



From antibiotic therapy to peri-surgical antibiotic prophylaxis : measures and interventions to influence antibiotic use and consumption

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EAHP Academy Seminar 2 « ABS for beginners »

29 September 2017, Wien, Austria



No conflict of interest

Questions to the audience

- Which broad spectrum ATB provide AMR ?
 1. Amoxicillin-clavulanate
 2. 3rd generation cephalosporines
 3. Fluoroquinolones
 4. Carbapenems
- Who are the leading actors in AMS ?
 1. Infectious diseases specialits ?
 2. Microbiologists ?
 3. Pharmacists ?
- How many time spend peri-surgical antibiotic prophylaxis ?
 1. 2 to 4 hours (duration of the intervention) ?
 2. 24h ?
 3. 3 to 5 days ?

Outline and plan

- Antimicrobial Resistance in France
- How are pharmacists involved in AMS in our hospital ?
- And in our region ?
- Conclusion and perspectives



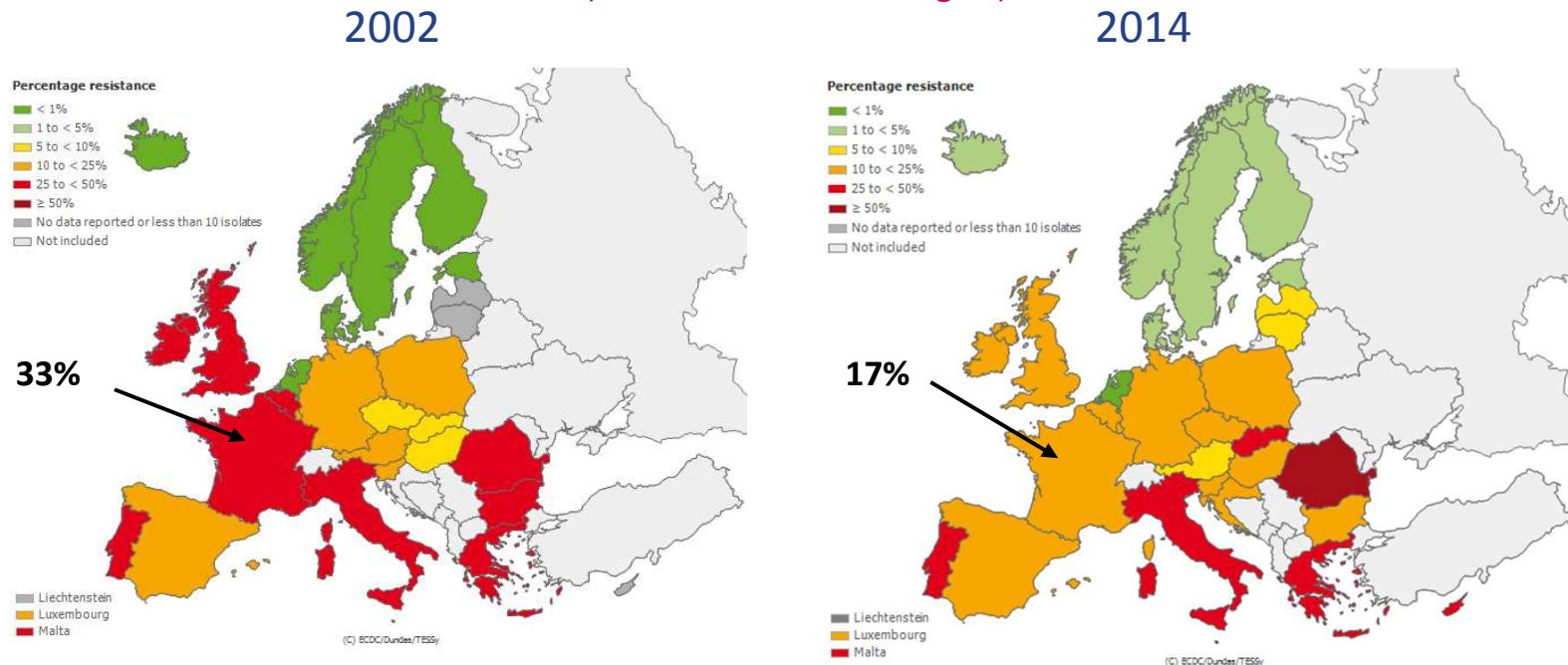
WORLD ANTIBIOTIC
AWARENESS WEEK
14-20 NOVEMBER 2016



Journée Européenne
d'Information
sur les Antibiotiques
Une initiative européenne en matière de santé

Antimicrobial resistance in France

Methicillin-resistant *Staphylococcus aureus* (MRSA) isolated from invasive infections
(bacteremia and meningitis)



ECDC. Surveillance atlas of infectious diseases. Available at: <http://atlas.ecdc.europa.eu/public/index.aspx>. Accessed March 2017.



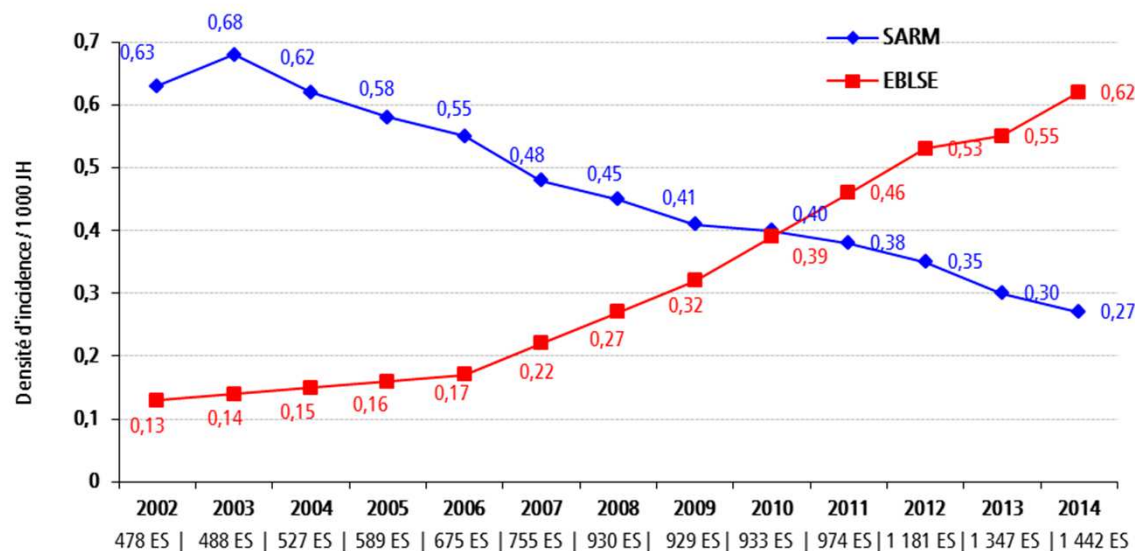
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Antimicrobial resistance in France

Evolution of the incidence of MRSA and ESB� Enterobacteriaceae in French hospitals (BMR-Raisin data)



ESBL, extended-spectrum betalactamase; MRSA, methicillin-resistant Staphylococcus aureus.

Rapport BMR-Raisin. Surveillance nationale des bactéries multirésistantes dans les établissements de santé: réseau BMR-Raisin. Available at:

<http://invs.santepubliquefrance.fr//bmr-raisin>. Accessed March 2017.



