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Research Article

How the Family and Community Nurse Can Foster the Reduction of Improper Emergency Room Admissions and Promote Chronic Patient Care: Single-Center Observational Study - Asst GOM Niguarda

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Abstract:

Background

The incidence of improper access, with the consequent overcrowding of emergency room facilities, indirectly represents an indicator of evaluation of the local area's ability to take care of patients.

In fact, overcrowding in the emergency room is often mainly attributable to patients requiring non-urgent or deferrable services, who access the emergency room due to the lack of hospital-territory integration, and for whom differential care could be envisaged in the setting of local care, as in the case of elderly patients suffering from chronic pathologies.

The Family and Community Nurse (FaCN) is the professional figure of reference who ensures nursing care at different levels of complexity in collaboration with all the professionals present in the community in which he works, pursuing the interdisciplinary, health and social integration of services and professionals and placing the person at the center.

Purpose

From January 1st, 2023, a reporting process has been launched by the emergency room nursing staff for the chronic patient discharged to home and taken into care by the family and community nurse service. A retrospective single-center observational study was carried out on patients discharged from the Emergency Room of the ASST Grande Ospedale Metropolitano Niguarda. The data presented relates to the period 01.01.2023 - 30.09.2023. The purpose of the study is twofold:

1. Describe ways to ensure continuity of care between hospital and territory/primary care, identifying their level of complexity with the TRIAGE scale.

2. Identify the resources activated and interventions performed by the Territorial Team of Family and Community Nurses.

Method

Included in the study were chronic, home-discharged patients with chronic conditions who were domiciled or residing in the territory of afferent to ASST GOM Niguarda, referred by the nursing staff of the same emergency department and taken over by Family and Community Nurses (FaCNs).

Exclusion Criteria affected chronic patients domiciled or residing in the territory of afferent to ASST Niguarda who refused to be taken in charge or admitted to hospital wards, intermediate care facilities, Health Care Residences for the Elderly.

The triage scale is a first-level multidimensional assessment tool that aims at identifying complex social-health needs for the local area. It consists of eight items: morbidity, nutrition, alvus and diuresis, mobility, personal hygiene, mental status

and behavior with whom he/she lives, and direct care. Four levels of severity are identified: absent or mild, moderate, severe, and very severe, with a score ranging from 0 to 2.

The sum of the scores applied to the different domains constitutes the total score, which allows the complexity of patients to be stratified into three levels.

The triage form is filled out by the Emergency Room nurse in the event of discharge of the patient and if the patient has a score between 3 and 10; the activation of the FaCN is envisaged through an email report made by the Caring Nurse to the Territorial FaCN service (pre-discharge phase).

The FaCN takes charge of the patient and guarantees a series of interventions and care services in relation to the level of complexity of the needs expressed by the patient (post-discharge phase).

Outcomes

Patients discharged with chronic pathologies reported in the period indicated were 250, with an average age of 81.75 years (standard deviation 9.67). Most reports are included in the intermediate risk class between scores of 3 and 7, and the most represented age class is that of patients over 80 years old.

In patients reported to the FaCN service, professionals reached the patient or his caregiver out for an initial approach, within 24 hours of discharge from the emergency room.

The outcome of the reports made shows that in 48.8% of cases the FaCNs took steps to establish a connection between the FaCNs' service and the most competent territorial references closest to the patient and took care of them towards more appropriate services (home palliative care, mental health, etc.), while in 51.6% of cases the FaCN took charge of the patient directly, providing the appropriate care (medications, venous sampling, recording of vital parameters, health education interventions, therapeutic and engagement adherence, also through teleassistance).

At the moment no other deaths have been recorded and in no case has the patient visited the Emergency Room again.

Conclusion

The activation of the FaCN for chronic patients discharged from the Emergency Room has made it possible to facilitate patient care, overcome the fragmentation of services, and guarantee continuity of care, both in cases in which the patient has been directly taken care of and assisted by the FaCNs, and in cases in which the patient has been directed/orientated towards other local services.

Over time, it will be possible to reduce the volume of hospital care activities for fragile patients and inappropriate access to the Emergency Room, by strengthening the continuity of care, precisely guaranteed by the strategic value of the Family and Community Nurse.

