BAPCOC

Belgian Antibiotic Policy Coordination Committee

Working Group
Hospital Care

BAPCOC Strategic Plan 2007-10 in Hospital Antibiotherapy

2nd National Study Day
December 15th, 2007

2002-07: Continuing Professional Development in Antibiotic Management

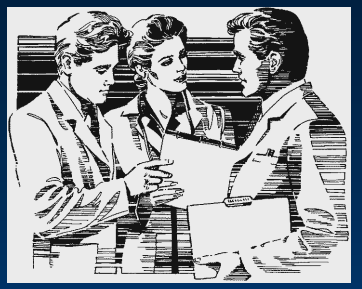
- Interuniversity training course in antibiotic management NL & FR, ~600 physicians & pharmacists
- Publication of Guideline » Acute Meningitis »
- 1st National Study Day « *Improving Antibiotic Prescribing in Hospitals* » 11 May 2006
- 2nd National Study Day: 15 December 2007

Groupes pluridisciplinaires de Gestion de l'Antibiothérapie (GGA) Financement et Agrément

- Financement: Délégué à la gestion des antibiotiques
  - 1/7/02: 0.9 M€ (Projet pilote 35 hopitaux)
  - 1/7/06 1.8 M€ (Projet élargi 60 hopitaux);
  - 1/7/07: 3.6 M€ (financement de tous les hopitaux)

- Révision des normes d'agrément de la pharmacie et commission médico-pharmaceutique : composition et missions du GGA (in press)

Groupes pluridisciplinaires de gestion de l'antibiothérapie hospitalière (GGA)

