The effect of the Greek financial crisis on the operation of public intensive care units


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SUMMARY

- The National Healthcare System in Greece has taken a serious blow by the financial crisis the country has been experiencing for the past 9 years. The operation of the Intensive Care Units (ICUs) in public hospitals could not remain unaffected, since the largest part of their funding comes from the state's budget.
- Objective: To investigate the effect of the financial crisis on the operation of public ICUs in Greek hospitals.
- Method: Narrative literature review including Greek and English language articles in medical databases such as PUBMED, CINAHL, and in websites of Greek newspapers and other media.
- Results: During the crisis years, a clear shift of healthcare users from the private sector to public hospitals, together with a significant reduction of functional beds in the ICUs of public hospitals have created significant ICU bed shortages and rendered Greek ICUs clearly incapable of meeting nationwide needs. The doctors and nurses employed in public ICUs are not sufficient, and, subsequently, a decline in the quality of the healthcare provided to the critically ill has been noted.
- Conclusions: The situation in Greek public ICUs is critical. Without sufficient state funding, staff and ICU-bed shortages increase the likelihood that the care provided within Greek ICUs will deviate from international standards.

INTRODUCTION

For the past nine years, Greek economy has been under the supervision of the International Monetary Fund (IMF) and the European Central Bank, because of the debt crisis the country has been in. The support mechanisms have financed the Greek government, on the condition that Greece would take fiscal adjustment measures (Matsaganis, 2011). These economic restraints have resulted in a chain of expenditure cuts throughout the public sector.

Publicly provided healthcare is a constitutional right in Greece (Greek Constitution, 2008). Today, two parallel healthcare systems, a public and a private one, with minimal communication or cooperation with each other and running on different organizational models, exist. The field of healthcare and the National Healthcare System in Greece (NHS) could not have been excluded from austerity measures. Between 2007 and 2015, healthcare expenditure has seen a reduction from 6,8% of the Gross Domestic Product (GDP) to 5,3% (Anonymous, 2017a). This, however, did not solely occur in Greece: the financial crisis has affected the majority of European countries, possibly in varying degrees, and it would appear that the citizens of Europe had to sacrifice, among other privileges, some of their healthcare standards to make up for this crisis (Suhrcke & Stuckler, 2012).

A pivotal part of every country's healthcare system are the Intensive Care Units (ICUs). As defined by the American College of Emergency Physicians, ICUs are the sections of a hospital where specialized staff provides care and treatment to people with serious diseases (or injuries), which require constant monitoring of vital parameters or/and constant life support with specialized invasive or non-invasive means (American College of Emergency Physicians, 2018). Up to three decades ago, the majority of patients being treated and eventually discharged from ICUs today, would have passed away due to their illness or injury in a relatively short period of time. As medicine and technology evolve, surgical handling, pharmacological treatment and life support technology support patients' vital functions in the ICU and change the natural history of many life-threatening conditions. Survival rates have gone up, with the exception of certain patient groups, e.g. the gravely ill, or the ones suffering from diseases that carry the worst prognosis. Naturally, this raises questions on ICU hospitalization costs, which have sky-rocketed in the past decades. The daily hospitalization cost per bed in an UK ICU is about £1500, while the hospitalization of critically ill patients in North America accounts for approximately 0,5-1% of the GDP (Anonymous, 2010).

In Greece, since the beginning of the financial crisis, and because of their high operating costs, ICUs have been the target of budget cuts at the expense of the delivered healthcare, resulting in their critical condition of today. The aim of this study is to investigate the effect of the Greek financial crisis on the operation of public ICUs in the country.

METHODS

A narrative literature review was conducted in PUBMED, CINAHL, news websites (belonging to newspapers or not). The keywords used were: Greece, financial crisis, ICU, public intensive care unit, cost. Eligible reports should be in the Greek or English language.

RESULTS

The search strategy yielded 58 papers and reports, of which 29 were deemed relevant after reading the titles and abstracts, and/ or contents where abstracts were not available.