Key words: cronich pathologies; overcrowding; elderly patient; taken charge; family and community nursing

Introduction

The subject matter of non-urgent access to emergency services, the incidence of which appears extremely variable and heterogeneous in the Italian and International panorama depending on the territory [1], brings to attention the fundamental issue connected to the appropriateness of the use of the Emergency Room (ER).

In addition to the issue of appropriateness, the aspect of the quantity - often considerable - of accesses which risk overcrowding and overloading the first reception hospital services, normally responsible for the treatment of serious patients and clinically urgent cases, for non-urgent problems which could instead be managed by local services.

In the literature, several contributions have analyzed the improper use of the ER from a scientific point of view.

In particular, an Italian study found that nonurgent access may depend on a number of factors: causes attributable to the citizen (pain, anxiety, frailty), to the general practitioner (poor ability to reassure, lack of authority, lack of time to follow up with the patient), to emergency room operators (inconsistent behavior, difficulty in turning patients away without performing investigations), to the organization of services (lack of hospital-territory integration, long waiting lists for specialist services, opening hours, co-pay rates), to the culture of belonging and the social environment of living (alarmism, lack of information about health) [2].

The incidence of improper access, with the consequent overcrowding of ED facilities, indirectly represents an assessment indicator about the capacity of the territory to take care of patients. The issue of the lack of integration between the hospital and the territory and the territorial taking care of patients with chronic diseases has been addressed in Italy, as well as in the context of the Lombardy Region in recent years, with several regulatory measures, starting with the PNNR [3], redesigning territorial care, and the taking care of people with chronic diseases in territorial contexts:

1. according to the stratification of the population by intensity of needs
2. the development of proximity structures, the "Community Homes", as a point of reference for the response to health, social and health needs of relevance to the population of reference

3. the enhancement of home care, so that the home can become the privileged place of care, with digitized service models, useful for the identification of people to be cared for and for the management of their pathways, both for home care, taking advantage of telemedicine and telemonitoring tools, and for the integration of the professional network operating on the territory and in the hospital.

Indeed, future projections outline a progressive aging of the population with an inexorable increase in chronic-degenerative diseases. Already now, a significant share of the Italian population (11.7%) over 75 years old [4] consists of people, usually elderly, often suffering from multiple chronic diseases [5], whose care needs are determined not only by factors related to clinical conditions, but also by factors such as socio-familial and environmental status or accessibility to care. Such individuals are at higher risk of inappropriate use of health care services, such as emergency room admissions or hospitalizations.

The Lombardy Region, the context in which the Niguarda Large Metropolitan Hospital Socio Territorial Health Authority is included, also has a demographic structure characterized by approximately 10,027,602

residents, with a life expectancy at birth in men of 78.9 years and in women of 83.9, although in 2020, due to the pandemic, it will be reduced compared to previous years, in men by - 2.6 years and in women by - 2 years, with an average age of 46 years.

22.9% of the population is over 65 years old and 3.6% is over 85 years old [6].

The population shows an old-age index (representing the ratio of citizens over 65 to the population under 14 calculated x 100) of 170.9% and a structural dependency ratio (representing the ratio of citizens considered to be in non-self-employed age groups (65) to citizens between 15 and 65 considered to be of productive age x 100) of 57, in line with the national figure. The factual figure indicates how for every two adults of potential working age there is an elderly person or child who needs to be taken care of. In recent years, the prevalence of individuals with chronic conditions has increased, and the increase, especially over 65, is almost directly proportional to that of individuals in the specific age group: in the over-65s the prevalence averages at least 74%, reaching over 80 85/86% [7].

Overall, the increase in the incidence of chronic and degenerative diseases, the aging of the population, the increase in life expectancy, the presence of the various comorbidities and their dynamic interaction in the disabling process, configure a differentiated framework of health and social health care needs that influences the consumption of health care services, such as hospitalizations, access to emergency rooms for problems that are not always acute in the context of chronic illness, which in some situations is accompanied by the condition of frailty that intertwines both the clinical aspects related to the pathology and the physical and social resources.