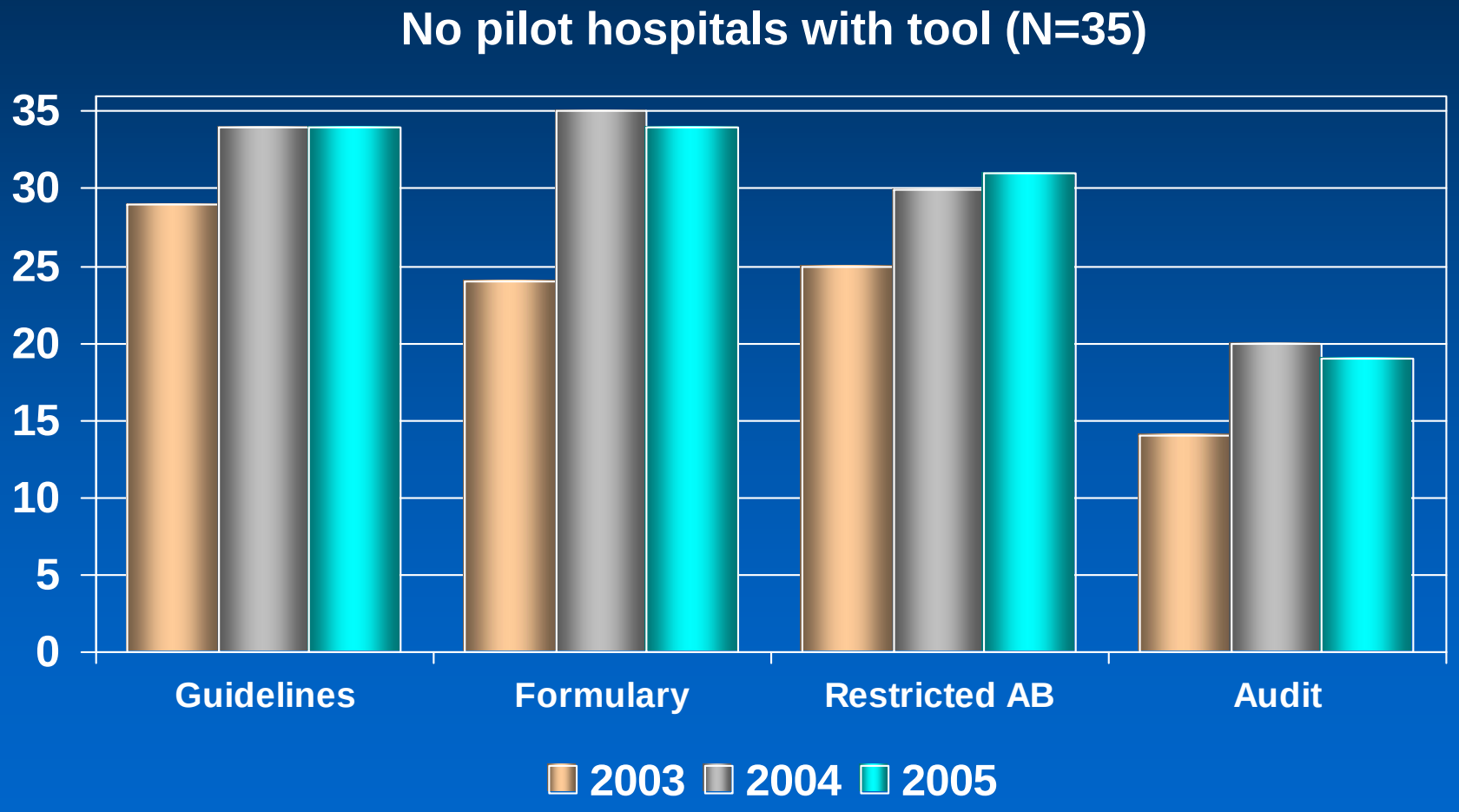


- Missions
  - Formulaire des anti-infectieux
  - Recommandations thérapeutiques
  - Suivi des consommations & résistance locale
  - Formation continue et aide des prescripteurs
  - Enquêtes de pratique et promotion qualité

