CONFERENCE

“Integrated services: organizational healthcare models in the framework of chronic diseases”.

THE NEW GUARANTEE SYSTEM AND THE INTEGRATED CARE PATHWAYS (ICP) EVALUATION

26-27 March 2018
Turin, C.so Regina Margherita, 174

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Università Politecnica delle Marche
Italian National Health Service (INHS)

State

19 Regions and 2 Autonomous Provinces

Pact for Health

August 2014

an universalistic, egalitarian, public funded and decentralised health care system

Performance Assessment of all Regions and Support/Tutoring for Regions in Critical Conditions
The State must guarantee universality and equity of access to services

A national system for health performance assessment

independent from geo-demographic differences and heterogeneity of organisational health care models among regions

comparing the results of the application of the different regional organisational health care models

Italian National Health Service (INHS)
A system for monitoring and assessing supply of Essential Levels of Care in all Italian regions
(The New Guarantee System - updating DM 12-12-2001)

considering

three macro levels of care

prevention and public health, outpatient care, hospital care

integrated care pathways across different levels for specific clinical conditions.
Italian Health System Performance Assessment (HSPA)
Italian HSPA: use for policy actions

- Annual evaluation of overall data
- Identification of clinical and organisational critical aspects
- Activation of programs of clinical, organisational and budget management auditing

- Annual evaluation of a sub-set of indicators on overriding issues in health care....

....included in the national system of health spending review and funding of regional health services

3% of National Health Funding conditioned to results
AIMS:

➢ Developing and validating a multisource comorbidity score from administrative data to stratify patients according to their frailty

➢ Definition and testing of indicators for Italian Health System Performance Assessment

➢ Estimating disease/health condition prevalence

➢ Comparative evaluation of health care organisation models both for chronic and acute diseases

➢ Identification of better health care models in terms of effectiveness, cost-efficacy, economic sustainability
The national evaluation system of integrated care pathways (ICP)

INTEGRATED USE OF HEALTH DATABASES

Interconnection of national healthcare utilization DBs

“The NHS digital health policy 2014-2020”

HANDBOOK FOR INTEGRATED CARE PATHWAYS ASSESSMENT

A platform for automatic computing ICP indicators and generating scientific evidences

MINISTRY OF HEALTH

REGIONS applications of standard protocols
Making a protocol study for each ICP, including:

1. the definitions of
   - prevalent and incident case
   - process indicators
   - outcome indicators
   - association process/outcome
   - efficiency indicators

2. Source of data

3. Risk-adjustment model (comorbidity score)
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**EVIDENCE-BASED ICP**

**POPULATION HEALTH PRIORITIES**

**NATIONAL PLAN FOR CHRONIC DISEASES**

<table>
<thead>
<tr>
<th>Disease/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
</tr>
<tr>
<td>Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>Heart Failure</td>
</tr>
<tr>
<td>Cancer: breast, colon, rectum</td>
</tr>
<tr>
<td>Birth Pathway</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
</tr>
<tr>
<td>ICTUS</td>
</tr>
<tr>
<td>Severe Mental Illnesses</td>
</tr>
</tbody>
</table>

............

HANDBOOK FOR INTEGRATED CARE PATHWAYS ASSESSMENT

...
The national evaluation system of integrated care pathways (ICP)

**MULTISOURCE COMORBIDITY SCORE:**
comparing discriminant power in predicting 1-year survival

![ROC curve graph](image)

**SOURCES:**
- HOSPITAL DISCHARGES
- DRUG PRESCRIPTIONS

<table>
<thead>
<tr>
<th>Comorbidity Score</th>
<th>Area under ROC curve (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multisource Comorbidity Score</td>
<td>0.78 (0.77, 0.79)</td>
</tr>
<tr>
<td>Charlson Comorbidity Index</td>
<td>0.69 (0.68, 0.70)</td>
</tr>
<tr>
<td>Elixhauser Index</td>
<td>0.65 (0.64, 0.66)</td>
</tr>
<tr>
<td>Chronic Disease Score</td>
<td>0.69 (0.68, 0.70)</td>
</tr>
</tbody>
</table>

Corrao G, et al.
BMJ Open 2017;7:
The national evaluation system of integrated care pathways (ICP)