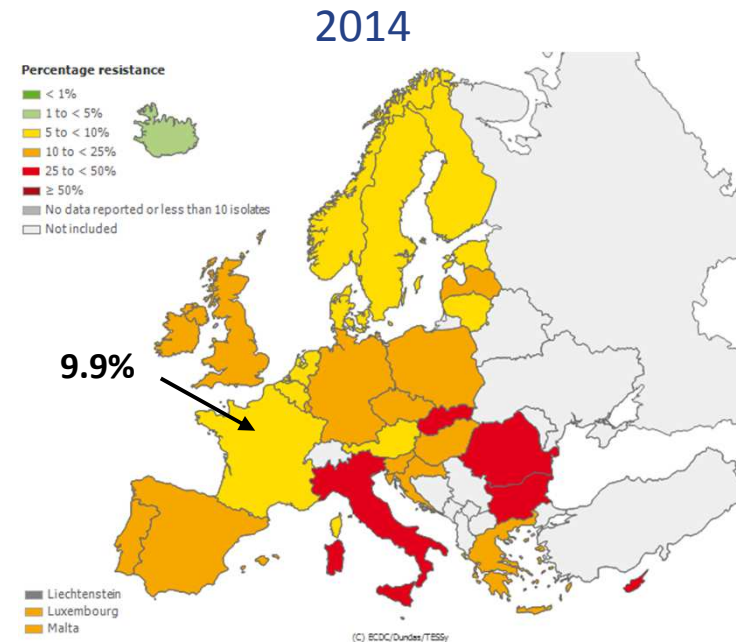
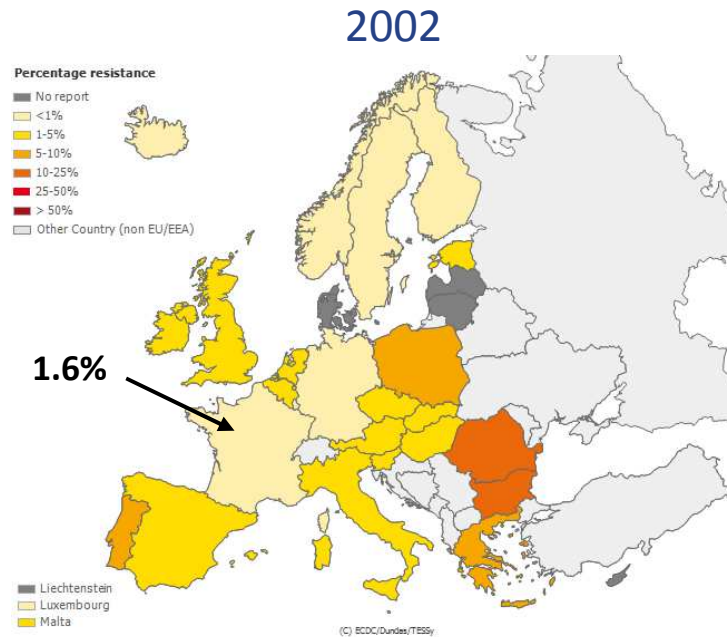
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Journée Européenne
d'Information
sur les Antibiotiques
Une initiative européenne en matière de santé

Antimicrobial resistance in France

Resistance of *E. coli* to 3rd generation cephalosporins



ECDC. Surveillance atlas of infectious diseases. Available at: <http://atlas.ecdc.europa.eu/public/index.aspx>. Accessed March 2017.



WORLD ANTIBIOTIC
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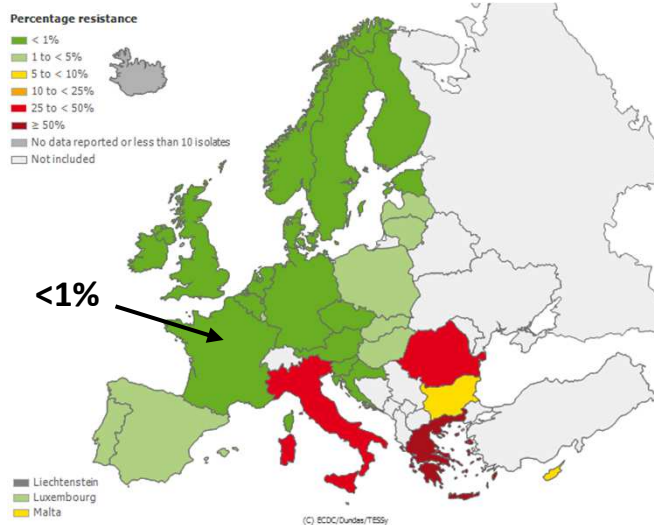


Journée Européenne
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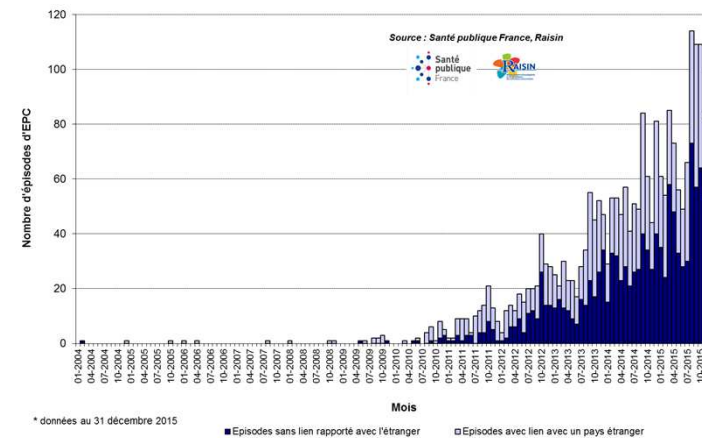
Antimicrobial resistance in France

Carbapenem-resistant Enterobacteriaceae

% of isolates of *K. pneumoniae* resistant to carbapenems, 2014



Episodes with Carbapenemase-producing Enterobacteriaceae (CPE) in France from 2004 to 2015



- 2385 episodes with CPE from 2004 (report 31.12.2015)
- Strong increase in episodes reported during the summer of 2015

CPE, Carbapenemase-producing Enterobacteriaceae.

ECDC. Surveillance atlas of infectious diseases. Available at: <http://atlas.ecdc.europa.eu/public/index.aspx>. Accessed March 2017; InVS, signalement des infections nosocomiales. Available at: <http://invs.santepubliquefrance.fr//epc>. Accessed March 2017.

FL1



National context in France

- National Medicare Campaigns since 2002
- 2016 Interdepartmental Committee for Health targeted on AMR
- Limit prescribing of broad-spectrum antibiotics providing resistance :
 - Amoxicillin-clavulanate
 - 3rd generation cephalosporines
 - Fluoroquinolones
 - Carbapenems



ansm
Agence nationale de sécurité du médicament
et des produits de santé

Rapport



Diapositive 9

FL1

Florence Lieutier; 13/09/2017

In this context how are pharmacists involved in AMS ?

Responsibilities of pharmacists

- Promoting optimal uses of antimicrobial agents
 - Encouraging multidisciplinary collaboration
 - Working within the pharmacy and therapeutics committee structure
 - Operating a multidisciplinary AMS program
 - Generating and analysing quantitative data on antimicrobial drug use to perform clinical and economic outcome analyses
 - Working with the microbiology laboratory
 - Using information technology to enhance AMS through surveillance, utilization and outcome reporting, and the development of clinical decision-support tools
 - Facilitating safe medication management practices of antimicrobial agents
- Reducing the transmission of infections
- Educational activities

ASHP Statement on the Pharmacist's Role in Antimicrobial Stewardship and Infection Prevention and Control

DEVELOPED THROUGH THE ASHP COUNCIL ON PHARMACY PRACTICE AND APPROVED BY THE ASHP BOARD OF DIRECTORS ON APRIL 17, 2009, AND BY THE ASHP HOUSE OF DELEGATES ON JUNE 16, 2009

Am J Health-Syst Pharm. 2010; 67:575-7

How are pharmacists involved in AMS in our hospital ?

Our antimicrobial stewardship since 2005

Our daily interactions



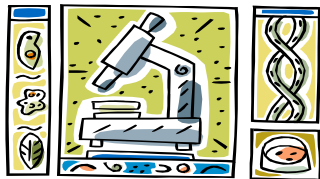
Pharmacist

- Assess the prescription according to the indication, microbiological data...
- Alert the Infectious diseases specialist for targeted antibiotics and in other cases if necessary

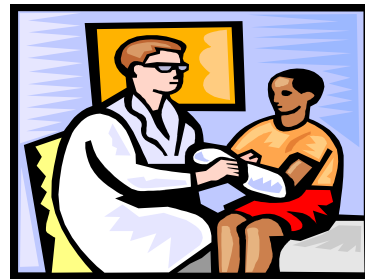


Microbiologist

- Microbiological documentation
- Expert advices



Physician / Patient



Pharmacologist

- TDM (Therapeutic Drug Monitoring)
- Expert advices



Infectious Disease specialist

- Answers to the clinicians' requests
- Advice for targeted antibiotics
- Ward rounds



Infection preventionist or Hospital epidemiologist



Our antimicrobial stewardship since 2005

Our daily tools in 2017

Infectious Disease specialist

- Replying to clinicians' requests
- Advice for targeted antibiotics
- Ward rounds



- About 2000 drawn opinions from experts per year in the computerized patient file since 2008

Pharmacist

- Nominative prescription for all antibiotics (ATB), **in violet** for ATB, **in red** for targeted ATB
- Assess the prescription according to the indication, microbiological data...
- Alert the Infectious diseases specialist for targeted antibiotics and in other cases if necessary



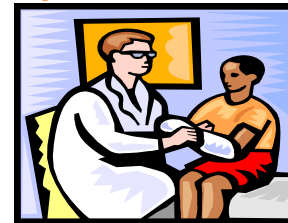
Pharmacies Archet, Pasteur et St Roch

A destination des microbiologistes, des infectiologues itinérants et des hygiénistes
CHU de Nice