Agenas 2019-2020 data [8], which categorize patients by codes of (set of codified procedures that allow the assessment of care priorities of people presenting to the emergency room, by establishing an order of access to the medical examination weighted to the severity of the symptoms they accuse), confirm that more than 70% of emergency room accesses are either white codes (non-urgency code, namely non-urgent problem) or green codes (minor urgency, meaning stable condition with no evolutionary risk).

So, overcrowding in emergency rooms is mainly attributable to patients in need of non-urgent or deferable services, for which differential care in territorial care settings could be assumed, also in light of recent regulatory changes dictated by Ministerial Decree No. 77/2022 [9].

One of the possible answers is to create pathways capable of intercepting and taking charge of the chronic patient, even starting from the emergency room, through a shared pathway aimed at ensuring continuity of care between the hospital and the territory, through the definition of an operational practice that protects the frail elderly patient and those with chronic pathologies with protected discharges and promotes continuous care.

A survey by the Emilia-Romagna Region, extended over the decade 2009-2019, showed a 16% decrease in inappropriate accesses to the ED in local contexts where some multi-professional facilities, like Health Homes (now Community Homes), have been opened and made operational. The percentage approaches 26% when the general practitioner works permanently in the Community House. This evidence indicates that strengthening health activities in the local area potentially has a positive impact, but the extent of it depends on the effectiveness of the organizational models adopted [10].

The introduction of the PNRR, with which the desire for strengthening the public health through the development of widespread throughout the country proximity health care is becoming increasingly strong in Italy, has contributed to the implementation of the figure of the Family and Community Nurse (FaCN), envisaged by the World Health Organization (WHO) in 2000, through the document "The family health nurse - Context, conceptual framework and curriculum," who, together with the general practitioner, constitutes the mainstay of territorial primary care, helping individuals adapt to chronic illness and disability.

The Family and Community Nurse (FaCN) is the professional figure of reference who ensures nursing care at different levels of complexity, in collaboration with all professionals in the community in which he or she works, pursuing interdisciplinary, health and social integration of services and professionals, and placing the person at the center [9].

Also, at the Niguarda ASST GOM, within the community houses, there are family nurses who are increasingly involved in taking care of patients with chronic diseases or fragile conditions, encouraging their proactive enrollment in the context of a path of continuity and health and social health integration, through recompositing interventions and services that can be activated in the health, social and health care fields [11].

The emergency department of Niguarda Hospital is characterized as one of the most important referral centers in the metropolitan area of Milan, with regard to severe trauma and cardiological emergencies, but, in addition, it responds daily to many other different requests for intervention. Its main objectives are the maximum timeliness of intervention, evaluation, treatment and eventual referral of patients with minor conditions, without neglecting the selection and referral to the appropriate departments of patients who need urgent hospitalization. On average, accesses are more than 90,000 per year.

From January 1st to September 30th, 2023, admissions totaled 68,483. The population over 65 years old, with at least one chronic condition discharged to home, was 7.5%. Of these, 85% presented a green triage code on admission to the emergency department, and 15.4% white.

As of January 1st, 2023, a pathway of chronic patient referral, discharged home, by the emergency department nursing staff and intake by the family nurse service, has been initiated, and a retrospective single-center observational study has been carried out with respect to patients discharged from the emergency department of ASST Large Metropolitan (GOM) Niguarda. The data presented are for the period 01.01.2023 - 30.09.2023.

Purpose

1. Describe ways to ensure continuity of care between hospital and territory/primary care, identifying their level of complexity with the TRIAGE scale.

