

The internist in the surgical setting: results from the Italian FADOI-ER survey

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ABSTRACT

More and more frequently, patients admitted to surgical wards present characteristics similar to those admitted to medical units. They are *fragile patients*, often elderly, with significant comorbidity. In recent years, to address these emerging clinical issues in a surgical setting, different organizational models involving specialists of different backgrounds were studied, and in particular involving internists and geriatricians. To widen our current knowledge, in 2011 the Federation of Associations of Hospital Doctors on Internal Medicine of Emilia-Romagna, northern Italy (FADOI-ER), proposed a questionnaire to the public healthcare internal medicine departments of the Emilia Romagna region to collect information as to in what way and to what extent internists are involved in the management of surgical patients. In this article, we analyze the results of the questionnaire and make some organizational considerations and proposals. The questionnaire was very simple, consisting of 14 items. The survey was conducted from 1-28 February 2011. Replies were received from 20 internal medicine departments of a total of 75 in the Emilia Romagna region. The FADOI-ER survey has some limitations, the first of which is that only just under 25% of internal medicine departments in the Emilia Romagna region took part. However, the results are still interesting and seem to suggest that internists, because of their particular cultural background and training, could be the preferred partners for co-management within the context of inpatient surgical procedures. The results of the FADOI-ER questionnaire are also consistent with the data reported in literature and daily clinical experience that highlight the need for a more multi-specialist approach to patient management with medical internists. Further studies will help provide answers as to the best way to conduct this multi-disciplinary approach that could represent one of the future challenges for healthcare.

Introduction

More and more frequently, patients admitted to surgical wards present characteristics similar to those admitted to medical units.¹ As Mazzi reminded us, these are *fragile patients*,² often elderly with significant morbidity. This is confirmed by results of various studies. Jencks³ reported that, in 2003 in the USA,

among patients treated under the Medicare program who were sent home from surgery units and then readmitted within 30 days, 70.5% of cases were mainly characterized by medical pathologies such as heart failure, pneumonia, gastrointestinal pathologies and sepsis. Today, in an orthopedic setting, mortality for fracture of the femur is still 10% at one month after surgery and is correlated with pre-operative comorbidity, and functional, cognitive and nutritional patient status.⁴⁻⁶ The main causes of death are heart failure and infective pulmonary pathologies.^{7,8} It has also been observed that only 10% of orthopedic patients admitted are completely autonomous and without any comorbidity, while another 10% is made up of patients with motor disability ranging from serious to bed-ridden. The remaining 80% were autonomous before the fracture but had functional limitations that compromised daily routine activities.⁹⁻¹¹ In recent years, in order to deal with these emerging clinical issues in a surgical setting, various organizational models have been studied that involve specialists from different fields, but in particular internists and geriatricians. In order to explore the problems involved, the Federation of Associations of Hospital Doctors on Internal Medicine of Emilia-Romagna, northern Italy (FADOI-ER) proposed a questionnaire to the public healthcare internal medicine departments in the Emilia Romagna region.

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The survey investigated in what way and to what extent internists are involved in the management of surgical patients.

Materials and Methods

In 2011, the FADOI-ER proposed a very simple questionnaire consisting of 14 items (Table 1). The survey was carried out 1-28 February 2011 and aimed to collect information on the consultancy role of internists in a surgical setting. The questions were formulated to evaluate: i) the integrated healthcare models adopted; ii) the use of human resources in relation to the type of healthcare model proposed; iii) any possible involvement of other internists in the integrated healthcare model.

