forums that it has created to reach agreement in other areas. But again it needs some honesty: a recognition that just speaking about the problem is not enough. It needs engagement, among partners, and with all stakeholders, to translate the opportunities into a reality. A small example can be found in the way that the EU is facilitating early dialogue in health technology assessment, providing space for healthcare stakeholders to sit in on discussions among what were previously experts operating in secret. It is a start – a commendable start. With earlier preventative strategies, there can be earlier diagnosis leading to greater quality of life as well as savings to healthcare systems. With more early dialogues, systems can be modified to take account of the changes needed.

With more engagement and as with the EU as a facilitator with the tools at its disposal in collaboration with civil society and Member States, an institutional mechanism can be put in place so that the EU becomes a lighthouse for earlier diagnosis. This would have the knock-on effect of driving forward industry and science to develop programmes that increase quality of life.

Personalised healthcare, with its emphasis on taking account of the individual, is a perfect demonstration of engagement with the person, providing healthcare by empowering patients and citizens so they have a greater understanding of their own health status, and are able to derive the best quality of life as a result. It is a future just waiting to be seized.

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