« L'obéissance à la loi qu'on s'est prescrite est liberté »
J.J. Rousseau, Le contrat social

Belgian Antibiotic Management Teams

Antibiotic Guidance Tools



Sourdeau et al BAPCOC 2006

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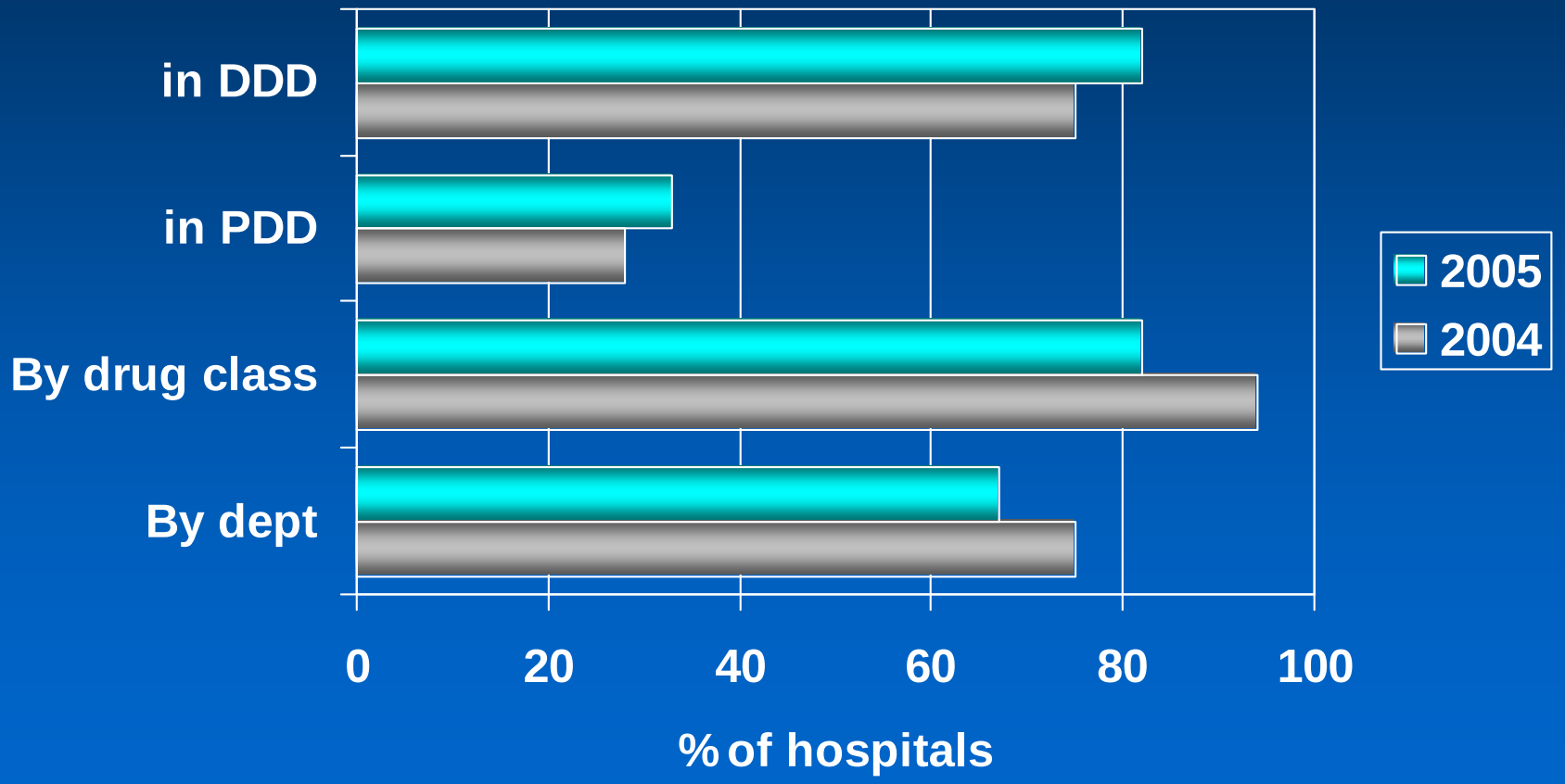
Antibiotic Consumption Monitoring