Récapitulatif des alertes Antibiotiques ciblées à réévaluer
Date : 11/05/2017

Nom	Prénom	UF	Molécule 1	Molécule 2	Molécule 3	Réévalué	Date	Intervenant OAB:
DENISE	2030		CEFEPIME 2 G FL INJ					
JACQUELINE	7620		IMPENEM CLASSTATINE 500					
JEAN	5983		IPERACILLINE TAZOBACTA					
JEAN PAUL	2030		INDANE 1G SOLI	AMIKACINE 500 MG FLAC 1				
RETA	7241		IPERACILLINE TAZOBACTA					
ANNE MARIE	7241		IMPENEM CLASSTATINE 500	VANCOMYCINE 1 G FL INJ				
CHRISTIAN	7204		IMPENEM CLASSTATINE 500	ZYVOXID 2MG/ML SOL POU				
ROBERT	7200		ZYVOXID 2MG/ML SOL POU	AUGMENTIN 55/300MG FL				
FLORIAN	7431		IMPENEM CLASSTATINE 500	ZYVOXID 2MG/ML SOL POU				
ALAIN	7931		CEFEPIME 2 G FL INJ	METRONIDAZOLE 0.5% ECO				
PIERRE	2230		IMPENEM CLASSTATINE 500	AMIKACINE 500 MG FLAC 1				

Physician / Patient



• PARACETAMOL 1G /100ML ...	1 g Nuit 00h, 1 g Matin, 1 g AM 16h	3 g, tous les jours (en 3 fois) Volume total :
• AUGMENTIN 1G/200MG ...	1 g Nuit 00h, 1 g Matin, 1 g AM 16h	3 g, tous les jours (en 3 fois) Volume total :
• ZYVOXID 600MG/300M...	600 mg Matin, 600 mg Soir 20h	1200 mg, tous les jours (en 2 fois) Volume total :

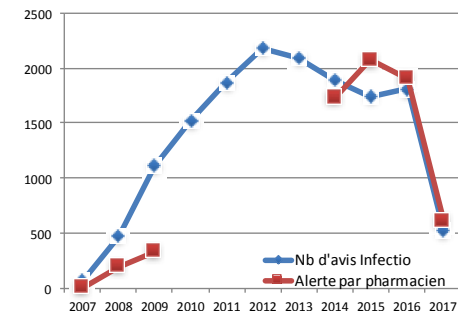
Microbiologist



Pharmacologist



Infection preventionist or Hospital epidemiologist



In this context how are pharmacists involved in AMS in our hospital ?



- Since February 2016, systematic clinical pharmacist intervention in the ICU at University Hospital Nice
 - 536 interventions from February 2016 to February 2017
 - 165 interventions on antimicrobial prescriptions (inadequation to protocols, drugs interactions, parenteral to oral switch, optimisation of the dose or of the administration modalities, need of therapeutic drug monitoring)
 - 95.8% of the pharmacists' interventions were accepted by the prescribers.

Our multidisciplinary experience in the South East of France: an effective AMS initiative involving pharmacists since 2005



Disponible en ligne sur
SciVerse ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

Médecine et
maladies infectieuses

Médecine et maladies infectieuses 43 (2013) 17–21

Original article

An antibiotic stewardship program in a French teaching hospital[☆]

Bilan d'un programme de bon usage des antibiotiques dans un CHU français

V. Mondain^a, F. Lieutier^b, S. Dumas^b, A. Gaudart^c, T. Fosse^{c,d}, P.-M. Roger^{a,d},
E. Bernard^a, R. Farhad^a, C. Pulcini^{a,*}

[☆] Service d'infectiologie, hôpital l'Archevêque, centre hospitalier universitaire de Nice, 151, route Saint-Antoine-de-Ginestière, BP 3079, 06202 Nice cedex 3, France

^b Service de pharmacie, centre hospitalier universitaire de Nice, 06202 Nice, France

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Received 9 April 2012; received in revised form 24 September 2012; accepted 31 October 2012
Available online 12 December 2012

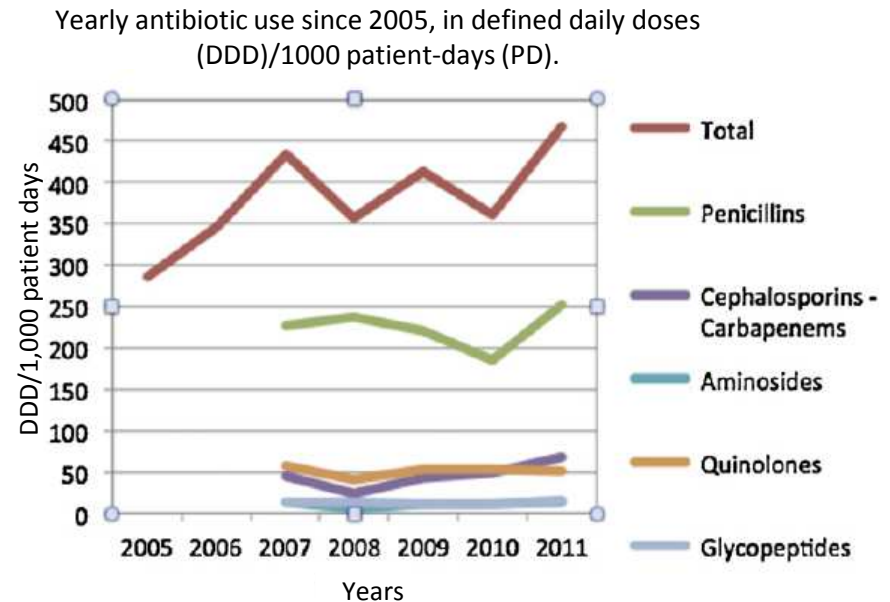
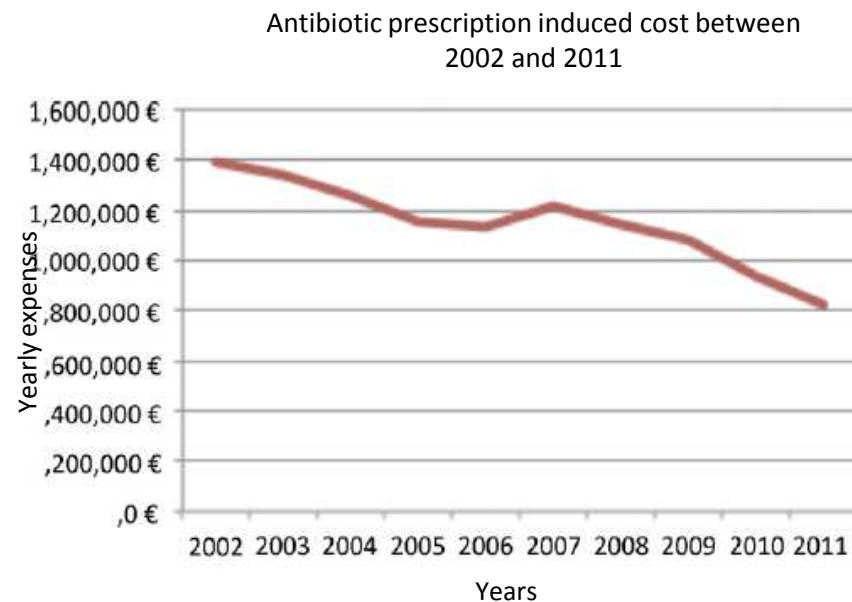
Role of the pharmacist

- Assessing ATB prescriptions, regarding microbiological data and eventual organ dysfunctions
- Alerting the ID specialist and other actors for targeted ATB and if necessary
- Specific form filled out by AMT members, visible by all physicians on the patient's electronic medical record
- Participating in the development of electronic prescriptions of drugs
- Monitoring ATB consumptions regarding to the AMR in each unit of the hospital
- Participating to audits and feedback to prescribers, to prescribers training, to biyearly journal sent by mail on various themes of infectious diseases...

AMR, antimicrobial resistance; AMS, antimicrobial stewardship; AMT, antibiotic management team; ATB, antibiotic; ID, infectious disease.

