SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA

Agenzia sanitaria e sociale regionale

RegioneEmilia-Romagna

Predicting, identifying and managing frailty and multimorbidity: a regional model

Emilia-Romagna Region

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Bologna, 22 March 2016

SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA

Emilia-Romagna

8 LHUs

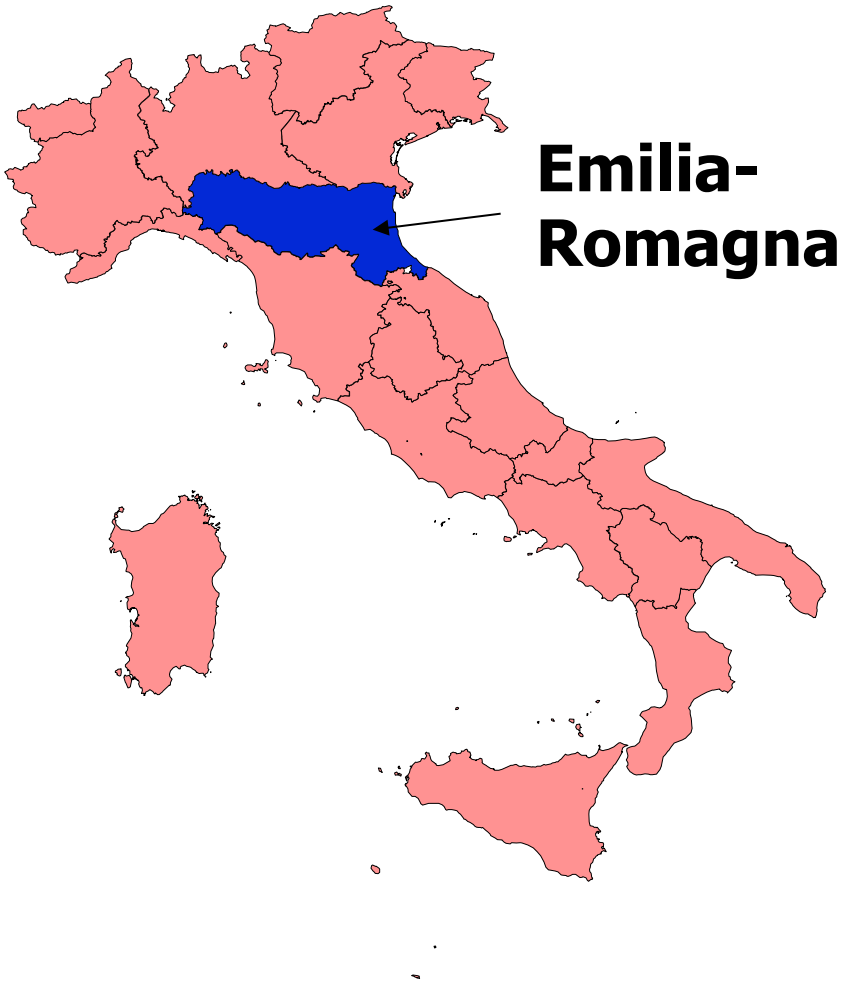
33 LHU hospitals

5 Hospital Trusts

4 Research Hospitals

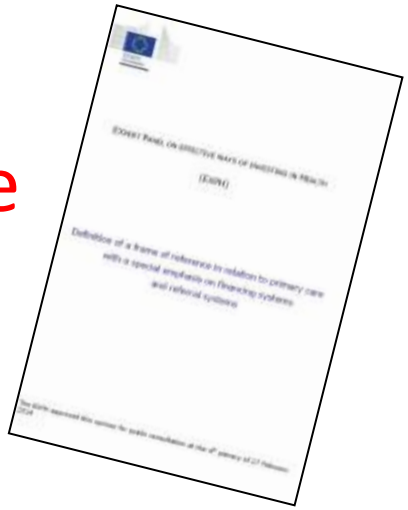
47 Private Hospitals

19.105 hospital beds



Health and Consumers Directorate General (DG SANCO) 2014

Primary Health Care



…the provision of universally accessible, person-centered, comprehensive health and community services provided by a

team of professionals

accountable for addressing a large majority of personal health needs.

