

# **SURGICAL PROPHYLAXIS AS A QUALITY INDICATOR IN HEALTH CARE**

Jasna Mesarić, Ozren Polašek, Arijana Tambić Andrašević

- **PATH program**
- **Prophylactic antibiotic use –  
PATH indicator**
- **Prophylactic antibiotic use –  
Croatian data (PATH'10)**

**PATH**  
**Performance Assessment Tool**  
**for quality improvement in Hospitals**

**ALAT ZA OCJENU RADA U CILJU  
POBOLJŠANJA KVALITETE U BOLNICAMA**

[www.pathqualityproject.org](http://www.pathqualityproject.org)



**World Health  
Organization**



# Development

Phase	Results
► Define and analyze existing hospital performance assessment models and develop a comprehensive model of hospital performance assessment	► The PATH model has been <b>developed</b> and validated through four international experts meetings <b>in 2003 and 2004</b> , supported by extensive review of the literature
► Pilot test the model in 6 different countries (50 hospitals) <b>PATH I</b>	► The model has been <b>pilot-tested in 2005-2006</b> and results published in IJQHC (Groene et al, 2008)
► Provide technical support to WHO European Member States in order to develop their own strategies on hospital performance assessment <b>PATH II</b>	► Technical support has been provided in some countries so far and will keep on building through the current BCA (biannual collaborating agreement)
► Implement a European Network on Hospital Performance Assessment and develop guidelines to assist forward country implementation <b>PATH'09/PATH'10</b>	► 3 international conferences (Brussels, Vienna, <b>Briuni</b> ) have started up a European Network



## Who?

- Israël (PATH II)
- Turkey (PATH'09/10)
- Greece (PATH'10)
- **Croatia (PATH'09/10)**
- BiH (PATH'09/10)
- Slovenia (PATH-II/09/10)
- Hungary (PATH-II/09/10)
- Czech Republic (PATH-II/09/10)
- Slovakia (PATH-II/09/10)
- Poland (PATH-II/09/10)
- Lithuania (PATH-II/09/10)
- Estonia (PATH-II/09/10)
- France (PATH-II)
- Malta (PATH'09/10)

# Introduction: What is PATH?

- **OBJECTIVE: What PATH stands for....**

Support hospitals in

- assessing their **performance**,
- questioning their **own results**, and
- translating them into **actions for improvement**

BY

- Providing **tools for performance assessment**
- Enabling **collegial support and networking** among hospitals

# Introduction: What is PATH?

- **Distinctive features**

- Comprehensive framework

- Six inter-related dimensions of performance

- Support to **move from measurement to quality**

- improvement actions

- Descriptive sheets
      - Background information to motivate for the use of the indicator and provide venues for interpretation
    - Balanced dashboard
      - Key message in PATH: do not interpret in isolation
    - Workshop, Newsletter, access to international network, facilitated direct contacts with individual hospitals, etc.
      - Share results, interpret differences, compare practices
    - Custom-made

# Introduction: What is PATH?

- **Steps and tools: the 4M's**

**Motivate**

**Voluntary participation**

**Measure**

**Collect and compute**

**Make sense**

**Assess and understand**

**Move**

**Act for quality improvement**



## SETTING UP PATH INFRASTRUCTURE (1)

Invitation to potential hospital participants offering them to join the program and appoint a hospital coordinator

Supported by the MoH and WHO country office

**18/60 Hospitals responded**

**National Conference Stakeholders meeting**

**+ 8 Hospitals demonstrated interest**

7/2008

11/2008

12/2009

1/2009

2/2009



The starting point was an initiative of Croatian Society for Quality Improvement in Health Care





# PATH indicators

C-section use

Case fatalities for AMI

Case fatalities for Stroke

Day surgery

Educational level of nurses

Exclusive breastfeeding at discharge

Needle injury

Length of stay

Needle injury

Postoperative thrombotic incident

**Prophylactic antibiotic use**

Patient Survey

Staff survey

Use of blood components



# Prophylactic antibiotic use

## Descriptive Sheet

- Short name
- Detailed name
- Short definition
- Rationale
- Operational definition
- Data source
- Domain
- Type of indicator
- Adjustment/  
stratification
- Sub-indicators
- Related indicators
- Interpretation
- Guidelines
- References

Detailed name	Compliance with prophylactic antibiotic guidelines for selected tracer procedures.
Short definition	Per cent patients who have received prophylactic antibiotic in full compliance with the guidelines; elective surgery for selected tracer procedures.

<p>Rationale (including justification, strengths and limits)</p>	<p>According to the Institute for Health Care Improvement, an estimated <b>40 to 60 percent of Surgical Site Infections are preventable with appropriate use of prophylactic antibiotics</b>. Prophylaxis <b>reduces major morbidity, reduces hospital costs and is likely to decrease the overall consumption of antibiotics</b>. It reduces short-term morbidity but there is no Randomised Clinical Trials that proves that prophylaxis reduces the risk of mortality or long-term morbidity.</p> <p>It is estimated that <b>overuse, under use, improper timing, and misuse of antibiotics occurs in 25-50 percent</b> of operations. <b>PATH-II indicator</b> provided similar results (<b>20-40% depending on procedure</b>). <b>PATH-II also highlighted wide variations between hospitals. This finding suggests that very substantial improvements could be achieved in a number of hospitals.</b></p> <p>Though the burden of data collection (prospective) of setting up an ad-hoc data collection is high, it has a great potential to raise awareness on the issue and drive quality improvement, as was demonstrated in PATH-II. It calls for greater attention to all five criteria for compliance with guidelines (see below: Operational definitions). It supposes that previous to data collection, the guidelines are widely disseminated and explained in the hospital.</p>
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## Numerator

Number of patients at the denominator (meeting the inclusion and exclusion criteria) - in full compliance with guidelines on prophylactic antibiotic use for the specific surgical procedure on five criteria. All five criteria below have to be met simultaneously for all patients to have received prophylactic antibiotic compliant with guidelines. Criteria 1 and 2 are to be defined within the PATH national group of participating hospitals (based on national and/or international guidelines); criteria 3 to 5 are built on international consensus and common to all participating hospitals in PATH.