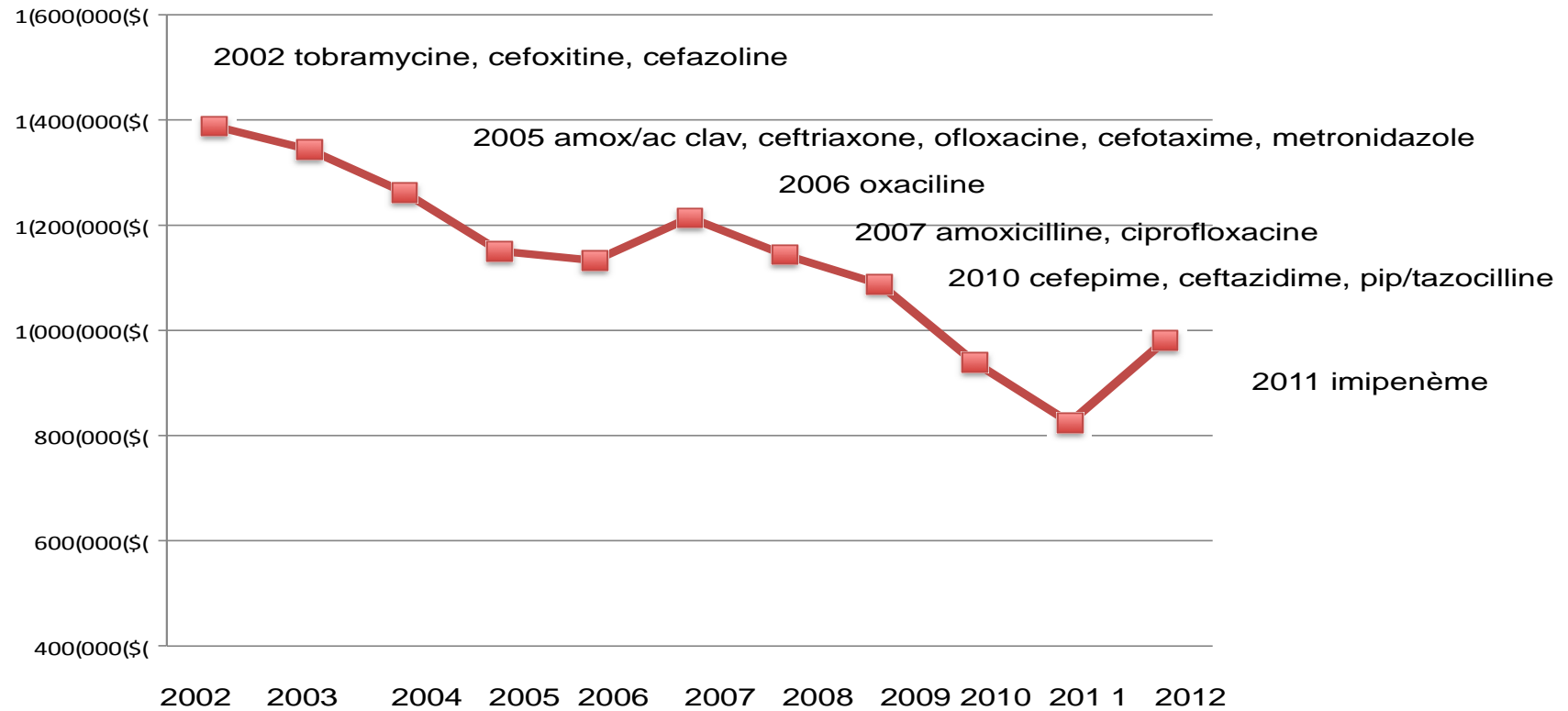
Mondain V, et al. *Med Malad Infect* 2013;43:17–21.

Our experience in the South East of France: an effective AMS initiative involving pharmacists since 2005. Results.



AMS, antimicrobial stewardship; DDD, daily defined dose.
Mondain V, et al. *Med Malad Infect* 2013;43:17-21.

Antibiotic prescription induced cost between 2002 and 2012 in the UH of Nice (in euros).



The decrease in cost corresponds to the availability of generics...

Antibiotic consumptions and bacterial resistances

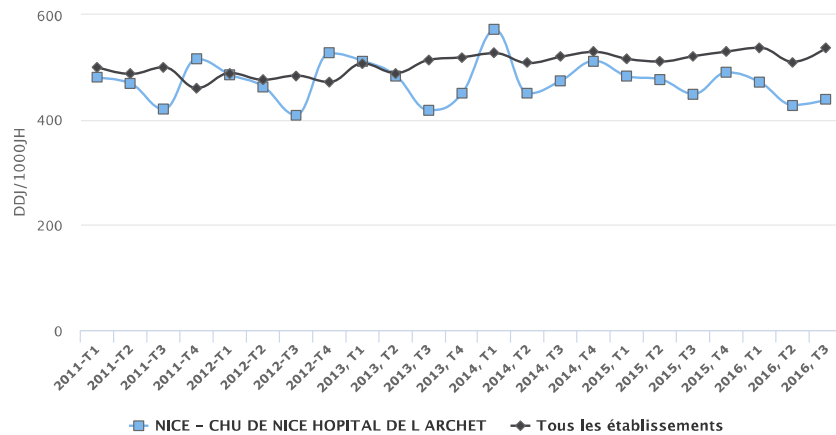
- A new tool : a National software CONSORES developed by the UH of Nancy, France
- A French National website to compare our data
- Objective ? To follow simultaneously ATB consumptions (in DDD per day of hospitalization) and AMR in each medical unit of our hospital
- When ? Analysis by quarter or by year



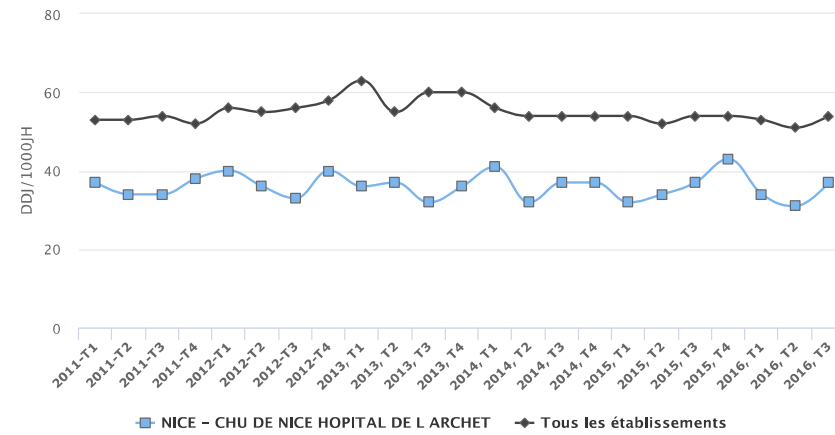


AMS initiative in Nice involving pharmacists: ATB consumptions from 2011–2016

Total ATB consumptions in CHU Nice vs 22 other CHU



3GC in CHU Nice vs 22 other CHU



CONSOIRES : UN OUTIL POUR AIDER L'INFECTIOLOGUE TRANSVERSAL



S. Boussat ¹, S. Hénard ², B. Demore ³, C. Rabaud ^{1,2}

(1) CClin-Est, CHU de Nancy ; (2) Service des Maladies Infectieuses, CHU de Nancy ; (3) Pharmacie hospitalière, CHU de Nancy

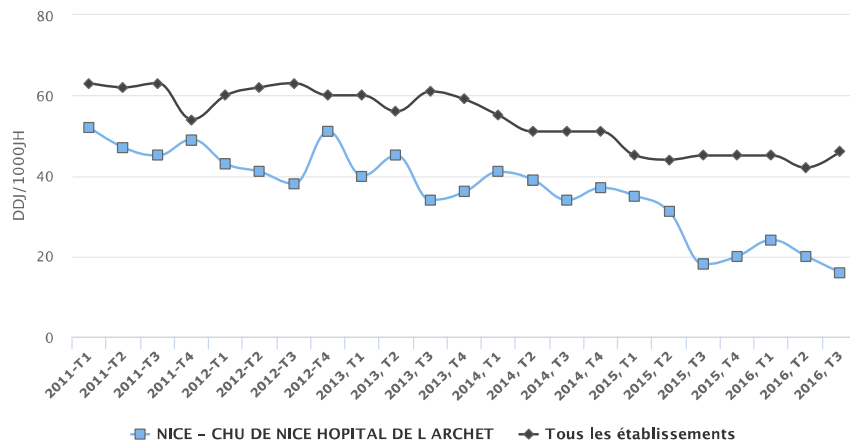
3GC, 3rd generation cephalosporins; AMS, antimicrobial stewardship; ATB, antibiotic; CHU, Centre Hospitalier Universitaire.

Data from the French national website. Available at: www.consores.net. Accessed March 2017.