Results

Response to the survey was received from 20 internal medicine departments of a total of 75 in Emilia Romagna (Table 2). Of these, 75% had 30-60 beds (Table 1) and 70% of the departments involved had less than 300 beds (Table 1). In all hospitals whose internal medicine departments took part in the survey, the main surgical wards were: general surgery (100%), orthopedics (85%), gynecology (65%), urology (60%), otolaryngology (60%), ophthalmology (60%). From the answers to Question 6, *How often are internal medicine specialists consulted about surgery?* (Figure 1), it can be seen that in 60% of cases an internist is available in the surgical setting on a weekly basis and 2-3 times per week in 35% of cases. Also in relation to how internists are distributed around the hospital, the main requests for consultancy were made by general surgery (45%), orthopedics (40%) and urology (10%) departments (Figure 2). Fifty percent of internal medicine departments that responded to the survey have created or are in the process of creating programmed Internal Medicine services within their surgical unit (Table 1). Among the internal medicine departments that incorporate daily structured consultancy (Figure 3), in most cases (60%), it is estimated that medical personnel are involved for 1-2 h a day. In cases in which consultancy services are not included in any codified program, medical personnel are involved for less than 60 min a day (60%) (Figure 4). Other medical specialities that were reported to provide consultancy services in the surgical unit were cardiology (100%), nephrology (50%) and pneumology (20%). The geriatric department, available in 45% of the hospitals taking part in the questionnaire (Table 1), seems to be less involved in consultancy services within surgical units (10%). Interestingly, in 25% of cases, and particu-

larly in the smaller hospitals, the internist was described as the only consultant available.

Discussion

Data and trends

The FADOI-ER survey has some limitations, the first being that only just under 25% of internal medicine departments in the Emilia Romagna region took part. Furthermore, it is probable that the hospital services that answered the questionnaire were those who

Table 1. Results of the FADOI questionnaire carried out in Emilia Romagna, northern Italy, on internal medicine interventions in a surgical setting.

1) How many beds does your hospital have?	
a) <200	40%
b) 200-300	30%
c) >300	30%
2) How many beds does the Internal Medicine Department have?	
a) <30	5%
b) 30-60	75%
c) >60	20%
3) Does your hospital have a geriatric department?	
a) Yes	45%
b) No	55%
4) Which surgical specialities are available in your hospital?	
a) General surgery	100%
b) Orthopedics	85%
c) Urology	60%
d) Obstetrics-Gynecology	65%
e) Otolaryngology	60%
f) Ophthalmology	60%
g) Other	0%
5) Are internal medicine specialists consulted in a surgical setting?	
a) Yes	100%
b) No	0%
6) If yes, how often?	
a) 2-3 times a week	35%
b) At least once a day	60%
c) More than once a day	5%
7) Which departments request internal medicine consultancy the most (list at least 3 departments and give an estimate of number of requests, %)?	
a) 1 st Surgery	45%
b) 2 nd Orthopedics	40%
c) 3 rd Urology	10%
8) Have any surgical units incorporated programmed internal medicine services within their unit?	
a) Yes	50%
b) No	50%
9) If yes, which models were used?	
a) Programmed daily consultancy	40%
b) Pre- and postoperative services managed within the surgical unit	30%
c) Creation of multi-specialist teams	30%

To be continued on next page

Table 1. Continued from previous page.

10) If yes, which surgical units were involved?	
a) General surgery	40%
b) Orthopedics	100%
c) Urology	10%
d) Obstetrics-Gynecology	10%
e) Other	10%
11) If the programmed consultancies listed above are operative, how long are internists involved for?	
a) A doctor 1-2 h	60%
b) A doctor <60 min	30%
c) A doctor 2-4 h	10%
d) A doctor >4 h/die	0%
12) If your unit does NOT have a consultancy program as listed above how much time is staff expected to dedicate to such a service?	
a) 1 doctor <60 min	60%
b) 1 doctor <30 min	40%
c) 1 doctor >60 min	0%
13) In your hospital, what other departments contribute to the management of medical complications presented in the surgical unit?	
a) Cardiology	100%
b) Nephrology	50%
c) Geriatrics	10%
d) Pneumology	20%
e) Other	20%
f) None	25%
14) What contribution do they make?	
a) Consultant <i>on call</i>	95%
b) Organizational models with programmed services (specify department)	5%

already had internists involved in the surgical setting and this could be considered a quite significant selection bias. In spite of the limited representation of the samples studied by the questionnaire, our results are similar to those reported in the literature. Since 2001, in the USA, requests for an approach involving surgeons and medical specialists have been constantly on the increase with 35-40% of hospitalized patients managed in this way.¹² One of the most studied management models is that represented by the *co-management* between the surgeon and the *medicine physician*, interpreted to mean an internist, geriatrician or internal medicine specialist. Such a specialist would describe his role as that of the daily management of chronic medical comorbidities and possible acute complications of the surgical patient.^{12,13} Some years ago in the USA, the role of *hospitalist* was created. These were physicians mainly specialized in internal medicine who, according to the original definition, should carry out at least 25% of their work in assisting hospitalized patients on internal medicine issues.¹⁴ This role has progressively widened its scope to include surgical patients. This has had an extremely favorable impact on clinical practice, reducing the average length of hospital stay without any increase in the number of readmissions or mortality rates.^{12,15-17} Furthermore, in the orthopedic setting, more complex care models have

Table 2. List of public healthcare departments of Internal Medicine that completed the FADOI-ER questionnaire.