2. Identify the resources activated and interventions performed by the Territorial Team of Family and Community Nurses.

Materials and Methods

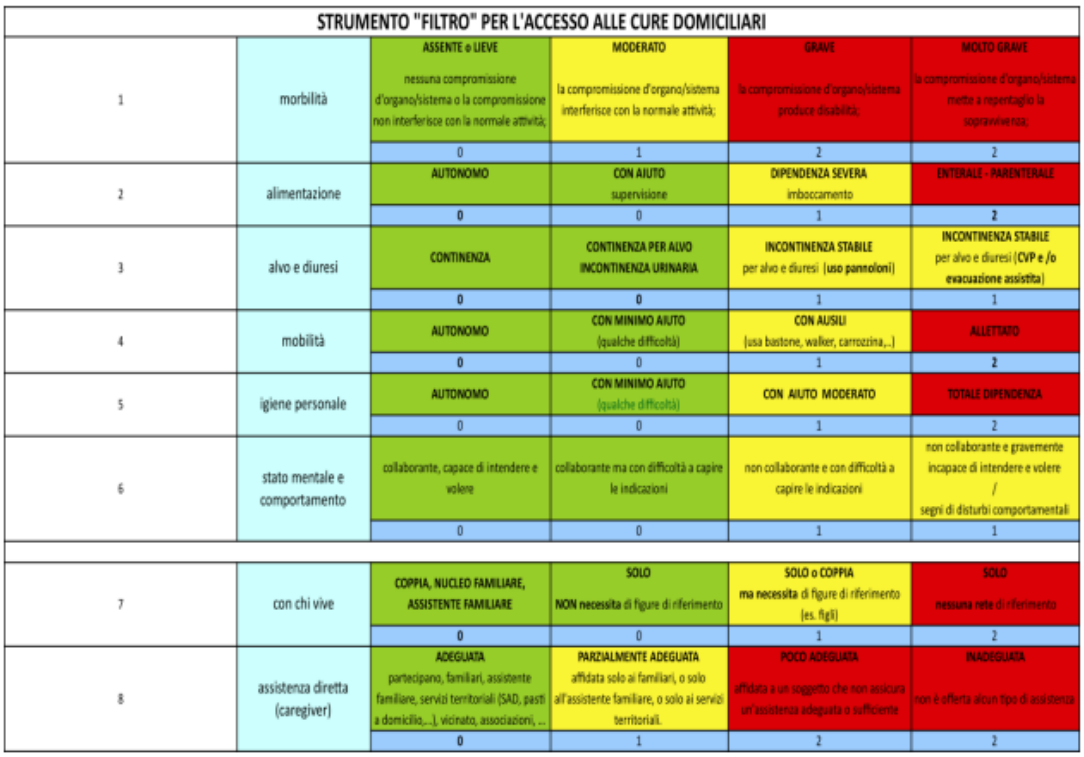
Included in the study were chronic patients, discharged to home, suffering from chronic pathologies, and domiciled or resident in the territory belonging to ASST GOM Niguarda, reported by the staff of the Emergency Room itself and taken care of by the Family and Community Nurses (FaCNs).

The exclusion criteria involved chronic patients domiciled or resident in the territory belonging to ASST Niguarda who refused to be taken in charge or admitted to hospital wards, intermediate facilities, and healthcare residences for the elderly.

The Triage Scale

The triage scale is a first-level multidimensional assessment tool that aims at identifying complex social-health needs for the local area. It consists of eight items: morbidity, nutrition, alvus and diuresis, mobility, personal hygiene, mental status and behavior, with whom he/she lives, and direct care. Four levels of severity are identified: absent or mild, moderate,

severe, very severe with a score ranging from 0 to 2 [12], as shown in the following figure 1.



