“Example of web-based application for monitoring of quality of care through indicators”

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ASKVA
Content of presentation

- Introduction
- Clinical practice guidelines
- Hospital clinical pathways
- Data collection and presentation
- Web based applications
- Key messages
Position of Republika Srpska, Bosnia and Herzegovina, former Yugoslavia
Introduction

Republika Srpska (Bosnia & Herzegovina)
- Population: 1,2 million
- BDP per capita: app. 4000 US$
- Health expenditure per capita: app 300 EUR
- 14 public hospitals
- 5 private hospitals
- 54 primary health care centres
- 650 public family medicine practices
- 700 private providers in PHC (pharmacies, dental practices, specialist practices)
- Hospitalizations per annum: app. 160,000
- Life expectancy: M 73  F 76
Agency for Quality in Health Care

Primary functions:

• Certification (mandatory external review, safety standards)

• Accreditation (voluntary external review, safety and quality standards)

• Monitoring of quality of health care (EBM, guidelines, pathways, indicators)

• Implementation of quality improvement projects
Why monitoring of quality of care?

- Purpose of the quality monitoring is identification of good practice, benchmarking, setting stage for P4P and initiation of quality improvement projects
- Basis for selection of PHC indicators was Quality and Outcome Framework being implemented in UK
- Basis for selection of hospital indicators were PATH indicators developed by WHO
Resources required for IT supported monitoring of quality of care on PHC level

- Available clinical practice guidelines CPG-s
- Indicators derived from CPGs
- Agreed targets on indicators
- Valuation of achieved targets
- Web based electronic health record with predetermined fields for clinical data entering
- Web-based application for indicator values calculation and representation
## Electronic version of CPG-s

<table>
<thead>
<tr>
<th>KLINIČKI VODIĆI</th>
<th>VRSTE OBOLJENJA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Akutne respiratorne infekcije kod djece</strong></td>
<td><strong>Gastroezofagealni refluks</strong></td>
</tr>
<tr>
<td><strong>Akutni infarkt miokarda</strong></td>
<td><strong>Herpes zoster</strong></td>
</tr>
<tr>
<td><strong>Akutni oitis media</strong></td>
<td><strong>Hiperlipoproteinemije</strong></td>
</tr>
<tr>
<td><strong>Anemije kod odraslih</strong></td>
<td><strong>Hipertireoa i hipotireoa</strong></td>
</tr>
<tr>
<td><strong>Ankiozn poromećaji</strong></td>
<td><strong>Hronična bubrežna insufficijencija</strong></td>
</tr>
<tr>
<td><strong>Arterijska hipertenzija</strong></td>
<td><strong>Impetigo</strong></td>
</tr>
<tr>
<td><strong>Atrialna fibrilacija</strong></td>
<td><strong>Infekcije urinarnog trakta kod djece</strong></td>
</tr>
<tr>
<td><strong>Benigna hiperplazija prostate</strong></td>
<td><strong>Najčešće osipne bolesti kod djece</strong></td>
</tr>
<tr>
<td><strong>Bipolarni afektivni poromećaj</strong></td>
<td><strong>Nespecificne infekcije u pulmologiji</strong></td>
</tr>
<tr>
<td><strong>Bol u donjem dijelu leđa</strong></td>
<td><strong>Osteoporoza</strong></td>
</tr>
<tr>
<td><strong>Cervikalni sindrom</strong></td>
<td><strong>Peptički ulkus</strong></td>
</tr>
<tr>
<td><strong>Crveno oko</strong></td>
<td><strong>Reumatoidni artritis</strong></td>
</tr>
<tr>
<td><strong>Depresija i distimija</strong></td>
<td><strong>Sideropenijska anemija kod djece</strong></td>
</tr>
<tr>
<td><strong>Funkcionalna dispepsija</strong></td>
<td><strong>Tonzilofaringitis</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Ulcus cruris</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Upale urinarnog sistema kod odraslih</strong></td>
</tr>
</tbody>
</table>
Monitoring in PHC