### THE DIABETES INTEGRATED CARE PATHWAY

**adherence to recommendations**

<table>
<thead>
<tr>
<th></th>
<th>Lombardy</th>
<th>Emilia-Romagna</th>
<th>Lazio</th>
<th>Sicily</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevalence (x 100)</strong></td>
<td>6.2</td>
<td>6.6</td>
<td>7.7</td>
<td>8.0</td>
<td>7.0</td>
</tr>
<tr>
<td><strong>Glycated haemoglobin</strong>&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td>46.2%</td>
<td>48.8%</td>
<td>34.4%</td>
<td>37.9%</td>
<td>41.9%</td>
</tr>
<tr>
<td><strong>Lipid profile</strong>&lt;sup&gt;(2)&lt;/sup&gt;</td>
<td>64.0%</td>
<td>63.8%</td>
<td>55.3%</td>
<td>60.3%</td>
<td>61.0%</td>
</tr>
<tr>
<td><strong>Urine albumin excretion</strong>&lt;sup&gt;(2)&lt;/sup&gt;</td>
<td>43.4%</td>
<td>50.3%</td>
<td>28.2%</td>
<td>29.8%</td>
<td>37.8%</td>
</tr>
<tr>
<td><strong>Serum creatinine</strong>&lt;sup&gt;(2)&lt;/sup&gt;</td>
<td>71.5%</td>
<td>75.4%</td>
<td>59.6%</td>
<td>60.4%</td>
<td>66.8%</td>
</tr>
<tr>
<td><strong>Dilated eye exam</strong>&lt;sup&gt;(2)&lt;/sup&gt;</td>
<td>21.8%</td>
<td>19.7%</td>
<td>15.0%</td>
<td>14.6%</td>
<td>18.2%</td>
</tr>
</tbody>
</table>

<sup>(1)</sup> at least two glycated haemoglobin assays every year  
<sup>(2)</sup> at least one evaluation every year
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THE DIABETES INTEGRATED CARE PATHWAY:

association between categories of total adherence to recommendations and the risk of hospital admission for brief-term diabetes complications, uncontrolled diabetes, long-term vascular outcomes, and no traumatic lower limb amputation

.... out of about 20,000 hospitalizations for complications, 1,990 (9.8%) hospitalizations could have been avoided....
### THE CHRONIC OBSTRUCTIVE PULMONARY DISEASE INTEGRATED CARE PATHWAY

**Adherence to recommendations within one year of discharge**

<table>
<thead>
<tr>
<th></th>
<th>Lombardy</th>
<th>Emilia-Romagna</th>
<th>Lazio</th>
<th>Sicily</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevalent cases (n)</strong></td>
<td>5344</td>
<td>3907</td>
<td>2689</td>
<td>2566</td>
<td>14506</td>
</tr>
<tr>
<td><strong>Follow-up visit</strong>(1)</td>
<td>54.2%</td>
<td>47.5%</td>
<td>48.4%</td>
<td>31.1%</td>
<td>47.3%</td>
</tr>
<tr>
<td><strong>long-acting bronchodilators treatment</strong>(2)</td>
<td>35.5%</td>
<td>35.3%</td>
<td>28.7%</td>
<td>22.2%</td>
<td>31.9%</td>
</tr>
</tbody>
</table>

(1) at least one visit within one year of discharge  
(2) proportion of days covered ≥75% within one year of discharge
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THE CHRONIC OBSTRUCTIVE PULMONARY DISEASE INTEGRATED CARE PATHWAY

association between adherence to recommendations and death risk within 5 years of discharge

- of the 9500 deaths observed after discharge, nearly 1000 would have been avoided if all patients had been adherent to treatment...
The national evaluation system of integrated care pathways (ICP)

**THE HEART FAILURE INTEGRATED CARE PATHWAY**

adherence to recommendations within one year of discharge

<table>
<thead>
<tr>
<th></th>
<th>Lombardy</th>
<th>Emilia-Romagna</th>
<th>Lazio</th>
<th>Sicily</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevalence (x 1000)</strong></td>
<td>6.4</td>
<td>7.7</td>
<td>5.5</td>
<td>6.7</td>
</tr>
<tr>
<td><strong>Follow-up visit</strong></td>
<td>30.6%</td>
<td>20.6%</td>
<td>25.0%</td>
<td>23.8%</td>
</tr>
<tr>
<td><strong>Echocardiogram</strong></td>
<td>25.9%</td>
<td>16.4%</td>
<td>10.6%</td>
<td>10.1%</td>
</tr>
<tr>
<td><strong>ACE inhibitor/ARB</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>59.2%</td>
<td>59.4%</td>
<td>67.3%</td>
<td>65.9%</td>
</tr>
<tr>
<td>Users’ adherence</td>
<td>59.7%</td>
<td>62.4%</td>
<td>64.4%</td>
<td>62.8%</td>
</tr>
<tr>
<td><strong>Beta-blocker</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>59.1%</td>
<td>64.9%</td>
<td>61.5%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Users’ adherence</td>
<td>58.1%</td>
<td>64.4%</td>
<td>56.6%</td>
<td>54.4%</td>
</tr>
</tbody>
</table>

(1) at least two visits within one year of discharge
(2) at least one evaluation within one year of discharge
(3) at least one prescription within three months of discharge
(4) proportion of days covered ≥75% within one year of discharge
The national evaluation system of integrated care pathways (ICP)

THE HEART FAILURE INTEGRATED CARE PATHWAY
association between adherence to recommendations and death risk decrease within 5 years of discharge

- Echocardiogram
- ACE inhibitor/ARB prescription
- Beta-blocker prescription

Death risk decrease (%)

Lombardia
Emilia Romagna
Lazio
The national evaluation system of integrated care pathways (ICP)

Different levels of care integration

European Observatory on Health Systems and Policies

Source: Valentijn et al (2013)
The national evaluation system of ICP: a dynamic WORKING GROUP

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