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The increasing dissonance - even decoupling - between social discontent, falling quality indicators and good safety results The example of medicine

René Amalberti, Director of the FonCSI and member of the Academy of Technologies, has written a new “Industrial Safety Opinion Piece”. The outcome of several months of research, this study explores how safety results appear to have improved in the medical domain... when all of the indicators tend to show the opposite. Where does this paradox originate?

We live in strange times: complexity provides us with results that are difficult to analyze, especially if we continue to use the tools that were developed for an earlier era, when everything was simpler. Medicine offers us a remarkable illustration of multiple dissonances between the different facets of the object that we call safety.

Objectively, everything is better in the domain of medical risk

In the United Kingdom, a comparative review of in-hospital mortality over the 17-year period 1997-2013 (Aragon, 2018) shows that mortality - all data adjusted - steadily and sharply declined for all admissions, both scheduled and emergency. Part of this improvement is attributed to technical progress, and another part to better organization, notably with respect to the very pronounced reduction in the average length of a stay in hospital over the past 10 years, which has proved to be very positive both for the patient’s prognosis and their safety (essentially due to the reduced risk of infection) (Han, 2021).

“Mortality [...] steadily and sharply declined for all admissions.”

Another meta-analysis (Neuman, 2020), which reviewed mortality associated with adverse medical events between 1990 and 2017, is even more impressive. It shows a massive decoupling between a clear upward trend in adverse drug events (ADEs) and an ongoing decrease in their severity. Specifically, the rate of ADEs increased from 309/100,000 patients in 1997 to 439/100,000 in 2017 (global data), i.e., a 42% increase, with a projection for 2030 of 510/100,000. Conversely, however, ADE mortality has continued to decline (a 0.90% fall over the same period), and could, according to projections, continue to decline, with even greater gains by 2040. While this may be due to an improved culture of incident reporting over time (which has increased the number of events that are reported), the change is not enough to explain the decoupling described above, as serious medical accidents were just as under-reported in the 1990s.

Two meta-analyses (Panagiotti, 2019; Connolly, 2021) of the literature published between 2000 and 2019 examine changes in the nature, severity, and frequency of adverse events (AEs). These studies suggest that the AE rate has halved over a 20-year period. The current average global prevalence of AEs is about 1 in 20 patients, of which 12% are potentially fatal (compared to 1 in 10 patients reported in the first national surveys run in the 2000s, of which 15% were fatal).

Another longitudinal study (2005-2014) of surgical mortality risk in the USA (Fry, 2020) found a 37% decrease over the period in the top 20 North American hospitals—not because of fewer complications, but because they had implemented better systems to detect problems.

Similar gains are found in all sectors. The number of hospital-acquired infections fell significantly between 2014 and 2017, as did 30-day rehospitalizations.

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Mortality for major heart conditions, heart attacks, lung conditions, strokes, and cancers fell significantly and continuously in the USA and Europe between 1990 and 2020 with gains of up to 25%.

If we adopt an even more macro perspective (Ramirez, 2019), life expectancy has continued to increase, with enormous gains, of the order of +22% in the USA between 1990 and 2013. The number is even higher in Europe (+26%), despite the impact of Covid over the past three years, which has slowed gains and even led to a small, probably temporary, decline in life expectancy (-1%). Populations are growing, notably because older people are surviving much longer, and despite a birth rate that is constantly falling (INSEE). It is therefore logical to expect that the cost of health care will explode to the point where governments must make constant trade-offs, due to the growing number of elderly and frail patients who must be cared for, all of whom are consumers and beneficiaries of a highly technical and increasingly expensive medical system.

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In France, a new survey of AE (ENEIS3, Michel, 2022) confirms a statistically significant decrease in both avoidable AE, and their severity, between 2009 and 2019. This is confirmed by an ongoing downward trend in insurance claims (MACSF 2020-2021), although both conviction rates and compensation payments are higher.

In short, health risks have been considerably reduced, and the patient is the one who is benefitting from better survival rates, better care, and a lower risk of avoidable mortality. And even if the wealth of a country makes a major contribution to its health benefits (hygiene, quality of life, less arduous jobs), the gains are worldwide, and not limited to a few rich nations. In many countries, more progress has been made in the past 20 years than in the previous 100.

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Growing dissatisfaction

And yet, the suffering, the degradation in the quality of both care and working conditions, and the feeling of dissatisfaction of clients/ users (not to mention healthcare professionals) have never been so great.

We can see the origins of the problem as far back as 2010-2015. It clearly pre-dates the Covid crisis. The objective improvement in healthcare stands in dramatic contrast to a growing sense of dissatisfaction among the user population, and even more so among professionals. It is as if the benefits of the extraordinary health gains (survival on a massive level) were being squandered by the inability of the health system to consider the quality of life of patients (and their caregivers) to the same degree. Discontent can be addressed from three, complementary angles: pressure and lack of staff, burn-out and demotivation, and deleterious effects on the quality of care.