Financial crisis and a shift to public healthcare

Since the beginning of the memoranda in 2010, the total reduction in pensions has reached 70% in the majority of Greek pensioners. One of the consequences of the cuts in salaries and pensions was that Greek people had to turn away from the private healthcare sector to the public one (Anonymous, 2017b).

While visits to doctors' practices and outpatient clinics were reduced in 2009 and 2010, there was an increase of 24% in admissions to public hospitals, with an additional increase of 8% in the first semester of 2011 compared to the respective period in 2010. At the same time, admissions to private hospitals dropped by 25-30%, mostly because patients were unable to carry the cost of private healthcare (Kalafati 2012; Karamanoli 2011; Karidis et al., 2011; Kentikelenis et al., 2011; Tsoulfas 2012). When private healthcare is concerned, patients move away from private healthcare providers, by either postponing appointments or scheduled operations or by making arrangements with public healthcare facilities (Karaiskou et al., 2012). Only patients able to afford private insurance coverage still seek private healthcare. Newer evidence, from the years 2016 and 2017, confirms the previously observed increase of the number of hospitalized patients in public hospitals, to have reached 15% (Drimis, 2017).

Another dimension of the increased cost burden on public hospitals is the length of hospital stay (Mazetas & Zakynthinos, 2014), even though there are writers who disagree with that opinion (Taheri et al, 2000). As far as the length of patients' stay in Greek public hospitals is concerned, reports from the daily newspaper "Kathimerini" (Bouloutza, 2015) for the period of January-October 2014 including hospitals with more than 401 beds, indicate an average hospitalization duration of 3.8 days, with an increase of the hospitalization duration in the Panarkadiko hospital of Tripoli from 4.5 days in 2012 to 6.27 days in 2014. According to the same source, during the same time period and in the same category of hospitals in the Greek NHS, the average bed occupancy was 77,9%, the average expense per patient per day was 859 euros (1053 euros in 2012 and 936 euros in 2013), the average pharmaceutical expense per patient was 300- 423 euros, while the cost for miscellaneous consumables ranged from 112 to 695 euros, with an average of 364 euros. All in all, patients appear to be drawn to public healthcare not because of higher quality of care or easier/faster access, but due to lower cost. Public hospitals have to cope with increased patient inflows and persistently high operating costs, as discussed below.

ICU operating costs

According to the above data that demonstrate increasing demand and use of public healthcare structures (an increase by roughly 30% during the financial crisis) (Giannakos & Papanastasis, 2017), the situation in Greece is critical. When focusing on ICUs, things get more complicated, as ICU hospitalization costs, in comparison to other hospital departments, are far higher and the average hospitalization duration is also longer (it can average up to 12 days) (Giannakos & Papanastasis, 2017).

A study by Geitona et al. (2010) that took place in the ICU of the Teaching University Hospital of Thessaly, aimed to quantify, among other things, the hospitalization cost for patients admitted therein. More than 300 patients were studied. The average length of stay (LOS) for a patient in this ICU was 8.9 days and the average cost per patient in the ICU was calculated at 16.516 euro. Staff salaries were the highest contributor to this cost, while structure maintaining costs, accommodation services and pharmaceutical expenditure followed. Finally, a study by Karabatsou et al. (2016) revealed that the average cost per day for a patient in a Greek ICU, as high as it may be, is still significantly lower than the international average, which can only be attributed to "discounts" on personnel, materials and interventions driven by fiscal austerity.