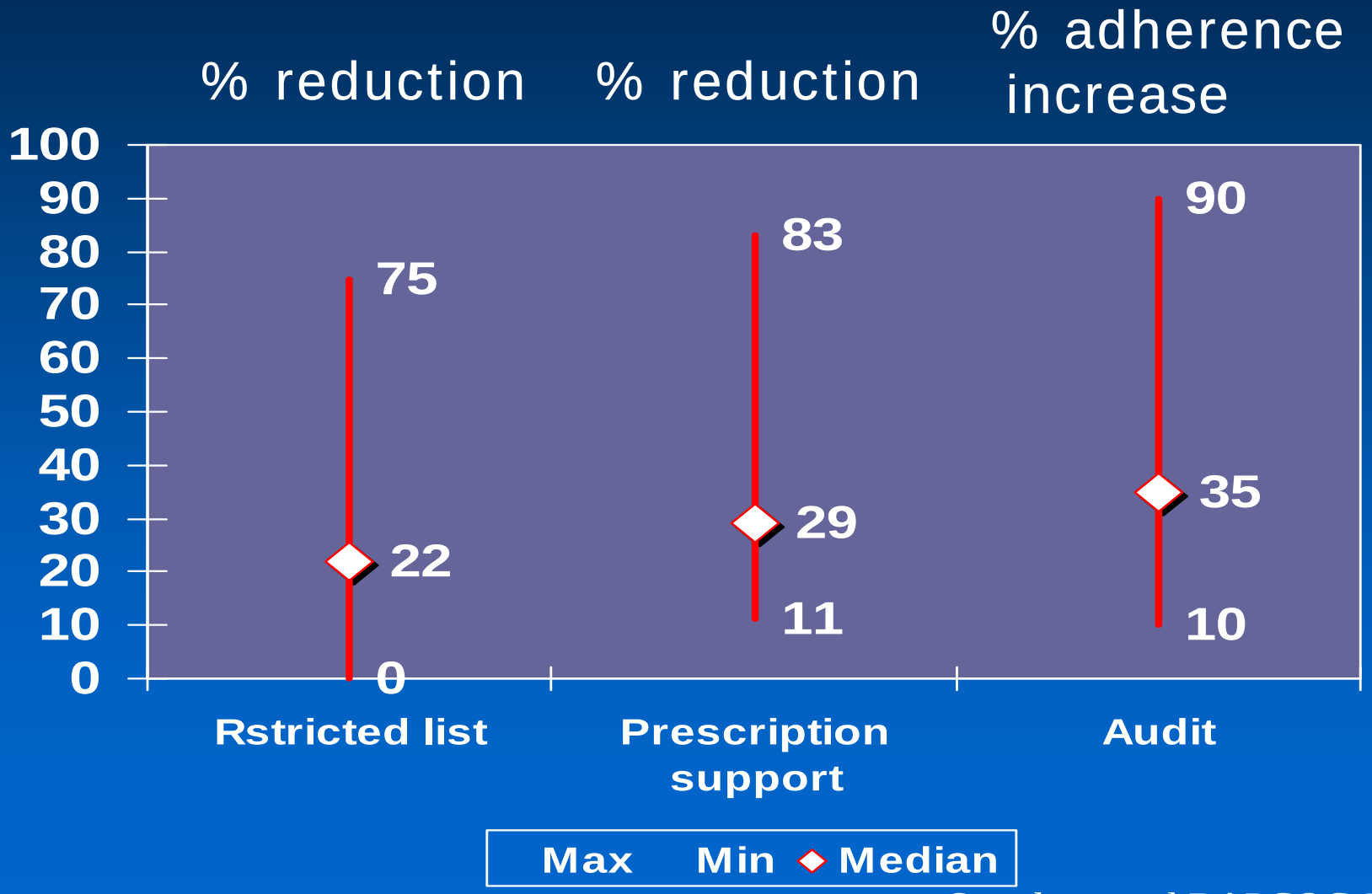
2004-05



Sourdeau et al BAPCOC 2006

Effect of local quality interventions

(N= 26 pilot hospitals, 2002-05)



Sourdeau et al BAPCOC 2006

AMT Pilot Project 2002-05 Conclusions

- Multi-topic interventions by Antibiotic Management Teams in all pilot hospitals
- Structural and process indicators of AB policy performance improved during the project
- Self-evaluation/local time series suggest stabilization of total use of antimicrobial agents
- Need for standard quantitative and qualitative indicators of antibiotic use for impact analysis & benchmarking

1st National Study Day

11 May 2006

Improving Antibiotic Prescribing in Hospitals : Progress and New Approaches

- 220 participants
- Symposium on EU perspectives & evidence-based strategies
- 4 Workshops
- Workshop recommendations

Workshop 1 Recommendations for Antibiotic Use Indicators

- Project needed to standardize
  - definitions of antibiotic use indicators (DDD, PDD, patients, bed days, …)
  - data collection/presentation methods
- Faster release of AB consumption in hospitals by INAMI/RIZIV
- Investment in Pharmacy & Therapeutics Committee
- Audits of quality of AB use more important than monitoring volume indicators (eg,one day point prevalence study)

Workshop 3 Recommendations for Antibiotic Policy Development

- Mandatory intervention
  - Hospital formulary
- Essential interventions
  - Guidelines: Focus on more frequent infections
    - Empirical therapy
    - Respiratory/ UTI
    - Duration of treament
  - Availability of good local epidemiologic data
- Priority interventions
  - AB consumption evaluation: human means and IT tools!
  - Infectiologist and clinician microbiologist: recognition
  - Tools for qualitative evaluation of patient management
  - Sustained education

Workhop 4 Recommendations for MRSA Screening

- Use chromogenic media (reading after 24-48h)
- Consider enrichment media until value of chromogenic media is more clear
- Consider multiple screening sites to increase sensitivity
- A dedicated bugdet is absolutely needed

Workshop 4 Recommendations for ESBL screening

- Indications to be based on patients risk factors, outbreak setting,…
- Isolate some patients with some well defined ESBL isolates by species
- Methods
  - selective media (MCC, Drigalski + cefta or cefotax)
  - Selective chromogenic media (future)
- BICS should develop guidelines towards how to screen, when to screen, what are risk factors and control measures

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Hospital Care 2007-10 Strategic Plan: *Priority Interventions*

- Maintaining updated **formulary with restricted AB list**

  Evaluation: AB consumption monitoring by DDD, PDD/1,000pt-days

- Maintaining updated **clinical guidelines for CAP/HAP, UTI, sepsis** – diagnostic, drug choice, timing, dosing, route, revision day 3, duration of therapy

  Evaluation: Concurrent review/audit of adherence to guidelines

- Promoting **sequential IV-PO therapy**

  Evaluation: ratio IV/PO use in PDD

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Hospital Care 2007-10 Strategic Plan: *Support Activities*

