UCL Séminaire de Pathologie Infectieuse

Jeudi 29 avril 2004 à 12h30 Cliniques Universitaires Sain-Luc, Bruxelles

La recherche de la qualité en maladies infectieuses

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The Quest for Quality in the Hospital Infectious Diseases Management

UCL 29.04.2004

The question is :



• How to adapt the concept of quality in the field of the Infectious Diseases (ID), how to implemented it in the real life and what are the way for a good evaluation.

What means quality ?

for the patient ...

- Efficacity
- No adverse event
- Low cost

Fast, safe and « broad » antibiotherapies ?

What means quality ?

for the patient ...

for the community ...

- Efficacity
- No adverse event
- Low cost

- No transmission
- No resistance
- Low cost

Fast, safe and « broad » antibiotherapies ?

Less and « narrow » antibiotherapies ?

Paterson DL and Rice LB,

Empirical antibiotics choice for the seriously ill patient: are <u>minimization of selection of</u> <u>resistance organisms</u> and <u>maximization of</u> <u>individual outcome</u> mutually exclusive ? CID 2003;36:1006-12

Bantar C et al.

A hospital intervention program to optimize the quality of antibiotic use: impact on <u>prescribing</u> <u>practice</u>, <u>antibiotic consumption</u>, <u>cost savings</u> and <u>bacterial resistance</u>

CID 2003;37:180-6





The role of the Infection Control Committee will be scotomised.



What is bad? What is good?

• Excessive use

• Unnecessary use

- Rationnal use
- Prudent use

Unnecessary use of antimicrobial in hospitalized patients (Hecker, Arch Intern Med 2003;163:972-8)

- *Treatment* > *prophylaxis* (27% > 14%)
- Internal medecine > surgery/obst. (32%>10%)

Unnecessary use of antimicrobial in hospitalized patients (Hecker, Arch Intern Med 2003;163:972-8)

- *Treatment* > *prophylaxis* (27% > 14%)
- Internal medecine > surgery/obst. (32%>10%)
- Longer than required (33 %)
- For non infectious reasons (32-36 %)
- For colonization or contamination (16-12%)
- Redundant coverage (10-9%)
- Unnecessary spectrum (4-5%)

Unnecessary anti-anaerobic coverage

- Augmentin*
- Piperacilline-tazob.
- Amoxycillin, C2
- C3, C4,
- Aztreonam, Temocilline

• Moxifloxacine

• Levofloxacine

Where is way toward « Qualityland »?



Guidelines

« The originator of guidelines is difficult to determine. I used to believe that it was Moses an his Ten Commandments, a set of rules that have not achieved full implementation »

Peter A. Gross CID 1998;26:1037-41

Guidelines

- Search is often unsuccessful
 Adapt needs local parameters
 Set up requires agreement
 Evaluate takes time
- Improve

calls for collaborations

- NEJM : 63 articles / 9 « guidelines »
- Cochrane :
 - 55 « topics » (malaria, parasitoses, vaccination, MRSA, shok, meningitis, tuberculosis, diarrhea, HIV)
 - UTI : 5 articles

• CID/IDSA : 13 topics (+HIV)

- Catheter infections
- Cystitis and pyelonephritis
- Diarrhea
- Fever in ICU, oncological patients and long termes facilities
- Fungal infections
- Hepatitis C
- Lyme
- Pneumonia, Streptococcal pharyngitis, tuberculosis

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Natwani D et al., Do guidelines for CAP improve the Cost-effectiveness of Hospital Care ? CID 2001;32:728-41

There is good evidence that following the recommandations of the CAP guidelines does improve the cost-effectiveness of care and, therefor, that an audit of CAP may be worth the effort.

Use of indicators to evaluate the quality of CAP Management Nathwani D et al. CID 2002;34:318-23

Bivariate analysis of risk of death			
	Relative risk	Confidence Interval	
Severity	6.17	3.11-12.24	
Within protocol	0.58	0.34-1.00	
Multivariate analysis of risk of death or readmission			
	Logistic regression coeficient	P value	
Severity	3.617	0.004	
Within protocol	1.699	0.154	

Why don't physicians follow guidelines ? Cabana, JAMA 1999;282:1458-65.