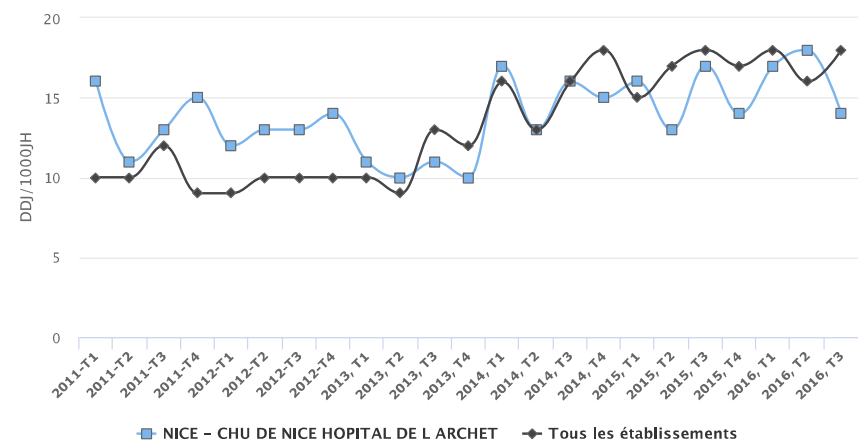


AMS initiative in Nice involving pharmacists: ATB consumptions from 2011–2016

Quinolones in CHU Nice vs 22 other CHU



Carbapenems in CHU Nice vs 22 other CHU

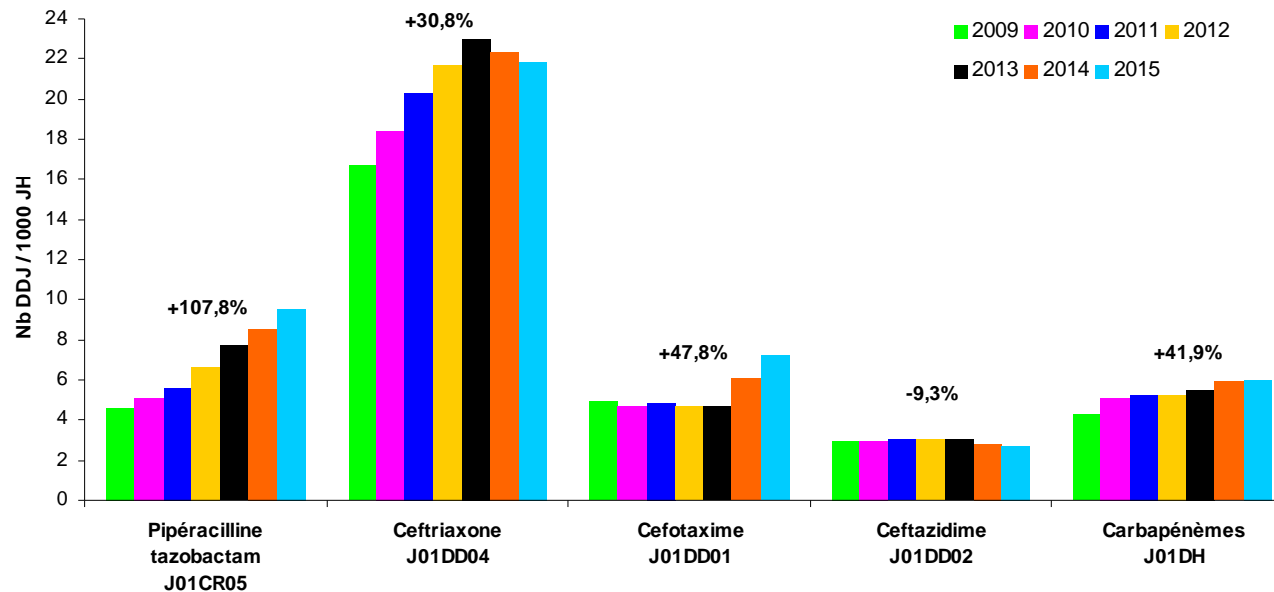


Highcharts.com

AMS, antimicrobial stewardship; ATB, antibiotic; CHU, Centre Hospitalier Universitaire.
Data from the French national website. Available at: www.consores.net. Accessed March 2017.

Antibiotic consumption in French hospitals 2009–2015

Evolution of beta-lactam consumption in DDD/1000 HD between 2009 and 2015
(N=542 hospitals)



HD, inhabitant days.

Réseau de surveillance ATB Raisin. Données préliminaires 2015. Available at: <http://invs.santepubliquefrance.fr/raisin/>. Accessed March 2017.

In this context how are pharmacists involved in AMS in our hospital ?

Perisurgical antibiotic prophylaxis



**Antibioprophylaxie en chirurgie et médecine interventionnelle.
(patients adultes)
Actualisation 2010**

Comité de pilotage Société française d'anesthésie et de réanimation

C. Martin (coordonnateur)

C. Auboyer
H. Dupont
R. Ganzit
M. Kitzis
A. Lepape
O. Mimoz
P. Montravers
J.L. Pourriat

Avec la collaboration des sociétés savantes suivantes

Société française des chirurgiens esthétiques plasticiens
H. Delmar

Société française de chirurgie orthopédique et traumatologique
L. Sedel
A. Lortat-Jacob
H. Bonfait

Société française de neurochirurgie
P. Cornu
P.H. Roche

Société française et francophone de chirurgie de l'obésité
J. Mouiel
J.M. Zimmermann

Société française de stomatologie et de chirurgie maxillo-faciale
J.F. Chassagne

Société française d'hygiène hospitalière
J. Hajjar

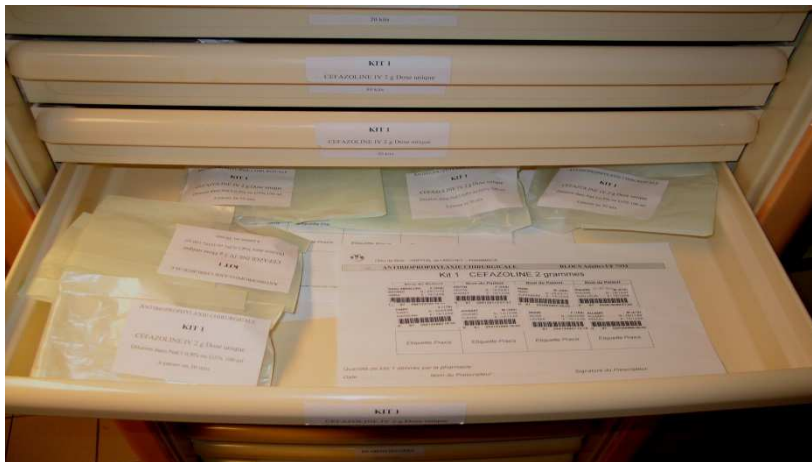
Principles and context

- PSAP important to prevent infections related to surgical site
- The good ATB for the good surgical intervention at the good time (30 minutes before incision)
- Just during the surgical intervention
- According to recommandations and protocols
- PSAP recorded in the patient medical file

PSAP perisurgical antibioprophylaxis,

Kits for perisurgical ATB prophylaxis

In practice since 2005 in the operating rooms in the hospital site Archet in Nice



*Kits by indication of surgical intervention
According to the up-dated recommendations*

- Kit number*
- Composition : antibiotic and dosage*
- One dose or reinjection*
- To dilute in 100 ml of NaCl 0,9% or G5%*
- To pass in 30 minutes*

*Operational organization since 2005, extended progressively to all surgical rooms of the University Hospital of Nice in 2008, 2014, and 2015 ☺
Good collaboration between anesthesiologists and pharmacists !*

Kits for perisurgical ATB prophylaxis

BEFORE kits

- . 26 different antibiotics
- . Stock for one month
- . Multiple storage locations

AMIKACINE
OXACILLINE
TICARCILLINE
CEFTAZIDIME
CEFTRIAZONE
CEFOTAXIME
VANCOMYCINE
PIPERACILLINE + TAZOBACTAM
OFLOXACINE
RIFAMPICINE
AMOXICILLINE + ACIDE CLAVULANIQUE
GENTAMYCINE
AMOXICILLINE
IMIPENEM + CILASTATINE
METRONIDAZOLE
CEFAZOLINE
CEFOXITINE
CLINDAMYCINE
CIPROFLOXACINE
PIPERACILLINE
FOSFOMYCINE
LEVOFLOXACINE
CEFAMANDOL
CEFUROXIME
TEICoplanine
COTRIMOXAZOLE

