General practitioners’ experience at “med” first-aid station of “F. Spaziani” Hospital in Frosinone: data analysis and outlooks

Eleonora Grimaldi 1
Francesco Carrano 2

1 Doctor of Med Ambulatory, ASL Frosinone, Italy
2 General Practitioner, Coordinator of Med Ambulatory, ASL Frosinone, Italy

Corresponding Author:
Eleonora Grimaldi
Doctor of Med Ambulatory, ASL Frosinone, Italy
E-mail: grimaldieleonora@libero.it

Summary

Introduction: Lazio Region Primary Health Care System requires at present a different approach to the organization of hospital and non-hospital care. For this reason, Lazio Region, in collaboration with Fimmg Lazio (Italian Federation of General Practitioners), proposed an experimental project called “Ambulatorio Med (AmbMed): Percorso veloce codici bianchi e Verdi” (A fast route for White and Green codes), which developed from the former project “Ambulatorio Blu” (Flu Management). The 10th Congress of the Regional School of Training in Family Medicine and the 2nd Regional Congress of Fimmg Lazio were held on March 22-23, 2013. On these occasions, results collected from several ASLs and hospitals involved in “AmbMed” project were presented.

Purposes: the aim of “AmbMed” is to address and resolve illnesses of General Medicine in the context of Primary Care.

Methods: the experimental project “AmbMed” at “F. Spaziani” Hospital in Frosinone ran from June 11, 2012 to April 23, 2013. It ensured medical care to citizens seven days a week, from 8am to 8pm, extending the access to primary care at ER. Although there were 60 requests of participation to the project, only 30 doctors of General Medicine joined the project and worked H12 in shifts of 6 hours. The access mode to the “Ambulatorio Med” was through the Emergency Department Triage, where nurses decided the suitable priority code for each patient, according to the project protocol. White and Green tag patients were visited by the “AmbMed” doctor; then, they were discharged and addressed to their general practitioner or hospital specialist or re-evaluated and sent back to ER for reassessment of the triage. The areas of “AmbMed” intervention dealt with the pathologies treated in primary care and included in the “AmbMed” protocol.

The characteristics of patients were studied using cross-tabulation, median and range. $\chi^2$ test or Fisher test, Wilcoxon test (K=2) or Kruskal Wallis test (K>2), Kaplan-Meier analysis were used for data analysis. The results were considered significant if p value was less than 0.05. All statistical analysis are performed using the software SAS 9.1.3 (SAS Institute, Cary, NC).

Results: the “AmbMed” entries were 3748: 1124 (30%) white tag patients and 2624 (70%) green tag patients; males were 62% and females were 38%. The patients with < 65 years of age were 80% and those with > 65 years of age were 20%. 18% of patients came from Frosinone city, whereas 75% from other towns in the Frosinone district; moreover data also indicated 30% of non-European patients. The goals set out by the protocol were also significantly exceeded: the waiting time of white and green tags was reduced by more than 50% (as compared to a 10% expected reduction) and the attendance time of white and green tags in the emergency departments was reduced by more than 60% (as compared to a 10% expected reduction). The most commonly diagnosed diseases in patients with < 65 years of age were the dermatological-allergic pathologies (24,6%), while the most commonly diagnosed in patients with > 65 years of age were the dermatological-allergic (28,42%), osteoarticular (20,89%) and eyes pathologies (15,75%).

Discussion and Conclusions: the purposes defined by the trial protocol have been largely achieved. Data analysis, goals achieved, competence and skills of health workers, great appreciation expressed by patients, allow us to persist along this innovative path based on the latest healthcare demands resulting from this experience and further integrating it on the basis of the new requirements for the reorganization of primary health care on the territory.

KEY WORDS: general practice, AmbMed experimental project, Emergency Medical Service.

Introduction

Lazio Region primary Health Care System currently requires a reconfiguration by a reshaping of the organizational network of hospital and non-hospital care supply, in order to create a stronger integration and collaboration between hospital and territory, and also to
strengthen primary healthcare, which is still lacking if compared to the needs of healthcare demand in the Frosinone district area (1, 2). In view of developing this complex process of territorial medicine reshaping, Lazio Region in collaboration with FIMMG Lazio (Italian Federation of General Practitioners) proposed an experimental project called “Ambulatorio Med (AmbMed): Percorso veloce codici bianchi e Verdi” [Med First-Aid Station (AmbMed): A fast route for codes white and green], which developed from the former project “Ambulatorio Blu” (Flu Management) (3, 4). This project made it possible the management of patients for whom hospital care was inappropriate, given the lack of a real clinical urgency, putting them back in the right path and care profile (5). Studies of general medical practice have been preserved: the “AmbMed” MDs, through a medical examination, had the opportunity to prescribe therapies and / or diagnostic tests and could request other clinical verifications. In every case, a clinical report was delivered to the patient. “AmbMed” activity was documented through the management software “Gipse”, available at the first-aid station of Frosinone. The 10th Congress of the Regional School of Training in Family Medicine and the 2nd Regional Congress of Fimmg Lazio were held on March 22-23, 2013. On those occasions, results collected from several ASLs and hospitals involved in the “AmbMed” project were presented (6).