STRUMENTO "FILTRO" PER L'ACCESSO ALLE CURE DOMICILIARI					
1	morbilità	ASSENTE o LIEVE nessuna compromissione d'organo/sistema o la compromissione non interferisce con la normale attività;	MODERATO la compromissione d'organo/sistema interferisce con la normale attività;	GRAVE la compromissione d'organo/sistema produce disabilità;	MOLTO GRAVE la compromissione d'organo/sistema mette a repentaglio la sopravvivenza;
		0	1	2	2
2	alimentazione	AUTONOMO	CON AIUTO supervisione	DIPENDENZA SEVERA imboccamento	ENTERALE - PARENTERALE
		0	0	1	2
3	alvo e diuresi	CONTINENZA	CONTINENZA PER ALVO INCONTINENZA URINARIA	INCONTINENZA STABILE per alvo e diuresi (uso pannoloni)	INCONTINENZA STABILE per alvo e diuresi (CVP e /o evacuazione assistita)
		0	0	1	1
4	mobilità	AUTONOMO	CON MINIMO AIUTO (qualche difficoltà)	CON AUSILI (usa bastone, walker, carrozzina,..)	ALLETTATO
		0	0	1	2
5	igiene personale	AUTONOMO	CON MINIMO AIUTO (qualche difficoltà)	CON AIUTO MODERATO	TOTALE DIPENDENZA
		0	0	1	2
6	stato mentale e comportamento	collaborante, capace di intendere e volere	collaborante ma con difficoltà a capire le indicazioni	non collaborante e con difficoltà a capire le indicazioni	non collaborante e gravemente incapace di intendere e volere / segni di disturbi comportamentali
		0	0	1	1
7	con chi vive	COPPIA, NUCLEO FAMILIARE, ASSISTENTE FAMILIARE	SOLO NON necessita di figure di riferimento	SOLO o COPPIA ma necessita di figure di riferimento (es. figli)	SOLO nessuna rete di riferimento
		0	0	1	2
8	assistenza diretta (caregiver)	ADEGUATA partecipano, familiari, assistente familiare, servizi territoriali (SAD, pasti a domicilio,..), vicinato, associazioni, ..	PARZIALMENTE ADEGUATA affidata solo ai familiari, o solo all'assistente familiare, o solo ai servizi territoriali.	POCO ADEGUATA affidata a un soggetto che non assicura un'assistenza adeguata o sufficiente	INADEGUATA non è offerta alcun tipo di assistenza
		0	1	2	2

Figure 1: triage tab.

The sum of the scores applied to the different domains constitutes the total score, which allows the complexity of patients to be stratified into three levels:

- Score <=3 patient with a need that can be met by only one professional or otherwise with a specific activity;
- Score > 3 and <= 7: patient with a problem that may require the simultaneous presence of two or more professionals, or otherwise multiple care activities performed by a single professional;
- Score >=8 detects the need for multiple professionals, of which often a medical specialist or social worker and a case manager [13-15].

The form was chosen because it is already in use in the territory of ASST GOM Niguarda and can identify the main needs to be met in the discharged patient, as well as provide a measure of care complexity.

Protocol

The triage form is filled out by the emergency room nurse when the patient is discharged, and, if he/she has a score between 3 and 10, FaCNs are to be activated through an e-mail report made by the Caring Nurse to the Territorial FaCN Phase (pre-discharge) service.

In the post-discharge phase, which includes the time after reporting by the ED to the FaCNs, interventions performed by FaCNs were classified through the taxonomy "Taxonomy to categorize discharge interventions," Table No. 1, introduced by Hanasen and adapted by Leppin.

Intervention components	**Description of the component**
Education	Education of patient about diagnosis or treatment, not focused on self-management
Discharge planning	Development of an individualized discharge plan for patient prior to leaving hospital for home
Medication intervention	Medication reconciliation (creating the most accurate list possible of all medications) or medication review (evaluating critically all medications to optimize therapy)
Appointment scheduled	Follow-up appointment scheduled or patient is advised to schedule an appointment
Rehabilitation	Rehabilitation aimed at improving functional status
Streamlining	Streamlining of services or logistical coordination
Home visit	Visit to patient's home or place of residence
Patient empowerment	Interventions with the intention to increase patient's control over his illness or stimulate participation in the medical decision-making process or reinforce his/her psychosocial skills
Transition coach	Health worker who interacts with patient before and after discharge providing a transition between inpatient and outpatient settings
Patient-centered documents	Adapted and individualized discharge materials or care plans to be used by patients
Timely communication	Efforts by the care providers in the hospital to communicate early with other primary care providers (physicians or nurses) in regard to the patient's discharge
Timely follow-up	Follow-up visits after discharge by physician or nurse as part of the intervention

Telephone call	Patients or caregivers are contacted by telephone after discharge
Patient hotline	Presence of a direct telephone line for patient-initiated communication
Telemonitoring	An automated process for the transmission of data on a patient's health status from home to the respective health care setting

Table 1: Taxonomy to categorize discharge interventions.