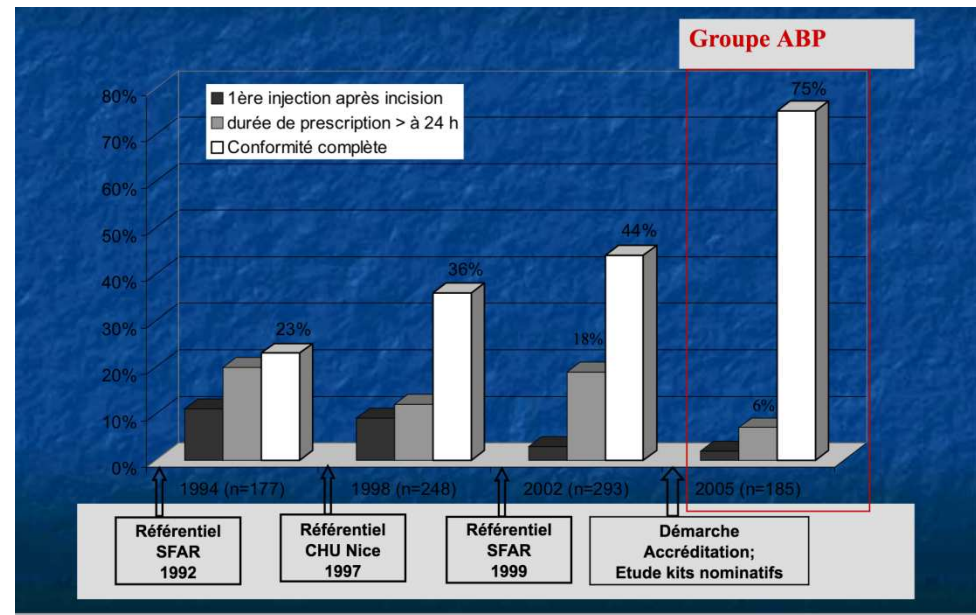
AFTER kits

- . 14 antibiotics
- . Stock for one week
- . One storage location

VANCOMYCINE
PIPERACILLINE + TAZOBACTAM
OFLOXACINE
RIFAMPICINE
AMOXICILLINE + ACIDE CLAVULANIQUE
GENTAMYCINE
AMOXICILLINE
IMIPENEM + CILASTATINE
METRONIDAZOLE
CEFAZOLINE
CEFOXITINE
CLINDAMYCINE
CIPROFLOXACINE
PIPERACILLINE

Impact of our PSAP organisation

- 4 audits performed on PSAP since 1992 on
 - First injection after incision, less and less frequent
 - Duration of prescription > 24h
 - Global conformity
- Global conformity better and better, from 23% in 1994 to 75% with PSAP kits in 2005



Impact of our PSAP organisation

- Better compliance with recommendations evaluated by repeated audits
- Traceability of PSAP in the patient file
- Perennial organisation since 2005
- Actualized according to last recommendations
- Good collaboration between anesthesists, pharmacists and nurses

How are pharmacists involved in AMS in our region ?

2014 Creation of a regional pharmacists' network to promote good use of ATB

- Sharing of tools (aminosides administration protocols, list of targeted ATB...)
- Generation and analysis regional quantitative data on antimicrobial drug use
- Regional audits on carbapenems use
- Coordination of the writing of the regional Infectious Disease newspaper
- ...

AMS, antimicrobial stewardship; ATB, antibiotics.

Poster BU 01 16^e Journées Nationales d'Infectiologie, juin 2015

Mise en place d'un groupe de travail pharmaciens au sein d'un réseau régional d'infectiologie : harmonisation des pratiques et bon usage des antibiotiques

Contexte

Notre réseau régional d'infectiologie, Reso Infectio PACA-Est, permet une collaboration pluridisciplinaire dynamique partagée entre les différents établissements de santé publics, privés et laboratoires d'analyses médicales impliqués.

Afin de promouvoir et renforcer la politique régionale du bon usage des antibiotiques, un groupe de travail (GT) pharmaciens a récemment été créé. Il travaille sur des thématiques de pharmacie hospitalière et permet de mutualiser et uniformiser nos pratiques.

Le GT est constitué depuis octobre 2014 et travaille en lien étroit avec les autres professionnels.

Pour chaque thème choisi de manière consensuelle, un pharmacien fait la synthèse des recommandations existantes dans les différents ES et propose un document de synthèse consensuel. Celui-ci est vérifié par un infectiologue puis approuvé au nom du réseau.

Les documents ressources sont ensuite diffusés à tous les ES du réseau.

Méthode

Documents existants, souvent multiples, issus des pharmaciens participants (en cours d'élargissement)

Document unique, validé par le réseau

Diffusion au sein du réseau

Résultats

Travaux effectués

- Recommandations de bon usage des aminosides
- Recommandation de bon usage des glycopeptides
- Listing des antibiotiques à dispensation contrôlée
- Suivi des consommations antibiotiques et des résistances (outils CONSORES, CHU de Nancy)

Comparaison des consommations totales d'antibiotiques

Hôpital	2013	2014
CH Antibes	448	318
CH Cannes	300	325
CH Draguignan	332	460
CH Grasse	423	326
CHU Nice	587	457
Total	2090	1886

Travaux en cours

- Modalités d'administration des antibiotiques et paramétrages logiciels
- Audit simultané utilisation carbapénèmes, à partir d'une grille commune
- Participation à la rédaction du journal du réseau

Travaux futurs

- Procédure dispensation des antibiotiques contrôlés
- Intervention du pharmacien dans la réévaluation des antibiotiques à 48-72h
- Optimisation du suivi de la prescription des antibiotiques par prescription informatisée

Conclusion

Cette démarche innovante de création d'un GT pharmaciens au sein d'un réseau régional d'infectiologie permet d'optimiser le rôle du pharmacien en proposant des documents, procédures et démarches d'évaluations communs. Ainsi, la collaboration avec les autres praticiens impliqués dans le bon usage des antibiotiques est renforcée, dans le but d'optimiser la prise en charge des patients.

Benjamin Bertrand, CH Grasse Pharmacie, chemin de Clavary, 06135 Grasse, ben.bertrand@ch-grasse.fr



6 numbers of our regional multidisciplinary Newsletter on Infectious Diseases named INFOH since 2014
 Number 7 in preparation for November 2017

INFOH N°1 Juin 2014

Lettre d'Information sur l'infectiologie, l'organisation du bon usage des anti-infectieux et l'hygiène

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- CONSOIRES, outil web de surveillance simultanée des consommations antibiotiques et des résistances bactériennes. Premières données à Cannes, Grasse et Nice, **F. Lieutier-Colas, B Bertrand, S Leotard, C Doronati, R Rummy**
- Epidémie à *Klebsiella pneumoniae* OXA-48 au CHU de Nice et en région PACA Est : retour d'expérience sur les mesures prises, **T. Fosse, Y. Berrouano, P. Veyries**
- Nouveauté. Le site Internet Kit BLSE, **V Mondain**
- Quizz Infections urinaires, **E Demonchy**

INFOH N°2 Novembre 2014

Lettre d'Information sur l'infectiologie, l'organisation du bon usage des anti-infectieux et l'hygiène

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INFOH N°3 Juillet 2015

Lettre d'Information sur l'infectiologie, l'organisation du bon usage des anti-infectieux et l'hygiène

" Réduire l'usage des antibiotiques les vétérinaires l'ont fait ! "

Infectiologue, Médecin, Biologiste, Pharmacien, Hygiéniste, Vétérinaire, Agriculture, Grand public, Autorités, Hôpital, Patient, Ville

Plan national d'alerte

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A new software to help optimize regional antimicrobial stewardship policy? Results from a two year-survey of antibiotic consumption and antimicrobial resistance in five hospitals in South-Eastern France

EV0707

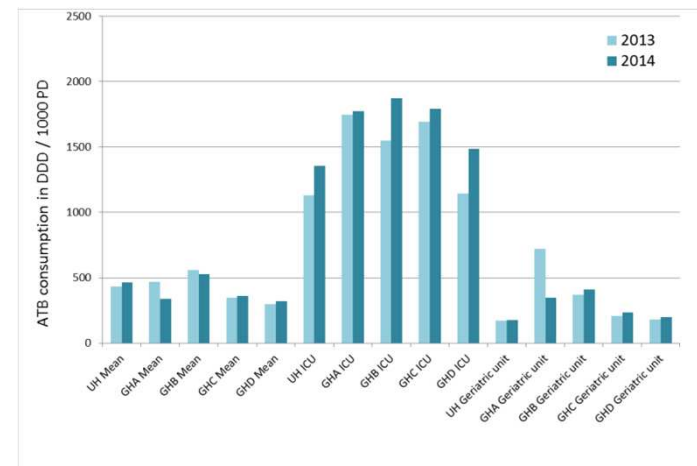
Marion Warembourg¹, Anne-Charlotte Lombardo², Véronique Blanc³, Benjamin Bertrand⁴, Sophie Léotard⁵, Carole Labat⁶, Marine Agullo⁷, Véronique Mondain⁸, Sandrine Boussat⁹, Pierre-Marie Roger⁸, Raymond Ruimy¹⁰, **Florence Lieutier-Colas¹** and the Regional Network Reso-Infectio-PACA-Est.