- 1) Appropriate antibiotic drug (to be defined nationally)
- 2) Appropriate dose (to be defined nationally)
- 3) Appropriate route of administration: intravenous administration (international consensus)
- 4) Appropriate timing, within one hour of surgical wound incision (international consensus)
- 5) Appropriate timing: discontinued within 24 hours after surgical wound closure (international consensus) – or documentation of appropriate clinical indication for continuation of treatment beyond 24 hours

**appropriate antibiotic drug and dose has to be defined nationally**

**Tracer procedures:** A specific indicator is computed for each of the following tracer procedure:

**Colorectal cancer surgery**

**Hip replacement**

**CABG**

**Hysterectomy**

A **Prospective Data Collection Form** is provided with this indicator descriptive sheet to support **uniform data collection** and calculations in accordance with the operational definitions.

Data  
source

**Prospective data collection** continuously for **at least two periods a year** (e.g. starting February and October, **minimum number of cases 30 consecutive patients per period**). It should be **repeated at least every 6 months to sustain awareness to continuous improvement in compliance with guidelines.**

**In Croatia, data collected during March/April/May (PATH'10)**

It is strongly recommended to collect the data prospectively as it has a greater potential for making a positive impact on quality and because the burden of data collection is lowered and number of incomplete records is limited.

However, if it is not possible, then retrospective data collection is acceptable but a similar approach is to be adapted by all the hospitals within a country. In addition, countries might decide that they compare prospective results with retrospective results.



## Interpretation

**Improvement is noted as an increase in the rate of full compliance. A near 100% compliance rate should be sought.**

Variations between different hospitals can be caused by different financial incentives for the use of antibiotics, differences in the hospitals autonomy to order drugs and differences in the effectiveness of dissemination of the clinical guidelines. Key quality improvement issues identified by van Kasteren et al. (1) and the Scottish Intercollegiate Guidelines Network include:

- each department should have an locally agreed guideline which is feasible and in agreement with local conditions as well as current scientific evidence,
- use a practical safe guideline to assure proper timing (anaesthesiologist administer and surgeon confirm before incision),
- ensure that all staff is knowledgeable about the clinical guideline in use,
- identify logistical barriers preventing adherence to guidelines

# Prophylactic antibiotic use

Croatian data PATH'10 / Tracer procedures

C12.1 Colorectal carcinoma

C12.2 CABG

C12.3 Total Hip Replacement

C12.4 Histerectomy

# Prophylactic antibiotic use

- Collected during 2010 only
- Three months
- 4 groups: hysterectomy (N=6), hip replacement (4), coronary bypass (1), colorectal carcinoma (6)
- 8 hospitals

Hospital	C12.1	C12.2	C12.3	C12.4
H01	0	0	0	0
H02	0	0	0	1
H03	0	0	0	0
H04	0	0	0	0
H05	0	0	0	0
H06	1	0	1	1
H07	0	0	0	0
H08	0	0	0	0
H09	0	0	0	0
H10	0	0	0	0
H11	1	0	0	1
H12	0	0	0	0
H13	0	0	0	0
H14	0	0	0	0
H15	0	0	0	0
H16	0	0	0	0
H17	1	0	1	1
H18	1	0	1	1
H19	0	0	0	0
H20	1	1	0	0
H21	0	0	0	0
H22	1	0	0	1
H23	0	0	1	0
H24	0	0	0	0
H25	0	0	0	0

# Correct surgical prophylaxis in Histerektomy

Appropriate antibiotic and route of administration	Alternative	Appropriate timing and Comment	Level of recommend.
cefazolin 1 g iv.	klindamicin 600 mg iv. + gentamicin 1,5 mg/kg iv. or ciprofloksacin 400 mg iv.		<b>A</b>

# Hysterectomy – PATH Croatian data

H	Cases (N)	Appropriate Antibiotic N (%)	Route of administrat. N (%)	Approp. Dose N (%)	Approp NO of doses	Approp Timing
5	126	95 (75)	126 (100)	<b>45 (36)</b>	<b>58 (46)</b>	<b>28 (22)</b>

# Data collected

Način primjene	Vrijeme između početka zahvata i primjene antibiotika	Trajanje operacije	Trajanje profilakse	Je li dokumentirana klinička indikacija za produženje profilakse
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Dob	Spol	Tjelesna težina	Generički naziv antibiotika	Doza primjene	Broj doza dnevno
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Je li bolesnik imao više od 1 zahvata	Je li alergija na antibiotik navedena u bolesnikovo j dokumentaciji	Infekcija rane
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**Prophylactic antibiotic use**, useful indicator  
to assess implementation of national guidelines