These services are delivered

in a sustained partnership

with patients and informal caregivers,

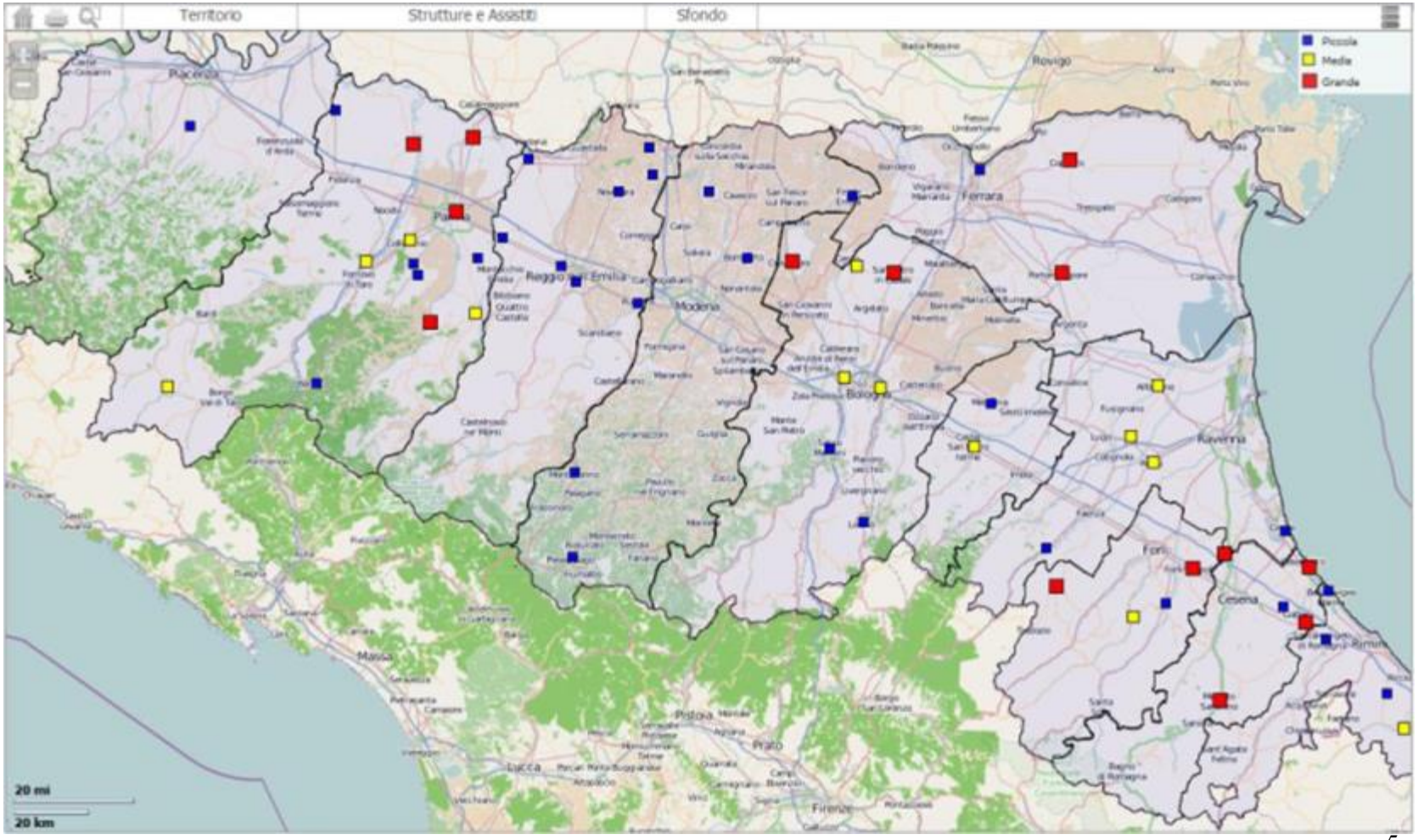
in the context of family and community,

and play a central role in the overall coordination and continuity

of people's care…

http://ec.europa.eu/health/expert_panel/experts/working_groups/index_en.htm

80 Community Health Centers (Casa della Salute)



10 Nurse managed Community Hospitals

Integrated Care

Multidisciplinary, Integrated, and Participated Pathways of Care

Ambulatory (Nurse-Based) Care for Chronic Diseases

All in One…

Community Hospitals

Integrated Home-Based Care

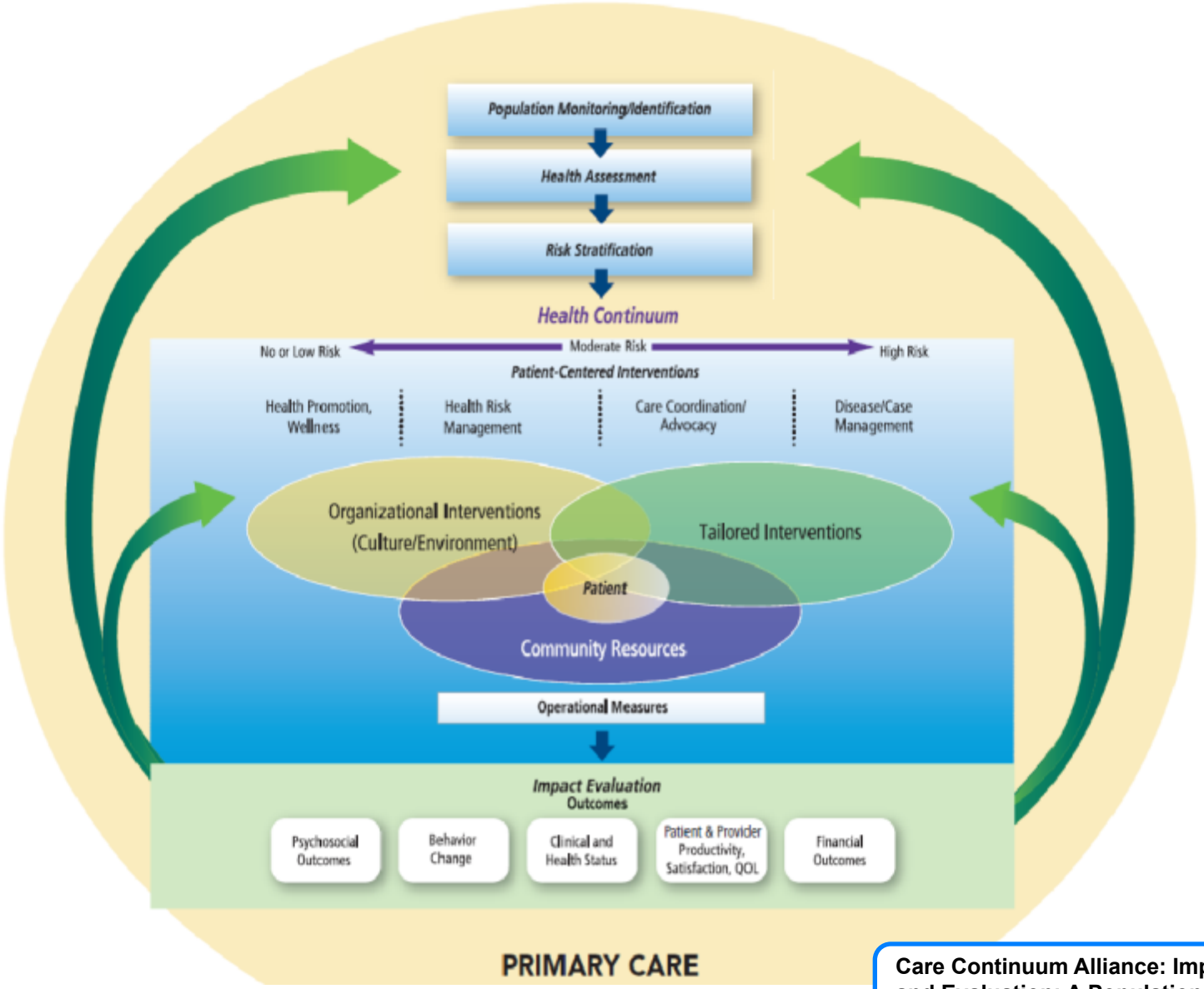
Community Hospital

- unique **model**
- nurse managed
- limited number of beds (usually less
- clinical responsibility with GPs or Local Health Unit physician
- involvement of physiotherapists and careworkers

Type of care

- nursing care
- rehabilitation (physical, respiratory and cognitive)
- promotion of patient empowerment and self-management
- care giver training

Population Health Management



Care Continuum Alliance: Implementation and Evaluation: A Population Health Guide for Primary Care Models. Washington, 2012

A Regional Predictive Model

- risk of hospitalization
- **adult population** of the Region
- use of regional health/administrative data
- calculate the **Risk Score**
- high level of **statistic accuracy** (C= 0.85)

BMJ Open

Predicting risk of hospitalisation or death: a retrospective population-based analysis

Daniel Z Louis,[1] Mary Robeson,[1] John McAna,[2] Vittorio Maio,[2] Scott W Keith,[3] Mengdan Liu,[1] Joseph S Gonnella,[1] Roberto Grilli[4]

ABSTRACT

Objectives: Develop predictive models using an administrative healthcare database that provide information for Patient-Centred Medical Homes to proactively identify patients at risk of hospitalisation for conditions that may be impacted through improved patient care.