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Beginning with the lack of staff, French figures suggest that this is about -10 to -20% in many sectors, increasing to -30 to -40% in rural areas (Oliver, 2019; Drenan, 2019). These numbers are the clearest reflection of the scissor effect, produced by the rapid increase in demand. Patients are more numerous, older, and more fragile; and they require more prevention and more technical procedures. At the same time, the healthcare system has been very slow to adapt, and the workforce culture exacerbates regional differences between urban and rural areas. A further issue is the difficulty of initiating the institutional reforms that



are key to managing such a huge surge in demand, along with a massive increase in the use of technology.

The other recurrent problem is budgetary constraints. In many cases, the percentage of GDP allocated to health is already at its maximum sustainable level. However, it is almost totally consumed by both the additional cost of technical medicine, and by a series of optimizations and procedures that were created in times of abundance, and which have not been reviewed since. Budgets rarely increase, and it has been necessary to manage by making marginal financial gains. But these margins no longer exist, and jobs are the first victims of this failure to adapt.

Patients and caregivers are finding it increasingly difficult to cope with the intensification of care (more patients, saturated services), which reduces the time that can be given to psychological care, the human touch. Staff are becoming exhausted during this overly-slow transformation of the healthcare system (Figueroa, 2019; Goldsby and Goldsby, 2020). In Europe, 6-32% of all general practitioners report being close to burnout (Karuna, 2021). Several surveys report that one in two (or even more) caregivers are questioning their future career, possibly seeking retraining. Medical deserts are also increasing, with considerable regional differences in large countries.

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Compliance indicators give a particularly clear insight into how this translates into quality of care. In the USA, recent surveys show that fewer than 18% of patients receive all the care they are prescribed. Most quality and compliance indicators are in the red. In the past 5 years, a substantial body of literature has emerged on new concepts that did not exist before: ‘care rationing’, poor care, or no care. In Europe, the Rancare project, which examined this topic, has just ended (Schubert, 2021).

Successive crises, Covid, and now the conflict in Ukraine have exacerbated the scissor effects described above.

What can we learn from these decouplings?

This review of the state-of-the-art reveals several dissonances (or even decouplings) that raise important questions about medical safety.

“While there is widespread opinion that it is rapidly deteriorating, figures tend to show a constant improvement.”

The first is a decoupling of knowledge among a section of the public, but even more so among health professionals, regarding how the healthcare system is really performing. While there is widespread opinion that it is rapidly deteriorating, figures tend to show a constant improvement.

The second is a decoupling between process and result indicators. Here, we see a very sharp deterioration in process indicators, but an overall improvement in safety results.

The third decoupling concerns the contrast between a significant deterioration in quality of working life indicators, and the performance of the healthcare system for the patient, which is improving.

We can understand this situation from several perspectives. The first is technological. The impact of technological innovations (biomarkers, radiological imaging, oncology and cardiology medications, remote monitoring, etc.) to treat many of the most severe pathologies hides many of the (very real) drawbacks. Day-to-day care is qualitatively poorer, both at the scale of the population and at the scale of the individual patient. To put it another way, over time, the technical performance of protocolized medicine has become much more important in the final patient outcome than the quality of day-to-day care. We should not forget that until the 1970s and 80s, quality of care was almost the only target; it was based

on a human, compassionate medicine, characterized by direct contact with another human being, and the personal care given by caregivers to patients.

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The second perspective is methodological. The number of quality protocols has exploded since 1990-2000. It was a time when we were richer, enthusiastic about the expected benefits of stronger regulatory requirements governing a continuous quality approach, and above all, we had fewer patients... In the past 10 years, the number of patients requiring complex care has increased considerably (particularly those who are elderly and frail). Demand has therefore increased with respect to the number of patients, the complexity of their condition, and demand, as prolonging life has become an objective result for the majority of procedures performed. It is not surprising that, in the face of this increase, the detailed quality procedures that were introduced at a time when resources were abundant and demand was low are now saturating a system that lacks resources, and are contributing to the intensification of work (Box 1). This inflation of new procedures governing the quality of care, which was desirable in the 1990s, captures the measurement of a lack of quality regarding procedures that are not respected. It remains to be seen whether this non-compliance is hazardous for the patient.

“The need to simplify this amalgam of quality and safety procedures that we have inherited from the 2000s has clearly become an overriding concern.”