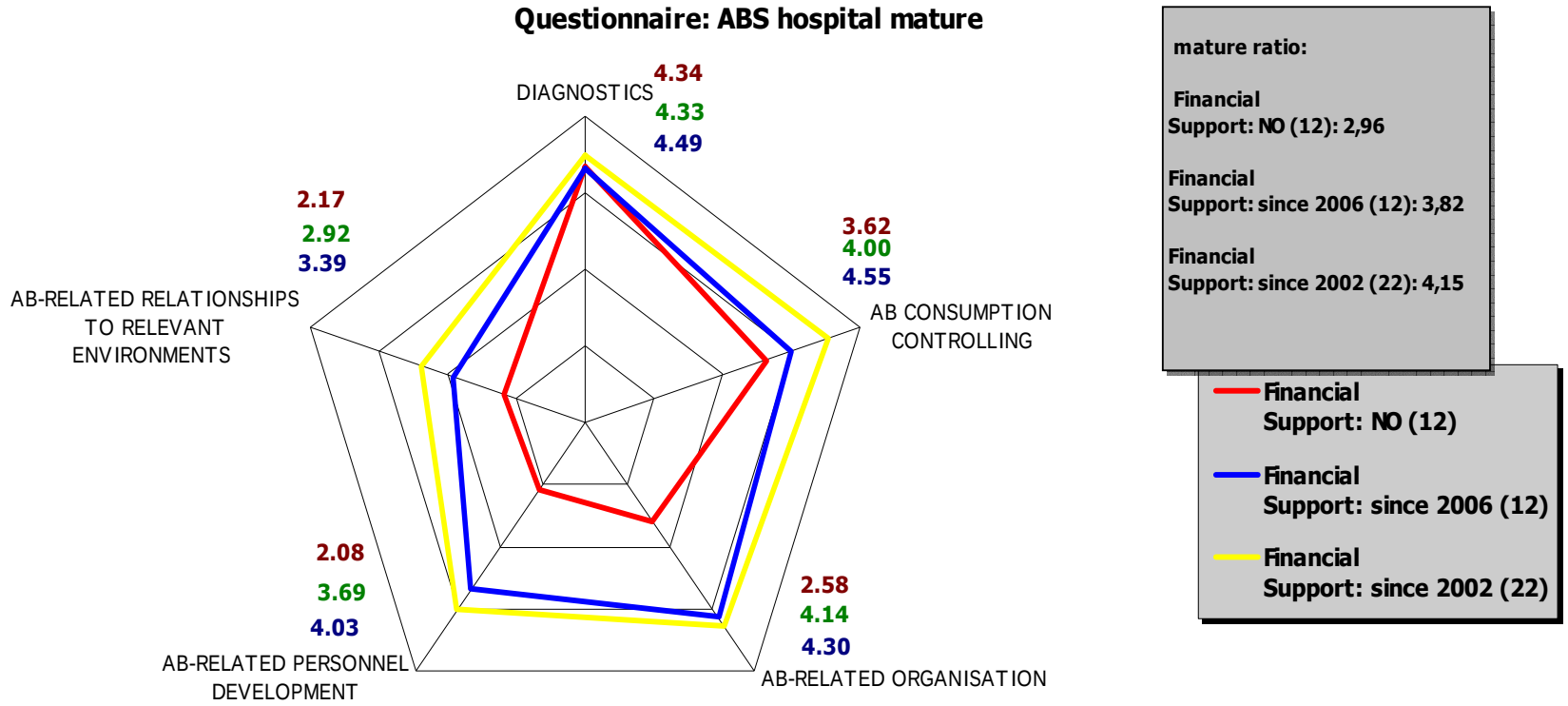
- Continuing professional development and sharing of best practice: basic course & national study days
- Surveillance of antimicrobial use (ISP-BAPCOC programme): software & national drug registry with DDA
- Antibiotic resistance surveillance: NSIH/ reference labs (MRSA, ESBL, VRE, *Clostridium difficile*, ...)
- Development of AB use Quality indicators (ESAC, ABS International)

1. Objectives

The general objectives of this project are to:

- develop the organisational structures and qualified capacities for identifying and distributing best practice on the prudent use of antimicrobial agents in human medicine in hospitals,
- enhance and implement specific strategies for the prudent use of antimicrobial agents in hospitals,
- elaborate methods for evaluating the applied antimicrobial strategies,
- disseminate the project results across the European Union and Candidate Countries.