1/ Pharmacy, Nice University Hospital 2/ Pharmacy, Antibes Hospital, 3/ Microbiology, Antibes Hospital 4/ Pharmacy, Grasse Hospital, 5/ Microbiology, Grasse Hospital, 6/ Pharmacy, Draguignan Hospital, 7/ Pharmacy, Cannes Hospital, 8/ Infectious diseases unit, Nice University Hospital 9/ Infections Control Committee, Nancy University Hospital, 10/ Microbiology, Nice University Hospital

- A new national software to survey ATB consumptions and AMR in clinical wards since 2013
- Results from a 2 year-survey (2013, 2014) in 5 hospitals in our region
- Focused on two populations of at risk-patients exposed to ATB, in intensive care units (ICU) and in geriatric wards
- ID advices were given upon request and on a weekly basis in ICU (in UH, GHB and GHD) and in geriatric units (UH and GHA).

Table 1. Hospital data.

Hospitals	Beds	ID presence (Y/N) Since when	ATB consumption in 2013 (DDD/1000PD)	ATB consumption in 2014 (DDD/1000PD)
Antibes Hospital (A)	622	Y (2013)	471	337.6
Cannes Hospital (B)	849	Y (2010)	559	527.8
Draguignan Hospital (C)	391	Y (2014)	349.0	359.8
Grasse Hospital (D)	453	Y (2015)	300.4	321.8
Nice University Hospital	1692	Y (1999)	431.4	464.6





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Marion Warembourg¹, Anne-Charlotte Lombardo², Véronique Blanc³, Benjamin Bertrand⁴, Sophie Léotard⁵, Carole Labat⁶, Marine Agullo⁷, Véronique Mondain⁸, Sandrine Boussat⁹, Pierre-Marie Roger⁸, Raymond Ruimy¹⁰, **Florence Lieutier-Colas¹** and the Regional Network Reso-Infectio-PACA-Est.

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- The Reso-Infectio-PACA-Est experience enabled us to quickly survey trends and to compare practices between different units and hospitals.
- Prospective monitoring and associated prescriptions quality audit may allow adapting guidelines to local AMR rates, identifying inappropriate ATB use, targeting improvement interventions, and evaluating the impact of those actions.
- These indicators may be useful to assess the impact of this regional multidisciplinary AMS network.

Warembourg M, et al. ECCMID 2016. Poster EV0707.

Fig 2. Evolution of MRSA% in the UH since 2011 to 2014.

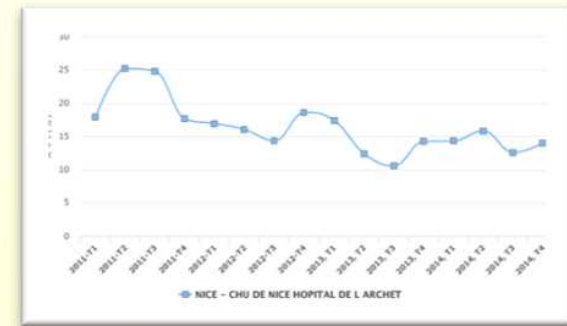
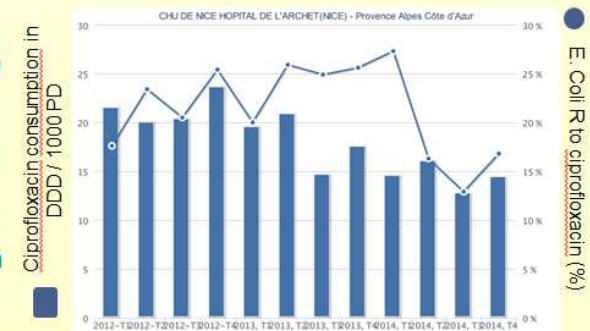


Fig 3. Evolution of *Escherichia coli* resistance (R) to ciprofloxacin and ciprofloxacin consumption at the UH from 2012 to 2014.



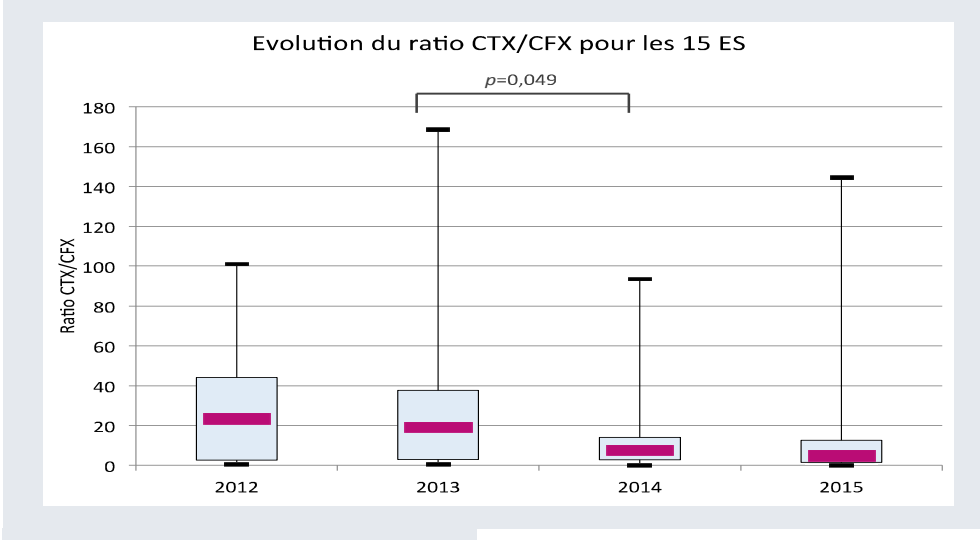
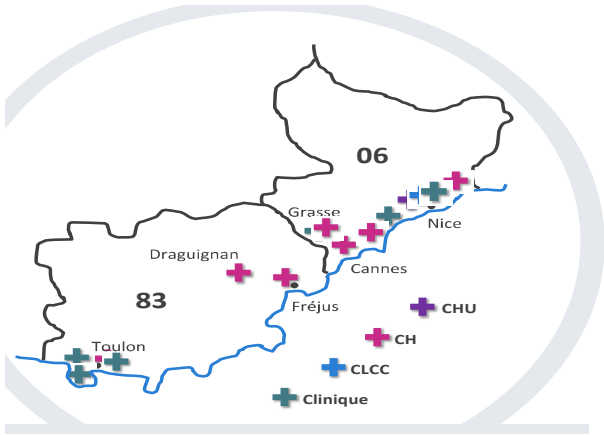
How are pharmacists involved in AMS in the South East of France ?

Poster n° 17^{es} JNI, Lille 2016

Ratio ceftriaxone / cefotaxime : indicateur de bon usage des antibiotiques ?

Benjamin BERTRAND¹, Marion WAREMBOURG², Florence LIEUTIER-COLAS², Anne-Charlotte LOMBARDO³, Marine AGULLO⁴, Carole LABAT⁵, Pascale FARACO-BONNIER⁶, Sabine RAETZ⁷, Jacques ROGHI⁸, Pierre-Marie ROGER⁹, pour le Réso Infectio PACA-Est

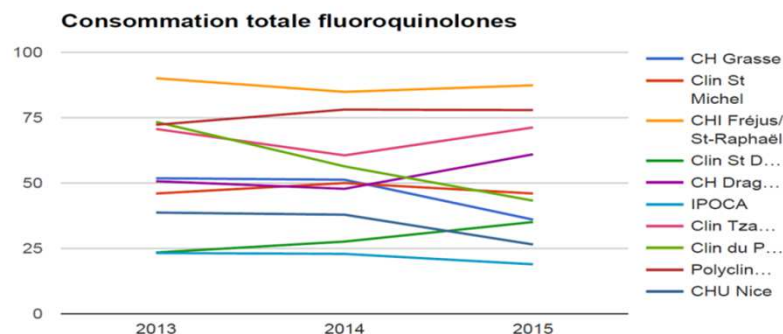
¹Pharmacie, CH Grasse ; ²Pôle Pharmacie, CHU Nice ; ³Pharmacie, CH Antibes ; ⁴Pharmacie, CH Cannes ; ⁵Pharmacie, CH Draguignan ; ⁶Pharmacie, Clinique St Dominique, Nice ; ⁷Pharmacie, CH Fréjus ; ⁸Pharmacie, Clinique St Michel, Toulon ; ⁹Service Infectiologie, CHU Nice