The latter point is illustrated by the ADE indicator mentioned above, where rates are increasing but mortality is decreasing. Another example is the indicator on incomplete or forgotten care, which is the subject of many articles on the link

between understaffing and a deterioration in patient safety. In both cases, these indicators are significantly out of step with the patient's medical outcomes. In many cases, one or more aspects of the method, the timing of the measurement, or the use of the results are not properly considered and undermine the desired goal, leading to: a lack of standardization and poor interpretation criteria; a poor alignment between the desired objective and the recommended care model; excessive demand for data collection by workforces who are already in difficulty; a lack of nuanced analyses; and a failure to feedback results to professionals; etc. (Barbazza, 2021). Moreover, the Covid crisis has shown us that freeing caregivers from many of these procedures does not make a great difference to the patient's prognosis, just as there is a growing body of literature that challenges the link between an increase in hospital funding and improved quality and safety (Chen, 2010). Here again, questions are increasingly being asked about a measure of quality and safety where the link to risk is not really known. The need to simplify this amalgam of quality and safety procedures that we have inherited from the 2000s has clearly become an overriding concern.

The third perspective is social. Process indicators are being used opportunistically to support growing demands from healthcare workers for a profound reform of their working conditions.

Here again, we must take a careful look at the figures: the number of healthcare workers has continued to grow, and they have become increasingly specialized over

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the past 20 years, particularly between 2000 and 2010. This is demonstrated by the fact that the number of staff working in hospital services was half as specialized and half as numerous (for specialized positions) in 1980 compared to 2020 (data from theGlobalEconomy.com). In the 1980s, it became commonplace to blur the lines between professions: orderlies did the work of nurses, and nurses



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frequently overstepped their responsibilities due to a lack of doctors. Between the 1990s and 2005, an era that was rich in resources, these organizational anomalies were corrected: the work of different professionals was clearly specified, higher nurse/bed ratios were imposed at the beginning of the 2000s, particularly in Anglo-Saxon countries (Sharma, 2000), and thousands of new jobs (mainly executives and specialized positions) were created. The increase in administrative and managerial staff was a response to a sharp increase in new procedures, particularly concerning the quality of care (Box 2) Healthcare funding and official workforce numbers were inflated, with the apparent aim being, of course, to improve quality and safety. However, an inevitable consequence was a very significant improvement in the quality of working conditions and a reduction in arduousness (more staff = more flexible shifts, a better distribution of work, etc.). From the 2010s, demand increased; at the same time, the attractiveness of these onerous healthcare professions fell, with the consequence that the social system was unable to deliver on what it had promised regarding the social and quality of work standards that it had advocated just 10 years before.

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Objectively, the caregivers/ bed ratio remains higher today than it was in 1980, or even in 2000. But we must recognize that it is increasing less rapidly than demand. Above all, the sociology of caregivers has changed profoundly, a profession that was once a passion has become trivialized, and is now often viewed in terms of its benefits compared to those of other professions. This is a well-known problem in other service sectors such as the restaurant industry. The memory of how good things used to be (and the resource ratio of the time) is used as a hostage to glorify history, and block the substantive reforms that are needed to address a situation that has completely changed, and where the organizations and decisions of the past have become largely unsuited to the current situation.

BOX 1

Productivity has exploded, medicine has become more intensive—and much more efficient. In France, the volume of medical interventions has increased from 40 million/year in 1980 to 100 million/year in 2010 (IRDES). The number of procedures performed by doctors has increased from 500, 000/year to 900, 000/year over the same period. One example illustrates particularly well the increasing complexity of procedures: in the 2010s, the treatment and prognosis of strokes was completely changed with the introduction of thrombolysis. This technique must be coordinated by an (on call) neurologist, preceded by an MRI, which requires access to a specialized radiologist, and then performed by a specialist (day, night, or at the weekend, anywhere in the country). All of this care must be administered within 4 hours of the stroke for it to be effective. If this treatment is available, the patient can be completely cured, and the intervention is an incredible advance compared to what was possible until the 2000s. This example is just one of dozens of recent revolutions (in genetics, biomarkers, etc.) that make medical progress highly dependent on technology, coordination (including non-medical aspects such as transport), and the availability of personnel.



BOX 2

In 2000, the ratio of registered nurses to hospital beds was 0.9 in France. It rose to over 1 in 2019, and is still growing. Although all countries have followed this same pattern, some at even higher rates (there are 3.09 nurses/bed in the United Kingdom), the increase has never kept up with the rapid increase in patient numbers. Unsurprisingly, countries that have been the most demanding in terms of mandatory staffing requirements are now those where understaffing is the biggest problem.

(*theGlobalEconomy.com*, 2020)

What does the future hold?

All we can say is that the current despair among professionals (1) cannot be addressed by current structures, (2) nor can answers be found by perpetuating organizations that were suited to a time that has now passed, and (3) does not appear to have a detrimental effect on patient risk in objective terms.

We can also say that, over time, quality has become super-quality. Although, in a context with fewer resources, this has put compliance (process) indicators in the red, there is no apparent link with process safety outcomes. This 'noise' in the analysis of safety, together with a growing dissociation between process and result indicators, deserves particular attention in order to avoid any confusion about future priorities.

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One question remains: Is this situation specific to medicine? Or is it simply a symptom of a more general problem in the industries of the future and questions related to safety?

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