Design: Retrospective healthcare utilisation analysis with multivariate logistic regression models.

Data: A population-based longitudinal database of residents served by the Emilia-Romagna, Italy, health service in the years 2004–2012 including demographic information and utilisation of health services by 3 726 380 people aged ≥18 years.

Outcome measures: Models designed to predict risk of hospitalisation or death in 2012 for problems that are potentially avoidable were developed and evaluated using the area under the receiver operating curve C-statistic, in terms of their sensitivity, specificity and positive predictive value, and for calibration to assess performance across levels of predicted risk.

Results: Among the 3 726 380 adult residents of Emilia-Romagna at the end of 2011, 449 163 (12.1%) were hospitalised in 2012, 4.2% were hospitalised for the selected conditions or died in 2012 (3.6% hospitalised, 1.3% died). The C-statistic for predicting 2012 outcomes was 0.850. The model was well calibrated across categories of predicted risk. For those patients in the highest predicted risk decile group, the average predicted risk was 23.9% and the actual prevalence of hospitalisation or death was 24.2%.

Conclusions: We have developed a population-based model using a longitudinal administrative database that identifies the risk of hospitalisation for residents of the Emilia-Romagna region with a level of performance as high as, or higher than, similar models. The results of this model, along with profiles of patients identified as high risk are being provided to the physicians and other healthcare professionals associated with the Patient Centred Medical Homes to aid in planning for care management and interventions that may reduce their patients' likelihood of a preventable, high-cost hospitalisation.

Strengths and limitations of this study

- This study included the entire adult population of the Emilia-Romagna Region of Italy, over 3.7 million people.
- The study used an existing longitudinal administrative healthcare database with both the advantage of much lower cost than new data collection and the disadvantage of potential errors in administrative data.
- The results of the study are being used to assist in the development of newly formed Patient-Centred Medical Homes.

patients' problems, is shifting to a more proactive model designed to take the initiative in providing care for an increasingly older population that has a greater prevalence of chronic conditions, often with multiple medical and social needs. These changes are driving the reorganisation of the primary care system, emphasising coordination and cooperation among healthcare professionals.[1–3] Among the approaches to addressing this need has been the establishment of Patient-Centred Medical Homes, organisations in which teams of healthcare providers are engaged in delivering comprehensive, coordinated, patient-centred care to patient-defined populations.

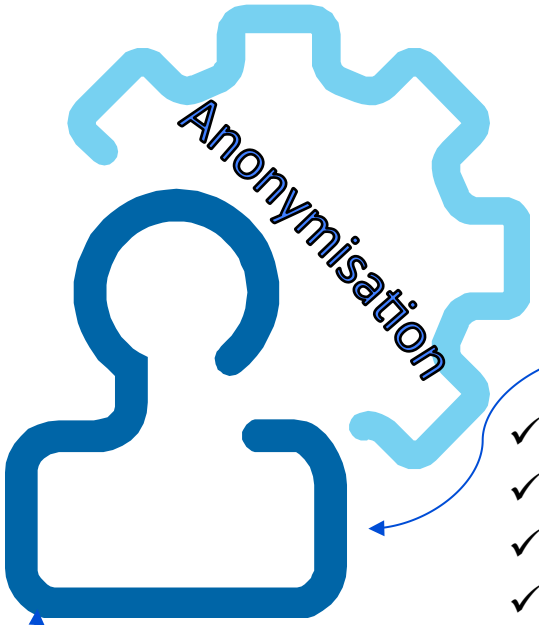
Primary care has a central role in the Italian National Health Service (NHS). Twenty-one regional governments are responsible for ensuring the delivery of a health benefits package through a network of geographically defined, population-based Local Health Authorities. Primary care physicians work for these authorities as independent contractors and act as 'gatekeepers' for specialty and other referral services for their patients.[4]