ABS International
Hospital Antibiotic Stewardship
Maturity Score, Belgium 2007 (N=46)



WP5: Process Measures and Quality Indicators for Antibiotic Use

- Content:
  - Development of process measures and quality indicators
  - Validation of process measures and quality indicators

- Deliverables:
  - Process measures/QI
  - QI application manual & Software application
  - Validation report & recommendation

Draft list of Potential Quality Indicators (n=105)

- ***Structure indicators*** N=57 : human and technical **resources and system organisation** (ABS experts/AB managers, AB management team, education/restriction tools, formulary/AB list, guidelines, laboratory services, pharmacy services, IT support...)

- ***Process indicators*** N= 31 : individual patient care practice (*AB* **therapy and prophylaxis**, including drug choice, dosage, timing, duration), adherence to diagnostic and treatment practice guidelines, justification for guidelines non-compliance

- ***Outcome indicators*** N=17: clinical, economic and ecological outcomes (cure rate, morbidity, length of stay, mortality, volume of **drug consumption,** treatment cost, bacterial antibiotic resistance rates)

Value Score : 4 Components

- ***Clinical relevance*** *:* Is the QI likely to predict a health benefit for the patient and if so, how big a benefit to expect ?
- ***Ecological relevance*** : Is the QI likely to predict an effect on reducing/minimising the development of antibiotic resistance, and if so how big a benefit to expect ?
- ***Economic relevance*** : Is the QI likely to predict more efficient use of hospital care resources, including drug acquisition, delivery and monitoring costs?
- ***Scientific validity :*** What is the strength and volume of scientific evidence from published studies linking the QI to a health benefit for the patients or ecological benefit for reducing resistance or improved cost-effectiveness of care ?

Applicability Score: 2 Components

- ***Generalisability*** : How widely applicable across hospitals and healthcare systems ?
- ***Assumed feasibility*** : How easily will the data be collected from routinely available administrative and clinical records ?

Scoring by 12 experts

- **By country**
  - Austria: 6
  - Belgium: 4
  - Germany: 1
  - USA: 1

- **By specialty**:
  - **5 ID-**
  - **2 CM**
  - **2 Pharm**
  - **3 Quality Care**

Top 5 Structure Indicators with High (>4/5) Scores for Clin Relevance, Generalisibility and Validity

Indicator identifier	Value Ranking Score					Applicability Score		
Description	*Clinical relevance 0 to 5*	*Ecological relevance 0 to 5*	*Economic relevance 0 to 5*	*Validity 0 to 5*	*Total score /20*	*Generalisability 0 to 5*	*Assumed feasibility 0 to 5*	Total score /10
Organisation								
Hospital multi-disciplinary antibiotic management team (AMT)	4.5	4.0	4.0	4.4	16.9	4.4	4.8	9.2
Antimicrobial drug formulary/ list with annual updates	4.3	4.1	4.3	4.2	16.9	4.5	4.9	9.4
Guidelines								
Annual update of local clinical guidelines for empirical therapy based on review of local resistance data	4.5	4.1	4.3	4.3	17.2	4.1	4.7	8.8
Local clinical guidelines/guide for surgical antibio-prophylaxis available	4.7	4.2	3.8	4.3	16.9	4.2	4.6	8.8
guidelines for iv-oral switch available	4.6	3.9	4.1	4.1	16.7	4.2	4.8	8.9

ANTIBIOTIC STRATEGIES
ABS International

Top 4 Prophylaxis Indicators by Value & Applicability

Indicator identifier	Value Ranking Score				Applicability Score		
Description	*Clinical relevance*	*Ecological relevance*	*Economic relevance*	*Validity*	*Generalisability*	*Feasibility*	**Total score /10**
1. Prophylaxis indicated (local guideline)	4,4	3,6	3,8	4,4	4,7	3,9	8,6
1.Appropriate drug choice for surgical intervention, by intervention (selected list) (local guideline)	4,4	3,6	3,8	4,4	4,7	3,9	8,6
2 Prophylactic antibiotic discontinued within 24 hours after surgery end time	4,0	3,6	3,8	4,4	4,6	3,5	8,1
3 Prophylaxis is started preoperatively within 60 minutes before incision	4,4	2,8	3,2	4,5	4,3	3,3	7,6