1)	UU.OO. Medicina Interna Ospedale Budrio (Bologna)
2)	UU.OO. Medicina Interna Ospedale, Riccione (Rimini)
3)	UU.OO. Medicina Interna Ospedale, Bagno di Romagna (Forlì Cesena)
4)	UU.OO. Medicina Interna Ospedale, Imola (Bologna)
5)	UU.OO. Medicina Interna Ospedale, Castel San Giovanni (Piacenza)
6)	UU.OO. Medicina ad Alta Rotazione Ospedale, Ferrara
7)	UU.OO. Medicina Interna III Ospedale, Reggio Emilia
8)	UU.OO. Medicina Interna Ospedale, Faenza (Ravenna)
9)	UU.OO. Medicina Interna Ospedale San Giovanni in Persiceto (Bologna)
10)	UU.OO. Medicina Interna Ospedale Sant'Arcangelo, Romagna (Rimini)
11)	Clinica Medica II Ospedale, Ferrara
12)	UU.OO. Medicina Critica, Piacenza
13)	UU.OO. Medicina Interna Ospedale, Carpi (Modena)
14)	UU.OO. Medicina Interna Ospedale, Pavullo (Modena)
15)	UU.OO. Medicina Interna Ospedale, Vignola (Modena)
16)	UU.OO. Medicina Interna Ospedale, Sassuolo (Modena)
17)	UU.OO. Medicina Interna Ospedale, Porretta (Bologna)
18)	UU.OO. Medicina d'Urgenza Ospedale civile, Modena
19)	UU.OO. Medicina Interna I Ospedale, Reggio Emilia
20)	UU.OO. Medicina Interna II Ospedale, Fidenza

been studied in the light of this type of experience. These models are based on setting up a group made up of different professional figures (orthopedic surgeons, geriatricians, nurses, physiatrists) capable of creating a true orthogeriatric structure.^{18,19} The results of our questionnaire obviously provide a *best case* scenario of the most advanced strategies and most motivated staff in this context. Similar to our findings, the *co-management* of patients undergoing surgery is mostly centered on the hospitalist, internist and geriatrician, a model that has become more familiar over the last 15 years.^{12,20} The move towards this kind of approach is also probably due to the opportunity it offers to simplify organizational issues.

Experiences and care settings proposed in the literature

An analysis of all the studies carried out so far shows there have been few randomized trials on this

issue and that studies were for the most part conducted in an orthopedic setting. This makes it difficult to draw definitive conclusions concerning the efficacy of the different management models²¹ (see also the interesting article recently published by Colombo in this Journal).²² It is, in any case, useful to highlight the results obtained in the most important clinical studies.

Orthopedic surgery

In 2001, Marcantonio *et al.*,²³ in a randomized study of patients with hip fracture, showed that, compared with traditional care, co-management of the geriatric patient significantly reduced the number and the seriousness of episodes of delirium. In a more recent prospective observational study in Australia,²⁴ Fisher *et al.* compared 447 patients with hip fracture cared for under an orthogeriatric co-management program to 504 patients followed for three years be-

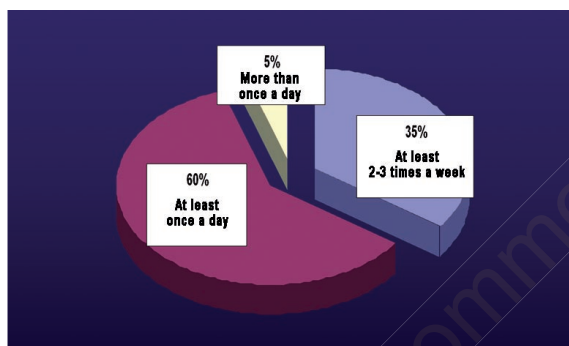


Figure 1. Answers (%) to Question 6. How often are internal medicine specialists consulted in a surgical setting?