With the belief that a strong primary care

Emilia-Romagna clinical-administrative database

Clinical Databases

Unique patient identifier



Demographics

Patient Registry

GPs

Health Care

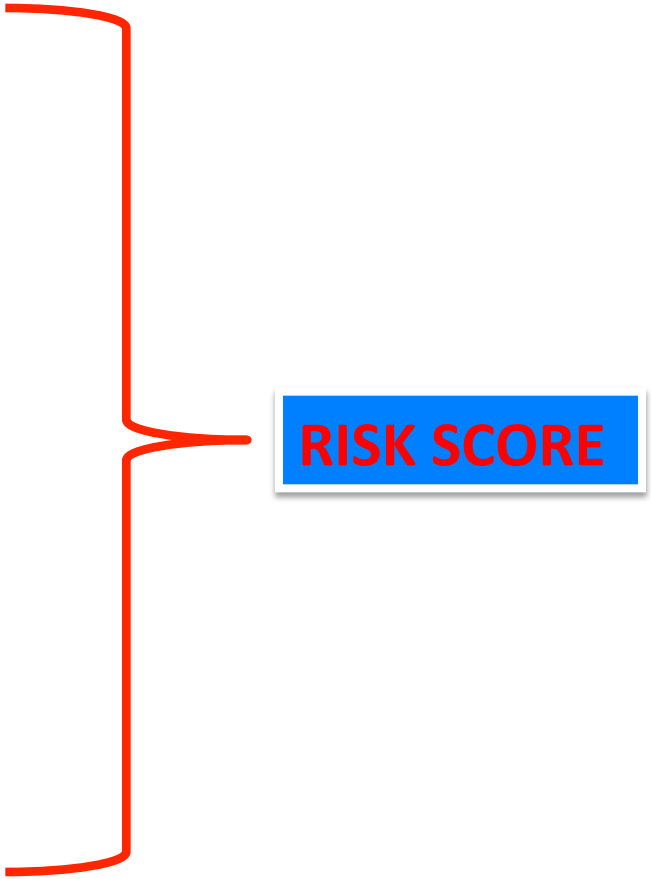
- ✓ Hospital care
- ✓ Home care service
- ✓ Mental Health Care
- ✓ Pharmaceutical Prescriptions
- ✓ Outpatient specialist care
- ✓ Intermediate care
- ✓ Hospice
- ✓ Emergency services
- ✓ Death registry

Social Care

- ✓ Care allowances for elderly and disabled
- ✓ Residential Long-term care
- ✓ Care for severely disabled
- ✓ Social service

Information Collected

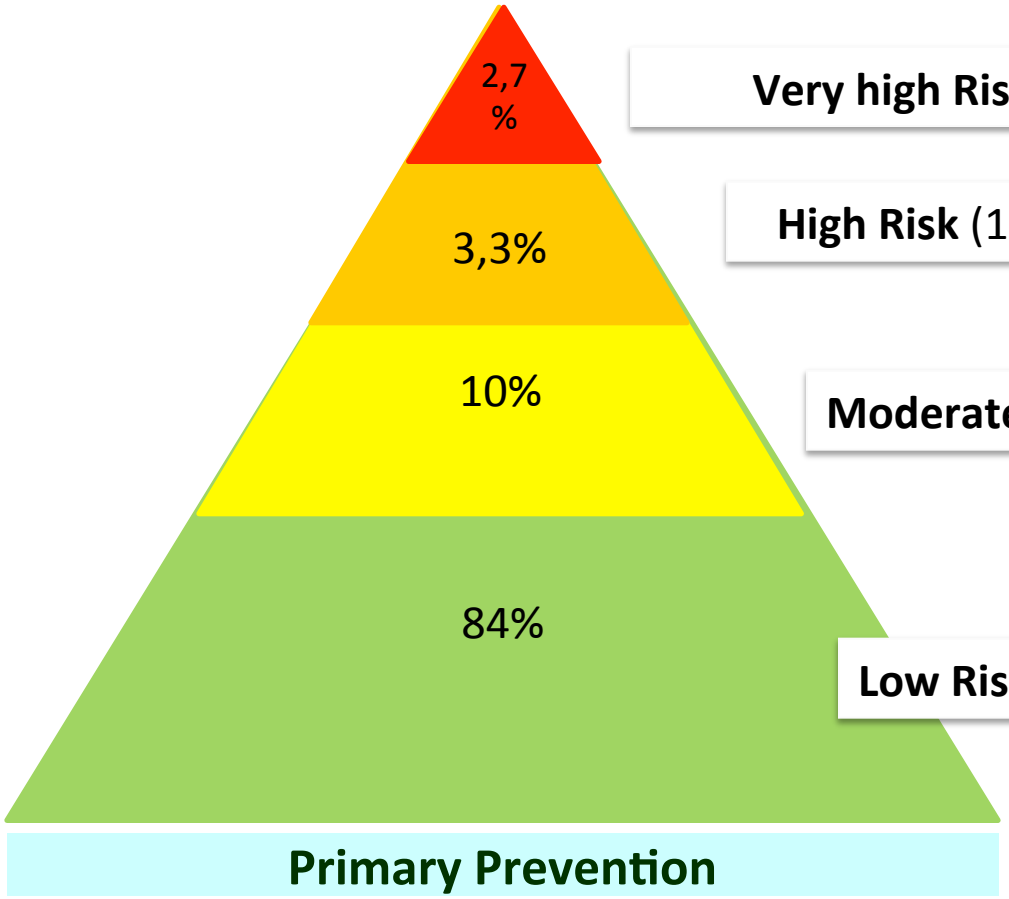
- Chronic Diseases/Multimorbidity
- Pharmaceuticals
- Specialist visits
- Hospitalization
- Home care
- Emergency care
- Adherence to Guidelines
- Quality of care indicators



