

# Local experience on use of Colistin in ICU

Dr Yu Chin Wing  
Resident Specialist  
Intensive Care Unit  
North District Hospital

# Introduction

- Colistin: Colistimethate Sodium (pro-drug), Polymyxin E
- Mechanism: A cyclic polypeptide  
Binds to lipopolysaccharides and phospholipids in the outer cell membrane of GNB
  - Disruption of cell membrane
  - Leakage of intracellular contents
  - Bacterial death
- Available for clinical use since 1950s
- Had fallen out of favor due to its side effect and emergence of other antibiotics

- **Coly-mycin**

Manufacturer: Parkdale  
Pharmaceuticals

Colistin base: in mg

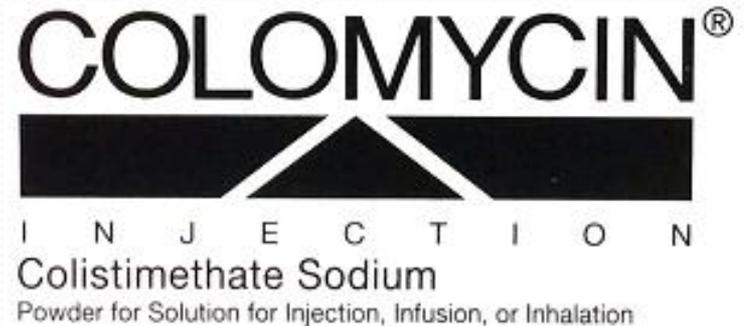
150mg 'colistin base' =  
360mg colistimethate  
or 4,500,000units



- **Colomycin**

Manufacturer: Axellia  
International units

1mU = 80mg  
colistimethate



# Suggested dosage of Colomycin

| Recommended dosage | Dosage                 | Interval |
|--------------------|------------------------|----------|
| BW up to 60kg      | 0.05 – 0.075 mU/kg/day | Q8H      |
| BW > 60kg          | 1 – 2 mU               | Q8H      |

## Suggested adjustment in renal impairment

| Grade    | CrCl (ml/min) | Over 60kg BW |
|----------|---------------|--------------|
| Mild     | 20-50         | 1-2mU Q8H    |
| Moderate | 10-20         | 1mU Q12-18H  |
| Severe   | <10           | 1mU Q18-24H  |

# Colistin

- Contraindications:
  - Hypersensitivity to colistin or polymyxin B
  - Myasthenia Gravis
- Drug interactions:
  - Suggested to avoid neurotoxic and nephrotoxic agents
  - May increase risk of nephrotoxicity with cephalosporin

# Usage of Colistin in critically ill patients in Hong Kong

# Local study

- Retrospective observational study
- Adult ICUs in HK, age  $\geq 18$
- Admitted from 1<sup>st</sup> Jan 2010 to 31<sup>st</sup> Dec 2012
- Received colistin during their ICU stay
- Objectives:
  - 1. To review the bacteriology triggering colistin therapy
  - 2. To review their LOS and mortality
  - 3. To review their change of RFT

# Acute Kidney Injury: RIFLE classification

| Class                          | Serum Cr or GFR criteria  | Urine output criteria  |
|--------------------------------|---|--|
| Risk                           | Serum creatinine $\times 1.5$<br>GFR decrease $> 25\%$  | $< 0.5$ ml/kg/hr $\times 6$ hrs                                |
| Injury                         | Serum creatinine $\times 2$<br>GFR decrease $> 50\%$  | $< 0.5$ ml/kg/hr $\times 12$ hrs                               |
| Failure                        | Serum creatinine $\times 3$ , <span style="color: orange;">353 umol/L</span><br>or serum creatinine $\geq 4$ mg/dl with<br>an acute rise $> 0.5$ mg/dl<br>GFR decrease $> 75\%$ | $< 0.3$ ml/kg/hr $\times 24$ hrs,<br>or anuria $\times 12$ hrs |
| Loss                           | Persistent ARF = complete loss of<br>kidney function $> 4$ weeks  |  |
| End-stage<br>kidney<br>disease | End-stage kidney disease $> 3$<br>months  |  |

Acute kidney injury should be both abrupt (within 1–7 days) and sustained (more than 24 hours)

