Demand for emergency health service: factors associated with inappropriate use

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Introduction

Emergency services are universally overcrowded

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Inappropriate use

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- Produces negative spillover effects on the quality of emergency services
- Increases costs
- It doesn't provide a continuous and integrated health care

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Justification

Pelotas → Only one emergency service that attends all public demand

Although inappropriate demand for ER services is a well-known problem, there are few studies addressing its causes

Add to that…

Most of the literature studies was done

- developed countries
- secondary date
- demand not population representative

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Objective

- To identify the prevalence and associated factors for inappropriate use of ER service in the municipality of Pelotas

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Methodology

- Cross-sectional study
- Sample: patients with 15 years or older, who sought the emergency service in the study period (N=1,647)
- Data collection: September/2004
  24 hours/day
- Exclusion criteria
  - Communication difficulties not related to their presenting complaint
  - To be brought to the ER by the police for forensic medical exams

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Outcome definition

HUAP criterion - Criterion used in a study carried out in Toledo, Spain

1. Criteria of severity
   i.e. sudden loss of consciousness, blood pressure alteration
2. Criteria for treatment
   i.e. intravenous drugs administration, oxygen administration, surgical intervention
3. Criteria for diagnostic intensity
   i.e. monitoring of vital signs every 2 hours, radiology of any type, laboratory tests
4. Other criteria
   i.e. patient has been under observation in the ER for twelve hours or more or he is admitted to hospital or dies in ER
5. Criteria used only for patients who self-referred
   i.e. patient has had an traffic accident

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Analyses

Multivariable Poisson regression

- robust variance

The analysis followed hierarchical modeling strategy

- confounding factors were kept if significance level was lower than 20%

Conceptual Model

Demographics characteristics

Socioeconomics characteristics

Behavior characteristics

Health necessity

PHC consultation

- access
- utilization
- satisfaction

Social support

ER Consultation

- Previous consultation for the same reason
- Who referral for ER

Inappropriate use of ER

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Results

1974 visits

144 (7,3%) returning more than once

1830 patients

71 (3,9%) were not eligible

1759 eligible

112 (6,4%) lost and refused

1647 Studied subjects

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Results

Patients average age: 43.6 years-old

52% were female

28% had a regular doctor, but only 13% were referred to ER by a doctor

71% had a defined place of usual care

5% of patients reported that their PHC doctors usually refused to attend patients without a prior appointment

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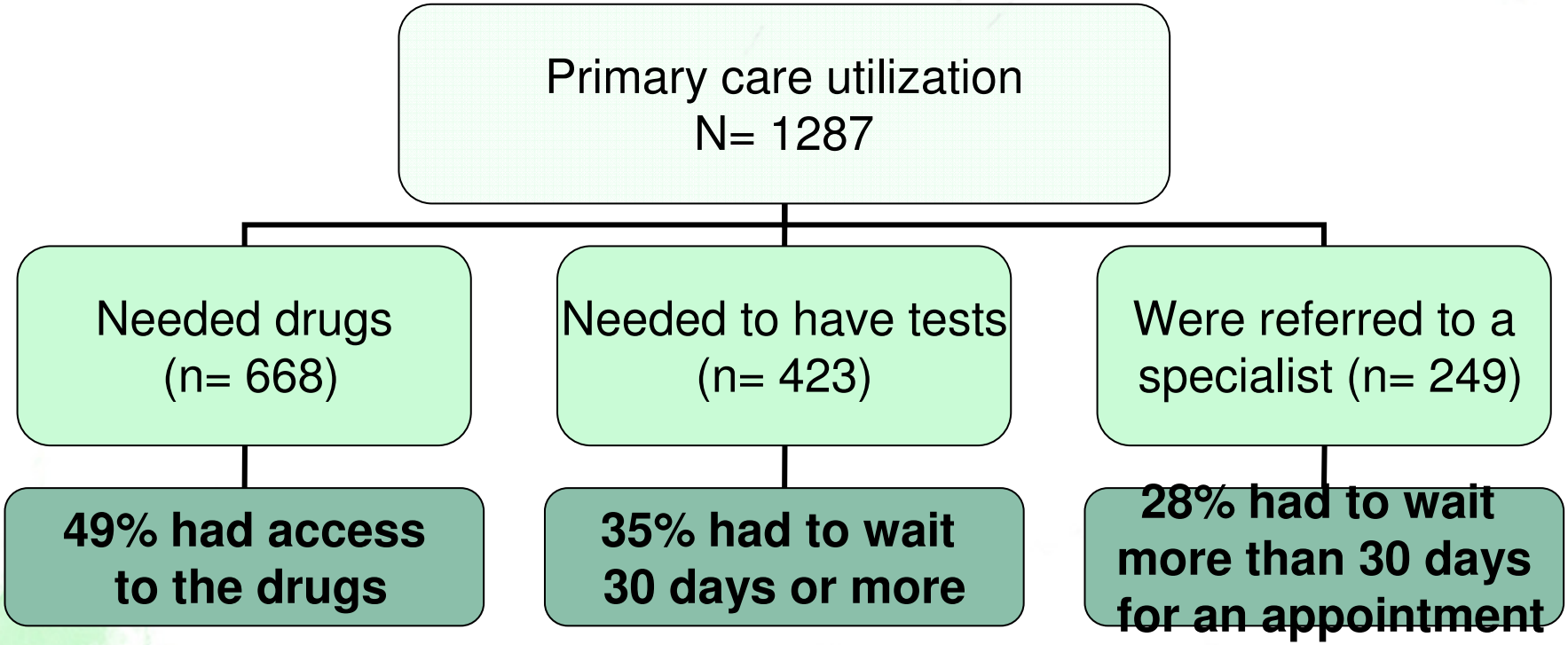
Results