Risk Score - 2014

Case/Disease Management

Self Management



Very high Risk (≥25%) 100.470

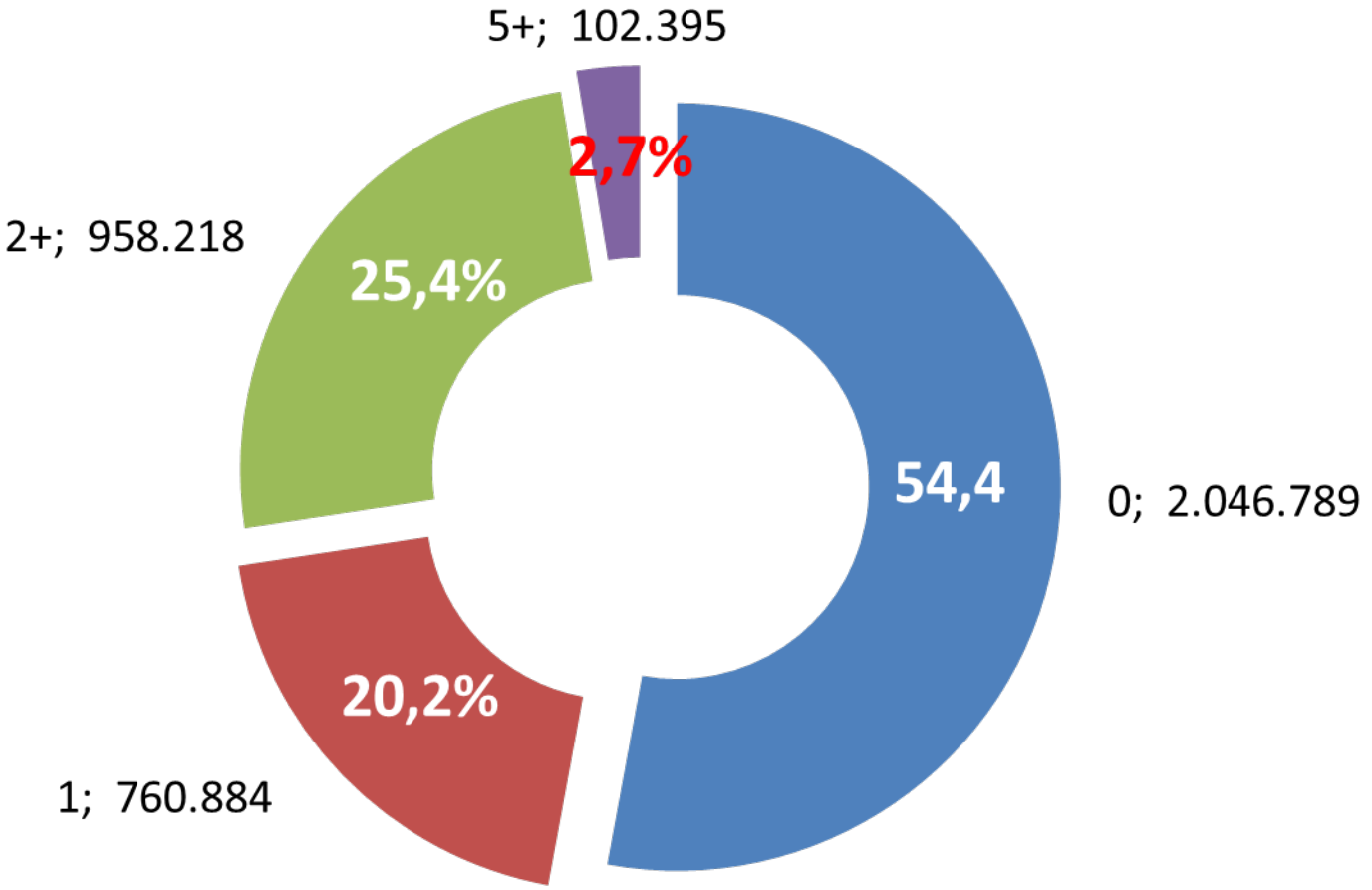
High Risk (15-24%) 124.589

Moderate Risk (6-14%) 378.308

Low Risk(< 6%) 3.162.524

Population ≥ 18 y.o. - N= 3,765,891

2,7% patients with 5+ diseases



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Profiles of Risk

Paziente: **1094553 Patient**

Sesso: **F** *Età:* **44**

Rischio di ospedalizzazione previsto per il 2013:

Molto alto

Il grafico mostra il cambiamento nel tempo del rischio di ospedalizzazione previsto per il paziente

Questo documento è un sommario delle informazioni di natura amministrativa per un paziente previsto a probabile 'rischio molto alto' di ospedalizzazione nel 2013 in base ai consumi sanitari del 2012.

Patologie croniche (in base al sistema o eziologia)

☑ *Cardiovascolari*	☐ *Genitourinarie*	☐ *Oftalmologiche*
☐ *Dermatologiche*	☐ *Ginecologiche*	☐ *Otorinoralingoiatriche*
☐ *Ematologiche*	☐ *Immunologiche*	☑ *Psichiatriche*
☐ *Endocrine*	☐ *Infettive*	☐ *Respiratorie*
☑ *Epatiche*	☐ *Muscoloscheletriche*	▣ *Sistema Genitale Maschile*
☑ *Gastrointestinali*	☑ *Neurologiche*	☐ *Tumorali*