Ethical Considerations

Outcomes

There were 250 discharged patients with chronic conditions reported during the indicated period, with average age of 81.75 years (standard deviation 9.67). Of these, 4 cases presented incomplete triage cards and were therefore excluded from the study, thus estimating a final sample of 246 subjects, 134 of whom (54.4%) were women and 112 (45.5%) were men.

Table No. 2 shows the stratification of the population with respect to the three risk classes identified with the Triage scale and denotes that most of the reports fall in the intermediate risk class between the score of 3 and 7, and the most represented age group is that in the 80+ age group.

Triage group	Age group			
	< 65 Years Old	**>= 65 and <= 80 Years Old**	**> 80 Years Old**	**Total**
<= 3	5	16	39	60
> 3 E <= 7	13	38	92	143
>= 8	4	6	33	43
	22	60	164	246

Table 2: Class complex and ages.

In patients referred to the FaCN service, professionals contacted the patient or his or her caregiver for an initial approach within 24 hours of Emergency Room discharge.

The outcome of the referrals made (Table 3 - Reporting Outcome) shows that in 48.8% of cases FaCNs made a liaison between the FaCN service and the most competent territorial referrals closest to the patient, in order to ensure continuity of care and referral to more appropriate services (home palliative care, mental health, etc.), while in 51.6% of cases FaCNs directly took charge of the patient for appropriate care.

Outcome	Triage <=3	Triage > 3 and <= 7	Triage >= 8	Total	%
Connection Other Territorial Services	23	76	22	121	48,4%
Activation FaCN	20	64	45	129	51,6%

Table 3: Outcome Report to FaCN Service

Of the 129 patients taken into care, 127 are still in care because two patients have died (one at home and one in the hospital due to an unexpected event-related hospitalization).

These patients were provided with direct home-directed pre-service nursing interventions, such as dressings, venous sampling, vital signs, that health education, therapeutic adherence and engagement interventions, through telehealth, with the average number of home visits and telehealth services tending physiologically to increase as care complexity increases, as described in figure n° 4.

In patients with scores above 8, 45% of the services provided through telehealth were provided to caregivers.

In 14 cases (5.6%) it was necessary to activate the caregiver, due to the simultaneous presence of social needs, and in 18 cases (7.3%) the patient's overall condition deteriorated to the point of activating continuous integrated home care.

		Home visits		Telecare			
Patients/triage score	n° Patients	n°	Patient Average	n°	Patient Average	Activation Social Worker	Activation Integrated Home Care
<=3	30	48	1,6	75	2,5	4	5
>3 e <=7	82	155	1,8	235	2,8	7	10
>8	15	54	3,6	73	4,8	3	3
TOTAL	127	176		353		14	18

Table 4: Interventions of FaCN on active patients.

The entire intake process was carried out in conjunction with each patient's general practitioner, sharing goals and interventions, and involving - where present - the caregiver.

To date, no other deaths have been recorded and in no case has the patient made a new admission to the emergency department.

Study Limitations

The study has just been implemented and is affected by the regional organization, according to which the service of the FaCNs of ASST GOM Niguarda has to take charge only of patient's afferent to the company's territory of competence (circumscribed within District No. 9 of the city of Milan), while the emergency room of Niguarda Hospital is afferent to citizens from all regional territories, just the type of emergency room.

Conclusion

The activation of the FaCN for chronic patients, discharged from the emergency department, has made it possible to facilitate patient care, overcome the fragmentation of services, and ensure continuity of care, both in cases in which the patient was directly taken care of and assisted by the FaCN, and in cases in which the patient was referred/oriented to other territorial services.

Over time, it will be possible to reduce the volume of activity of hospital care in the frail patient and inappropriate accesses to the emergency room, through the strengthening of continuity of care guaranteed precisely by the strategic value of the Family and Community Nurse, whose activity is increasingly oriented to improve access to health services, recognize early states of frailty, manage chronic conditions in an integrated way, develop therapeutic education for the self-management of the disease, including through tele-assistance tools, and encourage the home, the domicile, as the first place of care.

Conflict of Interest

The authors declare no conflict of interest.

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