Various aspects of the public ICU crisis in Greece

According to international standards, Greece, with a population of around 11 million, should have 2000 functional ICU and Intermediate Care Units (IMCUs) beds (Karlatira, 2018a). IMCUs, which serve as a link between the ICUs and patient wards, also face a bed shortage in Greek hospitals (Karabatsou et al., 2016), one reason being that IMCUs beds are at times "recruited" as ICU beds, (Karlatira, 2018a). In the entire country, there are only 554 functional ICU beds, while up to 150 beds are kept "inactive", because of lack of staff (Bouloutza, 2016). In the wider metropolitan area of Athens, out of 254 ICU beds in total, 221 are functional and 33 are "closed" (Bouloutza, 2016). Prompted by the outbreaks of seasonal flu and measles, the Medical Association of Athens publicly denounced inadequate ICU staffing as the basic reason that keeps ICU beds unavailable (Karlatira, 2018b). The National Emergency Aid Center reported that a significant number of critically ill patients, somewhere between 30 and 90, depending on the time of the year, are on a waiting list for a vacant ICU bed (Giannakos & Papanastasis, 2017). Moreover, mechanically ventilated patients are at times denied ICU stay and remain in common hospital wards, with obvious health hazards (Karlatira, 2018a).

When it comes to ICU personnel, several factors have led to staff shortages. Physicians and nurses working in the public sector under fixed-term contracts were the first to be made redundant. Furthermore, repeated salary cuts [cumulatively reaching 40%, although over half of 34 European Federation of Nurses Association's (EFN) members report nurses' pay cuts as a result of the financial crisis in Europe] have led to unacceptably low salaries for health professionals, while taxation has increased by 30% (EFN, 2012). As a result, there has been an ongoing outflow of physicians and nurses towards other countries, mostly European, in search of better working conditions (Papathanassoglou & Mpouzika, 2012). Moreover, changes in retirement policies and the prospect of reduced pensions have led many healthcare professionals, usually experienced and highly trained, to early retirement (Timmins et al., 2017), at a time when the government is, for fiscal reasons, hesitant to hire new personnel. As a result, the nurse-to-patient ratio has dropped to 1/3 in many ICUs (Timmins et al., 2017), as compared to the international average of 1:1 (Valentin & Ferdinande, 2011).

The ICU personnel that has remained in Greece is struggling to balance longer working hours, due to staff shortages, failing equipment, shortage of pharmaceutical and other supplies (Aiken et al., 2012; Jessop, 2012), with increased patient admissions and the push for shorter patients' LOS. As a result, they have less time for efficient patient care and decision-making and get less satisfaction from their work (Timmins et al., 2017). Moreover, studies have proposed that a sufficient nursing staff is associated with lower mortality rates as opposed to understaffing (Aiken et al., 2014; Duffin, 2014; Giakoumidakis et al., 2010). In a Greek ICU, before the financial crisis, a study by Kiekkas et al. (2008) showed an association between increased workload and high mortality rates. Capuzzo et al. (2014) conducted a study in one hundred and sixty-seven ICUs from 17 European countries (included Greece) to assess hospital mortality of adults admitted to ICU. They enrolled 5,834 patients and 1,113 (19.1%) of them died in the ICU. According to a press release in July 2017 by the Panhellenic Federation of Public Hospital Workers, the mortality in Greek ICUs was found to be between 18% and 23% (Giannakos & Papanastasis, 2017). Mortality rates were found increased (up to 45% – 50%) outside the ICU, when critically ill patients would be treated in common hospital wards because of lack of vacant ICU beds (Giannakos & Papanastasis, 2017). However, the reported deterioration of patient outcomes in Greek ICUs should be corroborated by formal, systematically accrued data, in order to be accepted as a fact.

Another problem with likely connections to the financial crisis is the

ICU-acquired infections. In a Greek study by Kiekkas and associates (2008), an association between the workload and a higher frequency of infections was demonstrated (Kiekkas et al., 2008). In accordance with these findings, another study reported an increase in infection rates, which approach 50% in adults and 30% in newborns (Zoumidou, 2016). According to the same source, the main causes of the phenomenon, namely the understaffing of specialized healthcare personnel but also of cleaning services staff, can be attributed to the budget cuts and fiscal austerity imposed on the administrations of public hospitals.