Ospedalizzazione 2012 – N. di ricoveri occorsi al paziente: 1

N. 1 *Degenza ordinaria presso Ospedali Riuniti-Pr*

02/01/12 - 02/02/12 **gg_deg: 31** *Dimissione:* **Ordinaria a domicilio**

Patologia principale del ricovero: 785.59 Altro Shock Senza Menzione Di Trauma

Comorbidità: 789.5 Ascite
571.2 Cirrosi Epatica Alcolica
570 Necrosi Acuta E Subacuta Del Fegato
307.1 Anoressia Nervosa
070.54 Epatite C Cronica Senza Menzione Di Coma Epatico

Procedura: 42.91 Legatura Di Varici Esofagee

Pronto Soccorso 2012 – N. : 3

Presso Ospedali Riuniti-Pr

13/02/12 - 13/02/12 **Altri Sintomi O Disturbi**

Visite specialistiche

Dermatologia

Gastroenterologia

Malattie Infettive E Tropicali

Odontoiatria E Stomatol.

Farmaci: N. totale di farmaci nel 2012: 11

A02 Farmaci Per Disturbi Correlati All'Acidita'

Lansoprazolo [1] [2] [3] [4]

A06 Lassativi

Lattitolo [1] [2] [3] [4]

Lattuloslo [1] [ ] [ ] [ ]

A07 Antidiarroici, Antinfiammatori Ed Antimicrobici Intestinali

Rifaximina [1] [2] [3] [4]

B02 Antiemorragici

Fitomenadione [1] [2] [3] [4]

C03 Diuretici

Torasemide [1] [2] [3] [4]

Canrenoato Di Potassio [1] [2] [3] [4]

Furosemide [1] [ ] [ ] [ ]

C07 Betabloccanti

Carvedilolo [1] [2] [3] [4]