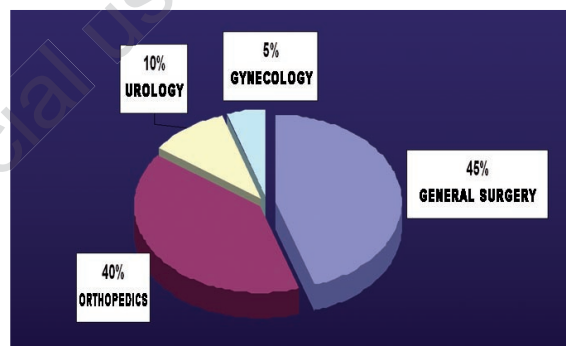


Figure 2. Answers (%) to Question 7. Which departments request internal medicine consultancy the most?

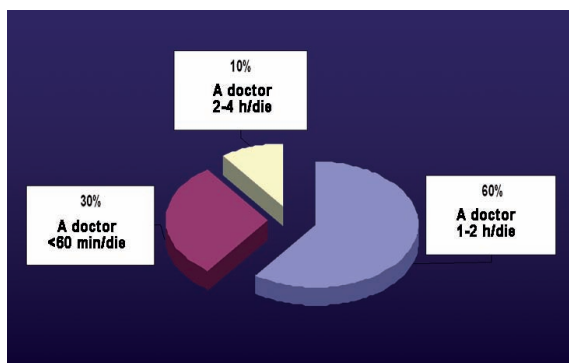


Figure 3. Answers (%) to Question 11. If the programmed consultancies (listed in Question 9) are operative, how long are internists involved for?

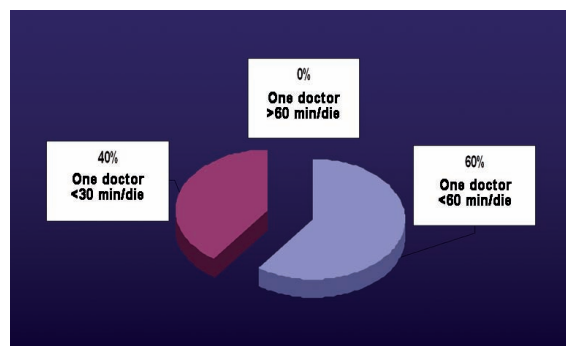


Figure 4. Answers (%) to Question 12. If your unit does NOT have a consultancy program (listed in Question 9) how much time is staff expected to dedicate to such a service?

fore the program was set up. Post-operative medical complications and re-admission rates at six months were significantly reduced in the orthogeriatric co-management group. In a retrospective study published in 2009, Friedman *et al.*²⁵ compared 163 patients over 60 years of age with fracture of the femur cared for under an orthogeriatric co-management program with 121 patients under standard care. The co-management care group developed fewer post-operative infections and complex complications (delirium, heart problems, thromboembolism) along with a shorter hospital stay. There were no differences in mortality either in hospital or at 30 days or in hospital readmission rates.

In 2004, Huddlestone *et al.*²⁶ carried out a randomized controlled trial on 526 patients undergoing elective surgery for complete hip or knee replacement. They compared co-management by a hospitalist and an orthopedic surgeon with standard care based on consultancy intervention on request. Patients followed by a hospitalist had a higher probability of leaving hospital without post-operative complications. There was no difference in mortality rates or in total cost of treatment between the two care models. In a second study, in 2005, Phy *et al.*²⁷ analyzed 466 patients over 65 years of age admitted for hip fracture. The patients in the co-management group underwent surgery quicker and had a shorter average hospital stay. There were no differences in hospital mortality or in readmission at 30 days.

Cardiac surgery and neurosurgery

In 1990, Macpherson *et al.*²⁸ evaluated internist co-management of 165 patients undergoing cardiothoracic surgery. The authors showed that, compared with the previous year, the setting up of the internist co-management program was associated with a reduction of six days in the length of hospital stay, fewer laboratory tests and radiological examinations, and a trend towards lower mortality. In 2010, Auerbach *et al.*²⁹ carried out an observational study on the effects of co-management with a hospitalist of neurosurgical patients examining the level of professional satisfaction, length of hospital stay, readmission rates, mortality rates and cost. They concluded that health professionals expressed greater satisfaction in the care provided and that costs were reduced (approx. \$1500 per patient) but there was no improvement in results of other outcomes.