DISCUSSION

It is clear that ICUs represent a pivotal but also costly section of any healthcare system. In Greece, amidst the financial crisis, ICUs have been an easy target for budget cuts, because of their high costs. Since, however, much of this cost is inelastic, an eventual decline of the quality of ICU-delivered care is to be expected, if not already evident. Even though reports extensively refer to the effects that financial restrictions have on public healthcare in general (Benatar et al., 2011; Oikonomou & Tountas, 2011), the impact the crisis has had on ICUs in particular has attracted relatively little attention. The restriction of ICU-bound funds and the subsequent decrease in quality of care in ICUs are issues that need to be tackled without delay (Aiken et al., 2012).

Nine years into the worst economic crisis Greece has experienced for decades, the whole prospect of public healthcare is gloomy. More Greeks are turning to the public healthcare sector, since its services are free even for the uninsured. The patient burden is rising, while budget cuts have not been avoided in public hospitals, with the Greek ICU, a “costly” by nature department, being among the first sufferers. Even human resources are scarcer than ever, with significantly more physicians and/or nurses leaving their ICU jobs than being recruited, creating a predicament for those who have stayed behind. Surprisingly enough, and against all odds, Greek ICU mortality rates are reported to still be comparable to international standards, a piece of information, however, that needs to be supported by formally published research data. If that proves to be indeed real, then it has to be credited to the “heroism” of the existing ICU personnel (Armaganidis, 2018), which, however, will not avoid professional burnout in the near future (if they are not already experiencing it).

An ICU is a department of high specialization and technology, where a large amount of a state’s hospital funding is directed to (Piacentino et al., 2000). It involves expensive to acquire and maintain life-support equipment (e.g. mechanical ventilators, monitors, intra-aortic balloon pumps), costly medications (e.g. last-generation antibiotics) and interventions (Pittoni & Scatto, 2009), as well as the need for specialized healthcare personnel. Most studies focusing on ICU operating costs agree with the conclusion of the studies reviewed herein that staff salaries (especially of nurses) comprise the biggest part of the cost (Bloomfield et al., 2006; Moran et al., 2004; Rechner & Lipman, 2005). There are other studies that associate the hospitalization costs in ICUs with patients’ length of stay (Bertolini et al., 2003; Graf et al., 2002; Mazetas & Zakynthinos, 2014).

It is known that nosocomial infections in the ICU are associated both with grave clinical outcomes, namely increased mortality, and with a lengthier and costlier ICU stay (Vandijck et al., 2008). In the studies reviewed herein, an increase of infection rates associated with the Greek economic crisis, in both adults and neonates has been shown. The ICU personnel, mostly nurses, have been the focus of studies that have shown that their interaction with patients combined with the way they work, can lead to the appearance of infections in critically ill patients (Labeau et al., 2007; Stone et al., 2008), although a more recent literature review suggests there is only a trend, and not a statistically significant association, between adequate nurse staffing and improved ICU patient outcomes (McGahan et al. 2012). The nurse-to-patient ratio (Manojlovich et al., 2011), as well as the amount of time spent taking care of the patient (Frith et al., 2010; Manojlovich et al., 2011) seem to be correlated with the occurrence of infections. However, in a research published in 2012, 7.076 nurses working across 161 hospitals in Pennsylvania were studied. The study indicated that increased nurses’ workload was associated with an increase of certain infections; researchers made the hypothesis that the nurses’ exhaustion from intense and long working hours can lead to poor hand hygiene practices and to other omissions responsible of the transmission of infections to patients (Cimiotti et al., 2012). The results of this study are very pertinent to the state of Greek ICUs today.

CONCLUSIONS

ICU bed shortage in Greece wrongly assigns critically ill patients to intermediate-care units or even common hospital wards, where increased mortality rates are an alarming fact. Burnout of struggling ICU staff and ongoing bed and material shortages, will eventually lead to a formally observed and probably dramatic deterioration of ICU clinical outcomes, which will then be difficult to reverse. In a struggling economy, healthcare, and especially its showcase, the ICU, must be an absolute priority; that means protecting its funding, avoiding unneeded costs and supporting ICU’s health professionals.

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