J01 Antibatterici Per Uso Sistemico

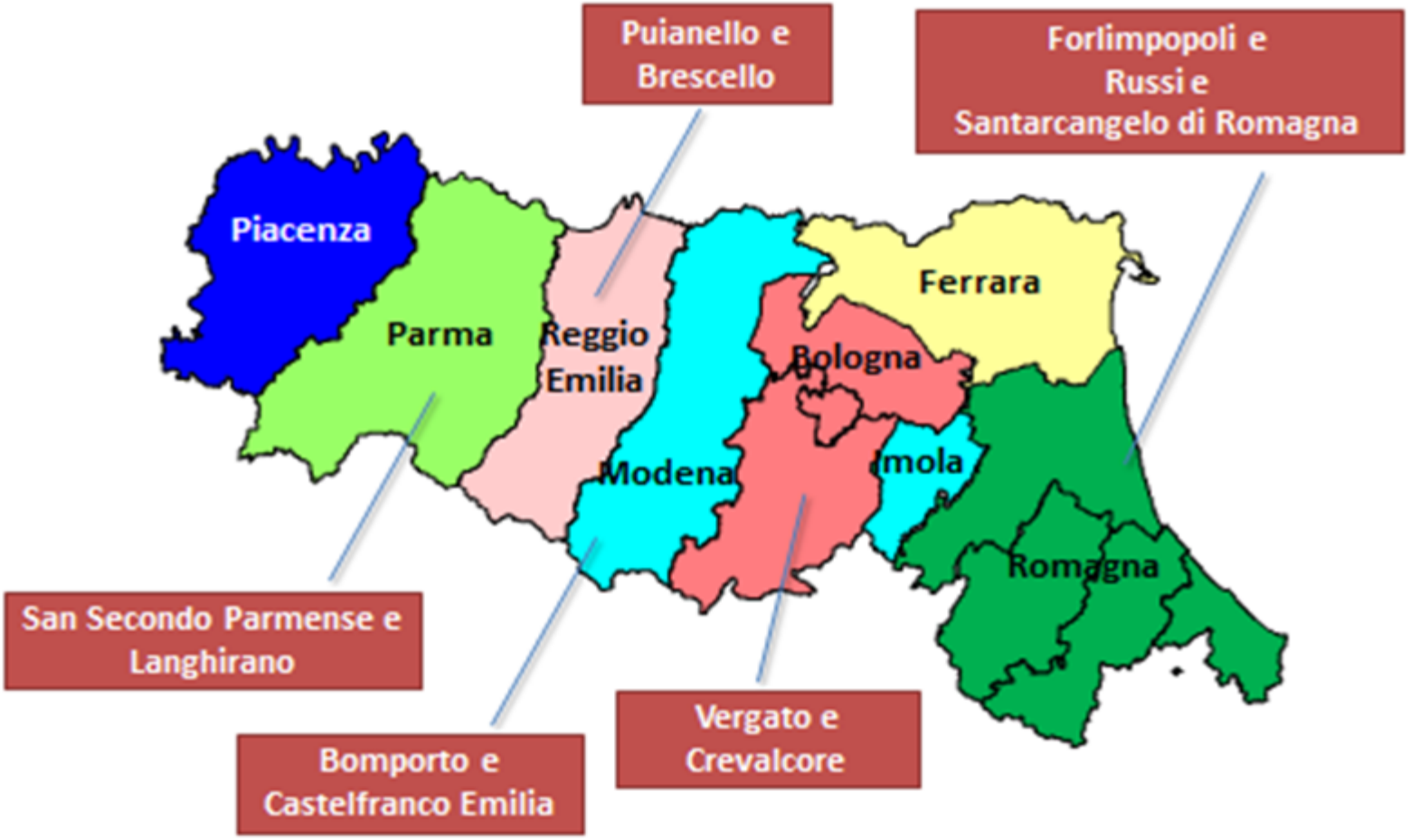
Ciprofloxacina [ ] [ ] [ ] [4]

N03 Antiepilettici

Fenobarbital [1] [2] [3] [4]

Il paziente è stato esposto a politerapia nel 2012, definita come l'uso simultaneo di 5 o più principi attivi per almeno 15 giorni consecutivi.

Test site: 11 Community health centres



- ✓ Risk Profiles provided to GPs
- ✓ Activation of Professional Teams
  - ✓ GPs, specialists, nurses, physioterapists, social workers
  - ✓ a proactive response…
- ✓ Interdisciplinary Paths
  - ✓ prevention, clinical appropriateness and adherence, health education…
- ✓ Participation of Community,
  - ✓ Patients, Caregivers, Associations

Transferability

Administrative - Health Information Systems

- Identification Population
  - Stratification of population
    - Population Risk profile
      - Proactive Care
        - Disease/Case Management

Community Based Organizational Structures

http://salute.regione.emilia-romagna.it/documentazione/multimedia/video/the-one-stop-home-for-healthcare

Welcome to Bologna and thank you!!

(http://salute.regione.emilia-romagna.it/cure-primarie)

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