**purposes**

These experimental projects focused on diseases falling within general medical practice, inappropriately brought to the attention of ER, which can be resolved within the framework of primary care.

The expected goals were:

1) the reduction of particularly long waits and a proportionate and gradual reduction of waiting times for patients with different priority codes;

2) the reduction in the employment of surgeries in the emergency room for improper issues;

3) a more appropriate assignment of emergency codes white;

4) a proper information on the purposes and organization of the “AmbMed” experimental project.

**methods**

The “AmbMed” experimental project carried out at “F. Spaziani” Hospital in Frosinone ran from June 11, 2012 to April 23, 2013. It ensured medical care to citizens seven days a week, from 8am to 8pm, extending access to primary care at ER. Although there were 60 requests of participation to the project, only 30 doctors of general medicine joined the project and worked H12 in shifts of 6 hours. The access mode to the “AmbMed” was through the Emergency Department Triage, where nurses decided the suitable priority code for each patient, according to the project protocol. In order to access “AmbMed”, each patient had to be self-sufficient, symptomatic but not suffering and have a good cognitive capacity or an adequate family support. According to the DPR of March 27, 1992 and following the guidelines for hospital emergency departments, there are different paths for patients who access the emergency room, according to the priority assigned to the cases (Tab. 1) (3, 7). There were three distinct paths according to the priority of the cases (A, B, C), for which triage nurses decided case by case the most suitable route for the patients. Patients with a higher priority (codes red and yellow) were included in path “A”, addressed in the area dedicated to emergency; path “B” was reserved to code green patients who did not meet the criteria for admission at “AmbMed” (Tab. 2); patients presenting codes white and green and with the admission criteria described above were within path “C”: they were referred to “AmbMed” and, after a doctor’s visit, could be discharged and addressed, depending on the specific case, to G.P., to specialist clinics, or eventually re-evaluated and returned to the first-aid station (3, 8).

“AmbMed” areas of intervention, according to protocol, focused on all pathologies treated in clinics and by general practitioners, in continuity of care. We have dealt with the treatment of musculoskeletal disorders not caused by traumatic events (non-traumatic back pain and rachialgia, muscles’ distractions, symptomatic musculoskeletal algics), dermatological disorders (insect bites without generalized systemic reactions, skin rashes and urticaria iatrogenic small claims, superficial dermatitis, pruritus without cutaneous manifestations, warts, herpes simplex, fungal

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**Table 1 - Priority codes for patients entering ER, according to guidelines for clinic emergencies (3).**

<table>
<thead>
<tr>
<th>Priority Code</th>
<th>Definition</th>
<th>Admittance</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red - Emergence</td>
<td>Imminent life threatening. Very critical patient with impairment of vital functions.</td>
<td>Immediately</td>
<td>3%</td>
</tr>
<tr>
<td>Yellow - Undelayable Urgency</td>
<td>Potential danger of impairment of vital functions (consciousness, breathing, heart activity).</td>
<td>From 10 to 15 minutes</td>
<td>15%</td>
</tr>
<tr>
<td>Green - Delayable Urgency</td>
<td>There is no danger for the vital functions.</td>
<td>From 30 to 60 minutes</td>
<td>74%</td>
</tr>
<tr>
<td>White - without urgency</td>
<td>Health care without urgency and which should be resolved by the General Practitioner.</td>
<td>Not computable</td>
<td>8%</td>
</tr>
</tbody>
</table>
infections, felon and nails ingrown, sebaceous cyst and not inflammatory, alopecia, sunburn, hidradenitis, pilonidal cysts, parasites, lymph node swelling exanthematous diseases, first-degree burns of limited extension, superficial wounds that do not require suturing, abrasions, removing sutures and dressings), eye problems (conjunctivitis, eyelid and ocular pathologies, excluding foreign body), ENT (ear pain, sore throat, rhinitis, tonsillitis, toothache, stomatitis, gingivitis, canker sores), urological (urinary tract infections, renal colic, urinary catheter replacement), gastrointestinal (GI reflux, constipation, diarrhea, dyspepsia, hemorrhage syndrome), pneumo (flu syndrome, inflammation of the respiratory tract), anxiety disorders, panic attacks and hypertensive crisis (3).

The characteristics of patients were studied using cross-tabulation, median and range. The differences among subgroups in prognostic factors’ distributions were assessed using $\chi^2$ test or Fisher test for category variables and Wilcoxon test ($K=2$) or Kruskall Wallis test ($K>2$) for continuous variables. Follow up time’s median was estimated by Kaplan-Meier analysis. The results were considered significant if p value was less than 0.05. All statistical analysis are performed using the software SAS 9.1.3 (SAS Institute, Cary, NC).