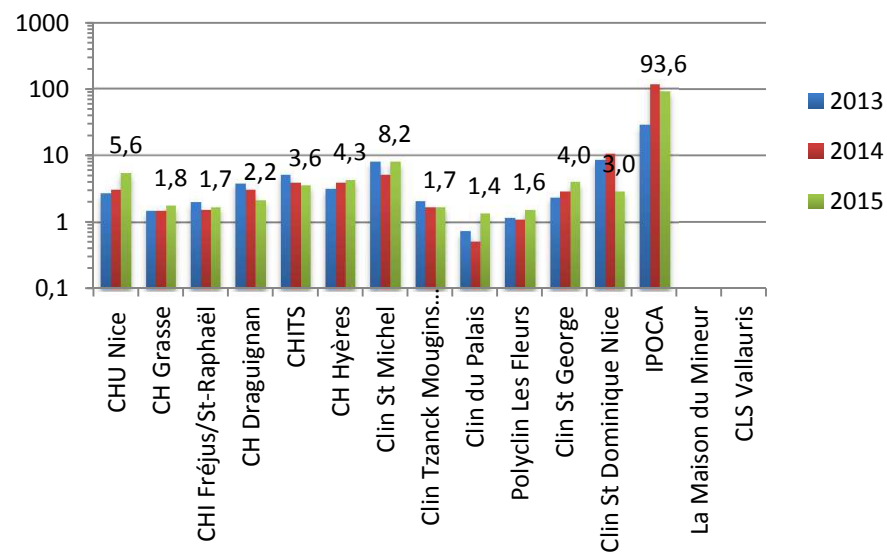
15 HCF in the South East of France : 1 UH, 7 GH, 1 Center for Cancer Control and 6 private clinics

An effective AMS initiative in France involving pharmacists: where is it today in South East of France?

- 2016: Survey of ATB consumption in 15 hospitals of the regional network at the initiative of the pharmacists' network
 - Oral antibiotic use needs to be promoted, in particular for quinolones



Evolution of the oral/parenteral quinolones use in 15 hospitals in the South East of France between 2013 and 2015*



*Maison du Mineur, CLS Vallauris: no parenteral use; CH Cannes: no data.
AMS, antimicrobial stewardship; ATB, antibiotic.
Lieutier-Colas F, personal data.



Appropriate use of carbapenems: a regional audit in 7 hospitals

P1298

Delphine Viard¹, Florence Lieutier-Colas¹, Benjamin Bertrand², Marine Agullo³, Anne-Charlotte Lombardo⁴, Jihen Bousseta⁵,

Carole Labat⁶, Isabelle Falconi⁷, Karine Risso⁸, Pierre-Marie Roger⁸, Raymond Ruimy⁸. RésO-InfectiO-PACA-Est

Pharmacy department: 1/ Nice University Hospital 2/ Grasse Hospital 3/ Cannes Hospital 4/ Antibes Hospital 5/ Toulon La Seyne s/ Mer Hospital 6/ Draguignan Hospital 7/ Menton Hospital
8/ Infectious diseases unit, Nice University Hospital 9/ Laboratory of microbiology, Nice University Hospital

Context of the study

- Carbapenems (CP) consumption has increased these last years in Europe and in France (+145% since 2000).
- The frequent use of CP contributes to increase the emergence of carbapenemase producing bacteria.
- In Europe the average rate of CP resistance for *Klebsiella pneumoniae* is 8% with a maximum of 59% in Grece.
- In consequence, CP must be used as the last resort antibiotics.

Our aim was to assess the appropriateness of CP prescriptions in their indications and in the re-evaluation at 48-72 hours or at the bacteriological results.

Method proposed in 2014 by the French Society of Infectious Diseases

Results

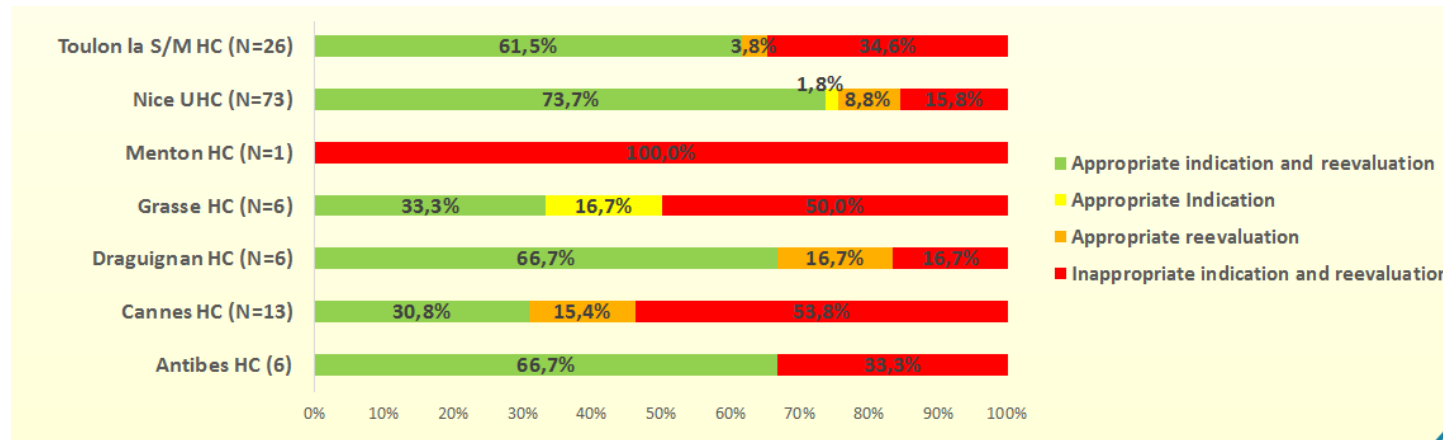
- 7 health institutions
- 118 CP prescriptions (116 patients): 87 imipenem, 16 ertapenem, 15 meropenem
- Conformity of the indication : 63,6%
- Conformity of the reevaluation : 70,4%
- Global appropriateness : 62,6%
- The global conformity rate of all the HC (51,7%) is < to those of the UHC (p=0,015)



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More than 1/3 of the CP prescription were not appropriate. The differences observed in the conformity rates of each hospital and between all the HC and the UHC might be related to various internal organizations and inequal human resources.

Suggestions for improvement :

- to study the organizations of each hospital and and their impact on the conformity of CP prescriptions
- to work on regional recommendation for the management of CP prescriptions
- to implement targeted actions for each hospital and clinical units according to their respective results.

The regional network will allow us to pool our resources and share our ideas, in order to harmonize our clinical practices and organizations.

Next steps for antimicrobial pharmacists

- Continue collaboration (local, regional, national, international)
- Continue antifungal stewardship (since 2005)
- Outpatient Parenteral Antimicrobial Therapy, therapeutic education of the patient
- Vaccination promotion (despite shortages...)

Infection (2013) 41:621-628
DOI 10.1007/s15010-013-0431-1

CLINICAL AND EPIDEMIOLOGICAL STUDY

A 6-year antifungal stewardship programme in a teaching hospital

V. Mondain · F. Lieutier · L. Hasseine ·
M. Gari-Toussaint · M. Poiree · C. Lions ·
C. Pulcini



Conclusions and perspective

- Advice to colleagues thinking of initiating such a programme
 - Multidisciplinary collaboration is essential!
 - Indicators follow-up (antimicrobial consumption, AMR, appropriate use of ATB, IV/PO ratio, acceptance of interventions,...)
 - Set goals, essential messages, evaluate the results and provide regular feedback to prescribers
 - Importance of tracing pharmaceutical interventions to evaluate their clinical and financial impact
 - Using information technology to enhance AMS and develop easy-to-use tools (guidelines and newspaper available on internet, website, poster on how to administer injectable ATB ...)
- Which lessons can be learned from the French approach to AMS ?
 - Multidisciplinary collaboration between pharmacists, ID specialists, microbiologists, hygienists is essential 😊

ATB, antibiotics; AMR, antimicrobial stewardship; AMS, antimicrobial stewardship; IV, intravenous; PO, oral.
Lieutier-Colas F, personal opinion.



Questions to the audience

- Which broad spectrum ATB provide AMR ?
Amoxicillin-clavulanate, 3rd generation cephalosporines, fluoroquinolones, carbapenems
- Who are the majors actors in AMS ? Infectious diseases specialits, microbiologists and pharmacists
- How many time spend peri-surgical antibiotic prophylaxis ? 2 to 4 hours (duration of the intervention)



Thank you all
and thanks to my colleagues



Benjamin Bertrand (CH Grasse), Sandrine Bousat (CH Nancy), Rémy Collomp (CHU Nice), Pierre Dellamonica (CH Nice), Catherine Dumartin (CHU Bordeaux), Carole Labat (CH Draguignan), Véronique Mondain (CHU Nice), Aline Mousnier (CHU Nice), Céline Pulcini (CHU Nancy), Pierre-Marie Roger (CHU Nice), Raymond Ruimy (CHU Nice), Delphine Viard (CHU Nice), Marion Warembourg (CH Gap)