General considerations and future prospects

It seems clear that, in most cases, all these studies concern and involve co-management and an important contribution from physicians who, whatever the terminology used, can be best described as *in-*

ternists. In fact, it is problematic for the specialist, who is usually only involved in well-defined clinical situations, to take responsibility for an overall evaluation of surgical patients who, as we said earlier, present complex and multiple comorbidities. Epidemiological data reported by Gulsham *et al.*¹² seem to support these observations. In this century in the USA, the *generalist physicians*, mostly made up of internists, geriatricians or general medicine doctors, are of increasing importance in hospital co-management in the surgical setting while specialists have a progressively smaller role. Scientific evidence and the results of the FADOI-ER survey seem to suggest that internists, in virtue of their particular cultural background, their wider general training, and their presence in even the smallest hospitals have a privileged role to play in co-management programs on surgical wards. Such a role can be designed and adapted according to the characteristics and requirements of each hospital. It would, therefore, be useful to validate this new organizational approach also in Italy and in Europe as a whole in controlled clinical trials.

Other data to emerge, in particular in Italy, show that structural and organizational changes of this type need to look at hospital staffing to ensure that more internists are available on the wards.^{12,30} Another factor to emerge from the literature is how any changes in a surgical setting need the full involvement of all health-care professionals involved and a change in their cultural attitudes.³¹⁻³³ Given this, from our questionnaire it emerges that 60% of the internal medicine departments that responded to the survey confirmed that internists were involved in consultancy services for 1-2 h per day. It could, therefore, be hypothesized that in the future more time could be spent in providing these services. Such a commitment cannot be sustained unless resources are redistributed according to new organizational strategies that are not based on specialized expertise but focused on the patient and his or her needs. This could also eventually be applied to the organization structured to provide greater *intensity of care*. Another less costly method from an organizational point of view could be to identify surgical patients who require daily clinical evaluation using a score system based, for example, on risk factors that have already been partially recognized.^{4,34} This could limit the biggest part of the clinical workload to some patient subgroups.

Models for the future

We can identify organizational models that could be applied in hospitals in the future. Although these models, however flexible they may be, will obviously be related to the different characteristics and requirements of each hospital, they should lead to a

constant improvement in the synergy between professionals and an increased presence of internists in surgical units. A first model, called *structured consultancy*, could be applied to any hospital. This is very similar to some of the models that have also emerged from our survey. *Structured consultancy* involves establishing a timetable in which the internist is available for partial or complete medical examinations either alone or together with a specialized surgeon. In this context, the internist, either independently or together with the surgeon, will be responsible for the management of issues that may not necessarily be related to the surgical intervention itself or its local consequences. On the other hand, a second model that could also be applied in hospitals of any size could be to put the management of patients admitted to surgical or polyspecialist units completely in the hands of an internal medicine department. This would leave the surgeon to deal only with consultancy services for the surgical intervention itself and wound management. Obviously, this type of model requires a huge step forward in the development of *clinical governance*. It would be a highly suitable approach in the context of hospital organization aimed at improving *intensity of care*. This is currently considered a particularly efficient and valid approach to overall care of elderly, complex patients with polyopathologies.³⁵

Conclusions

Over recent years, the number of *fragile patients* has increased and this is changing the scene of the clinical and general care of these patients in surgical settings. The complexity of this epidemiological change will have a significant impact and, even though these changes are still as yet undefined, they can be expected to also affect surgical outcome. Results from the FADOL-ER questionnaire agree with data from the literature and from daily clinical experience. They underline the need for greater collaboration between specialist surgeons and internists in patient care.

We have proposed two models that are in line with this type of organization. One represents *structured consultancy*, a model that could be applied in any hospital, and one that could be integrated into hospital reorganization strategies that aim to increase *intensity of care*. This second model foresees management of patients in a surgical unit by internists. In this case, the specialist surgeon would provide only consultancy services relating to the surgical intervention itself and its local consequences.

Further studies will be needed to identify which of these multidisciplinary healthcare models could best present the challenge for the near future.

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