- Lack of awareness or familiarity
- Lack of agreement, of self efficacy, of outcome expectancy
 - Different interpretation of evidence
 - Not convinced by the risks/benefits analyses
 - Not applicable to the concerned population or to the patient
 - « cookbook »
 - Psychological reasons
 - Uncredibiliy of the authors
- External barriers



Some tools...(or weapons)



- Conferences and seminars...
- Booklets and formularies ...
- Restriction of drug
- The Web
- The ID specialist

Impact of formal Continuing Medical Education

Do Conferences, Workshops, Rounds and other <u>traditional</u> Continuing Education Activities change physician behavior or health care outcomes ? Davis D et al. JAMA 1999;282:867-74



Impact of formal Continuing Medical Education

... didactic sessions <u>do not</u> <u>appear to be effective</u> in changing physician performance.



Impact of formal Continuing Medical Education

- ... didactic sessions <u>do not</u> <u>appear to be effective</u> in changing physician performance.
- ... show some evidence that ... CME sessions that enhance <u>participant activity</u> and provide the opportunity to <u>practices skills</u> can effect change in ...practice and, on occasion, health care outcomes.



Formularies, Order forms and any kinds of restriction



• Restrictive lists

- Must be accepted
- Which kind of objective
- Translation of precription and focalized pressure
- Rotation policy
 - Usally only one rotation is published
 - Difficult to implement

• Communication with the lab'

- Requires time and who does it ?
- Not (well) investigated
- Probably a good thing

Booklets

- UTI/URI : 51% drug, 43% posology, 10% lengt (Ricai 1998)
- Towards PC-help !

• Order forms

- Must be accepted
- Change / parenteral to enteral administration
- And the contrôle is ..

« Stop order »





• A 61-year old male factory worker with a history of chronic obstructive pulmonary disease presents with fever and increase in coughing and sputum production in the past 24 hours. He appears somewhat ill and febrile, with rales in the right lower lung field.



Is the Web useful for the management of this patient ?

Schmitt SK and Mehta N, Systematic reviews of infectious diseases. CID 2002;34:1515-23

Question	Key words	www	Answers		
Increased risk for pneumonia	Pneumonia and COPD	⇒ Mandell	Yes		
RX ? Hospital ? Microbiology ?	Pneumonia	IDSA ATS Medline	<u>Rx?</u> yes yes	Hospital ? yes yes	<u>Microb ?</u> yes no
Antimicrobial ?	Pneumonia	IDSA	FQ or (Macr.+ B lactam)		
Resistance ?	<i>S. pneumoniae</i> Resistance	CDC	13 % Pen R 20 % Erythr R 3 % C3 R		

• Empirical treatment is initiated with azithromycine (macrolide) and Ceftriaxone (b lactam) but the patient worsens clinically after receiving only single doses of these agents. A second chest radiograph shows new infiltrates.



Question	Key words	www	Answers
Any peculiar outbreak ?	e-mail	Emerging Infections Network	Yes : Legionella
Which test ?	Legionella Diagnosis	Ovid medline ⇒ NEJM	Urinary antigen
FQ or macr for Legionellosis ?	Legionella + Quinolone + macrolide +	Ovide medline	In vitro Animal models
	Pneumonia + Quinolone + macrolide +	Ovide medline	Some patients in prospectives trials
		Clinical evidence	New is no better than old agents

Azithromycin treatment is continued and the patient slowly recovers

• How much « clics » ?

Wouldn't an ID's specialist work better (and faster) for the management of such a patient ?

Petrak RM et al.

The value of an infectious diseases specialist. CID 2003;36:1013-7.

A global overview

Year	Author	Observations
1986-99	5 studies	Description of activities
1991	Wilkins	Correction of <i>bad</i> diagnosis: 7 %
		bad treatment: 41 %
1997	Classen	Longer stays and higher costs !
2001	Yinnon	Modification of treatment : 46 %

Some positive points for the ID sp.

1996	Kitahata	HIV
1997	Elhanan	UTI
1998	Fowler	S. Aureus endocarditis
		(mainly by recommandations)
2001	Lobati	« Bone salvage »
2001	Eron	« Early and better » discharge

Moving

- from bedside directive care or consultation
- to help for the collectivities.



Advices	6 studies	Reduced morbidity, mortality and costs (including Byl, 1999, Bacteremia)
Infection control	None (?) study	Most ID <i>sp</i> . do it Only 26% are payed for
Educational tasks	None (?) study	Managing the guidelines
Antibiotic's	Fox 2001	ICU
regulation	White 1997	Prior autorisation
	McGowan 1976	Monitoring of use
	Briceland 1988	From bi- to monotherapy
	Quintiliani	From broad to reduced spectrum
	Ehrenkranz 1992	Pulmonary infections

Some pitfalls of these kind of studies...