About last PHC visit



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Results

Prevalence of inappropriate ER use

- 24.2% (95% CI: 22.1-26.3)

Inappropriate ER use was associated:

- inversely with age (P=0.001)
- longer stay in the waiting room
- longer duration of symptoms
- morning shift

The determinants of inappropriate ER use differed according age groups (P value for interaction= 0.04).

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Younger age-group (15-49 years-old)

- females
  - PR = 1.52 (95%CI: 1.23; 1.88)
- patients who reported visiting the ER because there was no other place to go
  - PR = 1.38 (95%CI: 1.01; 1.89)
- patients reporting that the doctor at the regular place of care refused to attend to them without prior appointment
  - PR= 1.44 (95%CI: 1.02; 2.02)
- individuals who reported that the PHC service which they use is open for shorter periods during the day
  - PR = 1.63 (95%CI = 1.10; 2.40)
- Those who were not referred to ER by health worker
  - PR = 1.40 (95%CI = 1.01; 1,94)

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Older patients (50+ years)

- those with highest level of education
  - P-value = 0,06
- absence of self-reported chronic diseases
  - PR = 1.50 (95%CI: 1.03; 2.17)
- lack of social support
  - PR = 1.40 (95%CI: 1.01; 1.95)

Conclusion

- High prevalence of inappropriate use of ER
  - A quarter of the patients could have better management of their needs at PHC
- Age is a modifier effect
  - Among the youngest subjects: The inappropriateness is related to expectations about PHC access
  - Among the oldest subjects: The inappropriateness is related to lack of social support and chronic disease

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Conclusion

Efforts should be made to redirect inappropriate ER demand.

Besides expanding access to, and improving the quality of primary and secondary care, it is important:

- to mobilize social support for older patients
- to enhance the relationship between different levels of care
- to develop campaigns to educate the public about the appropriate use of medical services.

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Thank you!!

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Sample size calculation

- To estimate prevalence of inappropriate use of ER
  - 95% confidence level
  - Acceptable sampling error: 3pp

Prevalence	Total	Final Sample*
30	893	982
40	1019	1121
50	1062	**1168**

* 10% to cover potential refusals

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Sample size calculation

- Associated study:
  - The sample size was estimated to detect:
    - relative risks higher than 1.5
    - confidence level of 95%
    - statistical power of 80%

  - The largest sample size required:
    - variable: source of referral to ER
    - unexposed/exposed ratio of 1:5
      - where self-referrals were considered as the ‘exposed’ category
    - 10% to allow for refusals
    - 15% to allow for adjustment by confounding factors
    - **1,158 subjects**

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Ethical Aspects

Medical School Ethics Committee of the Federal University of Pelotas

Cocep Number: 40601115

This Ethics Committee is in compliance with the Helsinki Declaration

- Informed consent was obtained from all subjects
- Confidentiality was ensured

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