Top 5 Therapy Indicators by Value

Indicator identifier	Value Ranking Score					Applicability Score		
Description	*Clinical relevance*	*Ecological relevance*	*Economic relevance*	*Validity*	*Total score /20*	*Generalisability*	*Feasibility*	Total score /10
1. Appropriate drug choice for indication, hospital wide point prevalence survey for all AM treatments vs local guideline	4,7	3,7	3,9	4,3	**16,5**	3,8	3,2	**6,9**
2. HAP/VAP: reassess and streamline AB therapy on day 3 based on culture results and clinical response	4,5	3,8	3,9	4,3	**16,4**	4,0	3,3	**7,3**
3. HAP/VAP: discontinue appropriate AB therapy on day 7 if clinical response and non Pseudomonas/MDR	4,2	4,0	4,1	3,9	**16,2**	3,8	3,0	**6,8**
4. Appropriate drug choice for selected indications, longitudinal survey vs local guideline	4,5	3,7	3,7	4,2	**16,1**	3,7	3,0	**6,7**
5. HAP/VAP: AB therapy selected based on MDR risk factors and local microbial epidemiology	4,6	3,6	3,5	4,4	**16,1**	4,3	3,0	**7,3**

Top 10 Therapy Indicators by Applicability Score

Indicator identifier	Value	Applicability Score		
Description	*Total score /20*	*Generalisability 0 to 5*	*Assumed feasibility 0 to 5*	**Total score /10**
1; patients with S.aureus bacteremia evaluated by echocardiography	14.1	4.4	3.8	**8.2**
2. patients with S.aureus bacteremia treated for less than 10 days with appropriate therapy	14.9	4.5	3.7	**8.2**
3. patients with S.aureus bacteremia evaluated for foreign body (iv catheters, joint prostheses, pacemaker, vascular graft, …)	14.3	4.3	3.3	**7.7**
4. appropriate monitoring of blood level and dosing adjustment of aminosides and glycopeptides	14.6	4.2	3.4	**7.6**
5. CAP: empiric therapy according to national guidelines	15.6	4.3	3.3	**7.6**
6. CAP: 2 sets of blood cultures before first AB dose/within first 24 h	13.5	4.2	3.4	**7.6**
7. CAP: sputum sample for Gram stain & culture	13.8	4.0	3.5	**7.5**
8. HAP/VAP: quantitative culture of LRTI secretions performed prior to AB therapy	14.7	4.0	3.5	**7.5**
9. CAP: adapt AB dose to renal function	13.7	4.0	3.3	**7.3**
10. HAP/VAP: AB therapy selected based on MDR risk factors and local microbial epidemiology	16.1	4.3	3.0	**7.3**

Operational definition of indicators

- Definition of numerator
- Definition of denominator/inclusion & exclusion criteria
- Stratification factors/categories for case-mix analysis
- Data source: screening for cases, care evaluation
- Observer(s) qualification
- Precision, sample size
- Quality target/ practice “benchmark”
- Link to Quality Improvement intervention programme

QI Feasibility Study: parameters and pass level

• Data accessibility (ITT)	→ Completeness ≥ 80%
• Data collection workload	→ Hours/case collection
• Indicator reliability	→ Inter-observer κ >0.6 (25 % sub-sample)
• Potential for improvement	→ "Quality gap" > 30%
• Case-mix stability	→ QI association with age, sex, severity of illness,…

Conclusions : EU Projects Perspectives on Quality Indicators for Hospital Antibiotic Use

- *ABS International:*
  - 2007: expert consensus structural and outcome indicators
  - 2008: feasibility study & validation of process QIs in 8 hospitals
  - 2008: validated process QIs for surgical prophylaxis and hospital management of common infection

- *ESAC :*
  - 2006: pilot Point Prevalence Survey in 20 hospitals
  - 2008-09: 2nd/3rd extended PPS in more hospitals
  - Dec; 2009: expert consensus report on QIs