**Results**

Encouraging data, emerging from “AmbMed” report in Frosinone, showed that the expected targets were significantly exceeded by the results (6, 9, 10). The waiting time to visit of codes white and green shrank by more than 50% (as compared to an expected 10% reduction); the reduction of time spent in ER for patients with codes white and green accounted for 60% (as compared to an expected 10% reduction) and the percentage of entries at “AmbMed” appeared to be increasing. In the first quarter (June-August 2012) it accounted for 20% of daily accesses in ER, in the second quarter (September-November 2012) it was 25%; in the third quarter (December 2012-February 2013) it accounted for 35%; and in the last two months, March and April 2013 it was 30% (as compared to an expected rate of about 20-30%) (Fig. 1) (11). The attendance peak was during weekends: on Saturdays (17.7%) and Sundays (12%), a period in which general medicine’s surgeries are closed (Fig. 2).

“AmbMed” registered accesses were 3748 in total, 1124 of which referred to codes white (30%) and 2624 to codes (70%) green; 62% were males and 38% were females; 80% were people aged less than 65 years of age and 20% more than 65 years of age. The origin of patients was: 18% from Frosinone city and 75% living in Frosinone district (Fig. 3) (6, 9, 10). A relevant percentage (20%) was registered for non-European patients, who declared to access ER on grounds of free health care services provided. These data are comparable to the patients (15%) admitted in a U.S. emergency department, who arrive there for the same mentioned reasons (12).

The most commonly diagnosed diseases in patients < 65 years were those with allergic dermatological relevance (24.6%), whereas the most common in patients aged more than 65 years were allergic dermatological diseases (28.42%), osteoarticular disorders (20.89%) and eyes disorders (15.75%) (Figs. 4 and 5) (6, 9, 10). As concerns the discharge of patients visited at “AmbMed”, only 2% did not respond to calls and 1% went away spontaneously: in about half of those cases a specialist advice had been required. 95% of patients (53% of which were codes green and 42% codes white) were discharged with home therapy (13). The percentage of patients assigned to medium-high complexity path (codes yellow and red) was 1% (as compared to an expected percentage of less than 5%) with 1% hospitalization rate (as compared to an expected percentage < 2%) (Tab. 3) (6, 9, 10). A further relevant datum was the lack of recourse to specialist consultations and diagnostic exams for low-priority codes: only 8% of cases undertook a specialist treatment, while 82% of patients were discharged with home therapy prescribed by one of “AmbMed” doctor, and 15% of cases were prescribed a fist-aid station treatment (Fig. 6). As concerns diagnostic examinations, laboratory examinations were prescribed in 5% of the cases, 15%
of patients chose delayed exams, while the majority were discharged without any prescription (Fig. 7) (6, 9, 10). The latter data are to be compared with the data resulting from a study conducted by the school of Medicine of the University of Texas, according to which, in U.S. ERs there is an over-prescription of medications,

Figure 1 - Number of accesses to Amb Med during June 2012 - April 2013 in time bands 8-14 and 14-20.

Figure 2 - Percentage visits in Amb Med.

Figure 3 - Characteristics of patients visited in Amb Med.
particularly antibiotics, and of diagnostic tests, respectively of 52% and 25% (14).

Lazio Region allocated 2,500,000,00€ for the “AmbMed” project on stock funds. This amount of money was divided into 11 “AmbMed” all over the regional territory and 1 listening centre. The spending for 380 health professionals involved in the project was 1,737,455,00 € (to which fixed costs must be added). The cost for a single “AmbMed” was 164,637,00 on av-

<table>
<thead>
<tr>
<th>Table 3 - Discharging reasons of “AmbMed” patients.</th>
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<tbody>
<tr>
<td><strong>Discharging reason</strong></td>
</tr>
<tr>
<td>Failing to respond to calls</td>
</tr>
<tr>
<td>Spontaneously going back home</td>
</tr>
<tr>
<td>Admitted to hospital care</td>
</tr>
<tr>
<td>Home therapy</td>
</tr>
<tr>
<td>Assigned to other specialist</td>
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Figure 4 - Percentage of different types of pathologies found in patients aged less than 65 years.

Figure 5 - Percentage of different types of pathologies found in patients aged more than 65 years.
erage. In the light of the costs supported, and considering that accesses to the Lazio Region “AmbMeds” exceed 38,000 patients, there was a regional funds saving equivalent to 2,861,455,00 € (15).

**Discussion and Conclusion**

The purposes defined by the trial protocol have been largely achieved. A reduction of waiting time for patients with lower-priority codes was registered, with a consequent reduction of waiting time for patients with higher-priority codes, a more adequate medical information and a higher accuracy in the assignment of proper codes (16).

Among the achieved goals there was a significant reduction of conflicts between patients and staff in ER, as demonstrated by high approval ratings and the perception by visited patients of the health benefit delivered through “AmbMed”. The economic aspect of the project has led to regional savings amounting to over 2,800,000,00 € (15). In the light of the considerations emerged from the data analysis and from the positive cost/benefit ratio, we hope to continue along this innovative path by updating it to the new needs of medical review and improving it on the basis of new needs emerging from the current experience and to shape new models for a reorganization of primary healthcare.

**Acknowledgements**

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**References**