- Monitoring of 50 process and outcome indicators for 7 chronic diseases
  - Diabetes,
  - Hypertension,
  - COPD,
  - Depression,
  - Asthma,
  - Angina pectoris,
  - Status post AIM)
## Example of condition, targets and valuation - diabetes mellitus

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Points</th>
<th>Required values – range</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIAB_01 Practice has registry of all patients with diabetes mellitus over 16 years old with confirmed diagnosis</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIAB_02 Percentage of patients with diabetes with recorded BMI in last 12 months</td>
<td>2</td>
<td>70-90%</td>
</tr>
<tr>
<td>DIAB_03 Percentage of patients with diabetes with last recorded value of glycaemia less than 6,1 mmola/l and value of HbA1c less than 6.5 % l in last 12 months</td>
<td>10</td>
<td>40-90%</td>
</tr>
<tr>
<td>DIAB_04 Percentage of patients with diabetes with last recorded value of glycaemia less than 5,5 mmola/l and value of HbA1c less than 6.1 % l in last 12 months</td>
<td>10</td>
<td>50-90%</td>
</tr>
<tr>
<td>DIAB_05 Percentage of patients with diabetes with recorded retina scan in last 12 months</td>
<td>2</td>
<td>70-90%</td>
</tr>
<tr>
<td>DIAB_06 Percentage of patients with diabetes with recorded foot examination and risk classification in last 15 months</td>
<td>4</td>
<td>50-90%</td>
</tr>
<tr>
<td>DIAB_07 Percentage of patients with diabetes with last recorded value of BP 130/80 or less</td>
<td>10</td>
<td>30-70%</td>
</tr>
</tbody>
</table>
Web based electronic medical record
Web based electronic medical record /recording blood pressure, height, weight, etc..
Registries for chronic diseases within EMR
Laboratory results entered/transmitted by laboratory departments
"Free text" in "Status Praesens" section can not be used for calculation
Web-based application for monitoring of quality of care through indicators

HEALTH CENTER 1
- Data entry
- Records retrieval

HEALTH CENTER 54

FAMILY MEDICINE TEAM 1
FAMILY MEDICINE TEAM n

WEB

Web based Information System for Primary Health Care

ASKVA BI SERVER
Web based

- Data storage
- Electronic health record
- Electronic medical record
- Patient management

- Data filtering
- Data analyses
- Quality indicators calculation
- Additional analyses of QI
Care pathways selected for monitoring

- Acute Miocardial Infarction
- Stroke
- Cataract
- Pneumonia
- Inguinal hernia
- Colorectal carcinoma
- Prostatectomy
- Histerectomy
- Hip replacement
- Cesarean section
- Holecistectomy
- Vaginal delivery

- Selection was also based on the frequency of admissions in hospitals and possibility for utilization of care pathways as tools for quality improvement
- Inclusion parameters were based on ICD – 10 Australian Modification and DRG list of procedures
Selected hospital indicators

Some of the indicators monitored in Republika Srpska:

- Antibiotic prophylaxis with hip replacement
- Use of blood with hip replacement
- Thrombolytic therapy for AMI
- Application of percutaneous transluminal coronary angioplasty (PTCA)
- AMI case fatality
- Average length of stay with AMI
- Rate of CT-MRI for stroke
- Thrombolytic therapy for ischemic stroke
- Case fatality for stroke
- ALOS with stroke

In total we can monitor over 80 indicators with option to introduce new conditions and new indicators.
Schematic of the web based DRG and QI information system

- Data entry
- Indicator monitoring

- Data storage
- Indicator calculation
- Calculation of DRG categories

- Monitoring of DRG categories
- Hospital payment based on DRG

- Indicator monitoring

AGENCY FOR QUALITY

Server

ASKVA DRG application
Key messages

• Affordable IT solutions in health systems with insufficient resources and modest IT infrastructure are functional and possible to implement

• Key role of quality indicators in establishment of performance based payment systems

• Key role of quality indicators in definition and monitoring of quality improvement projects
Thank you for your attention !!!
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