- The rules are choosen by the authors
- The « infectiologist » is among the authors
- The « evaluator » is among the authors

- No randomization
- Poor definition of most criteria

Evaluating

- The outcomes
- The situations
- The tools

Quality control :

- Study of errors
 - Procedure to recognize errors
 - Procedure to minimize (or correct) errors
 - Involvment of each participants
 - Involvment of a supervisor insite the team
 - Needs the « working together » principle.

<u>Quality assurance</u> :

- A dynamic and ongoing process of monitoring system that permits corrective action when established criteria are not met.
- It includes
 - Quality control procedures
 - Procedure for methods selection
 - Methods evaluation
 - Preventive maintenance
 - In-service training
 - Activities management

But the objectives remain outside the process !

What about ISO 9000?

- Iso 9000 adress the « management of the quality » about two topics :
 - The assurance of the satifaction of the client
 - The assurance of the respect of all reglementations

The need for an integrated process.

- Precontemplation

- Awareness of multi resistant strains or immunocompromised patients
- Contemplation

Discussion of epidemiology and antibiotics use

– Preparation

> Seminars, brainstorming, bedside discussions

– Action

> Stop orders, formularies, bedside consultations, guidelines

– Maintenance

> Evaluation, adaptation of guidelines and formularies.

Evaluation ...

- Internal or external audit ?
- What is the gold standard ?

• Unsuitability of the « blinded randomised trial »









 The classical « double blind randomized study » (including a placebo ?)

• A dynamic process

The Heisenberg's principle

VAP : CIPS ≤ 6 (adapted from Pugin)

Singh N., AJRCCM, 2000

- Ciprofloxacin for 3 days
- Day 3:
 - CIPS > 6 : adapt and continue
 - $CIPS \le 6 : stop$ ciprofloxacine

Standard Care (10-21 jours)

Stop or continue / Standard care

CPIS $D_3 > 6$	21 %	23 %
ATB > 3 D	18 %	97 %
R /Superinfections	14 %	38 %
ICU stay mean/median	9.4 d /4 d	14.7 d / 9 d
Mortality D14/D30	8 % / 13 %	21 % / 31 %

Stop or continue / Standard care

CPIS _{D3} >6	21 %	23 %
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But ... « during the trial, some patients randomized as standard care benefit (?) of the rules applied in the other arm »

An interim conclusion :

- 1. Define clearly your objective(s)
- 2. Be aware of the weakness of parameters
- 3. Waist no time
- 4. Go into a dynamic process

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- 1. Define clearly your objective(s)
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- 5. One tool is ineffective; coordinated action is best
- 6. You are not alone

Du plaisir solitaire ... à l'activité de groupe

JC Legrand

Clinique des Maladies Infectieuses CHU Charleroi Janvier 2003 Strulens MJ, Multidisciplinary antimicrobal management teams: the way forward to control antimicrobial resistance in hospitals Current opinion in Infectious Diseases 2003;16:305-7



• A microbiologist

- Classical « microbiological » tasks
- Monitorisation of resistance
- Implementation of tools for epidemiological tests
- Counselling for the antibiotic policy committee
- A (clinical) ID specialist
 - Definition of appropriate use of antibiotics
 - Bedside decisions and recommandations
 - Promoting optimal use of laboratory tests
 - Education and evaluation of implementations of guidelines
- The hospital epidemiologist
- A pharmacist

- A microbiologist
- A (clinical) ID specialist
- The hospital epidemiologist
 - Control of transmission of resistance strains
 - Participation in educational programs
- A pharmacist
 - Optimal distribution of drugs
 - Monitoring of prescriptions patterns
 - Councelling in the field of pharmacokinetic
 - Regulation of oders
 - Audit of respect of guidelines

Strulens, MJ, Multidisciplinary antimicrobal management teams: the way forward to control antimicrobial resistance inhospitals Current opinion in Infectious Diseases 2003;16:305-7



- Coordination between all actors
- Formulary-based local guidelines
- Education and regulation of prescriptions by consultant spécialists
- Monitore and audit drug use
- Dissemination of information on local resistance
- and... hospital infection control

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Toward the quality : more efficacity and loss toxicity



- Coordination between all actors
- Formulary-based local guidelines
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- and... hospital infection control

And who will evaluate the GGA ???

(and according to which criteria ?)

... no matter who is the leader



toward a real team ...



Things change ...





Acknowledgement

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