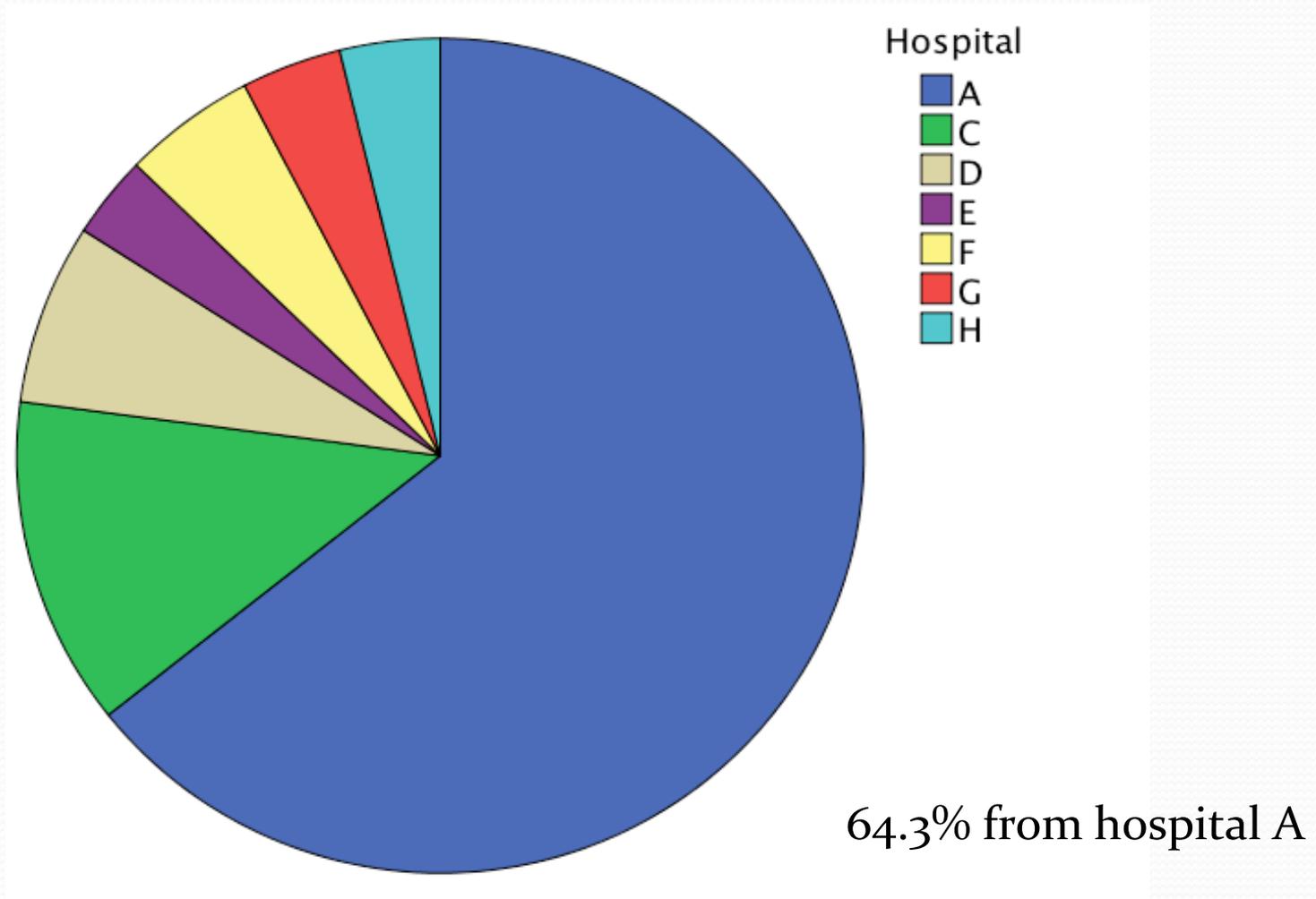
# Number of cases received colistin

- Hospital A: 150
- Hospital B: 57
- Hospital C: 44
- Hospital D: 20
- Hospital E: 19
- Hospital F: 12
- Hospital G: 11
- Hospital H: 10
- Hospital I: 6
- Hospital J: 3
- Hospital K: 3
- Hospital L: 2
- Hospital M: 1
- Hospital N: 1
- Total: 14 ICUs
- 337 cases

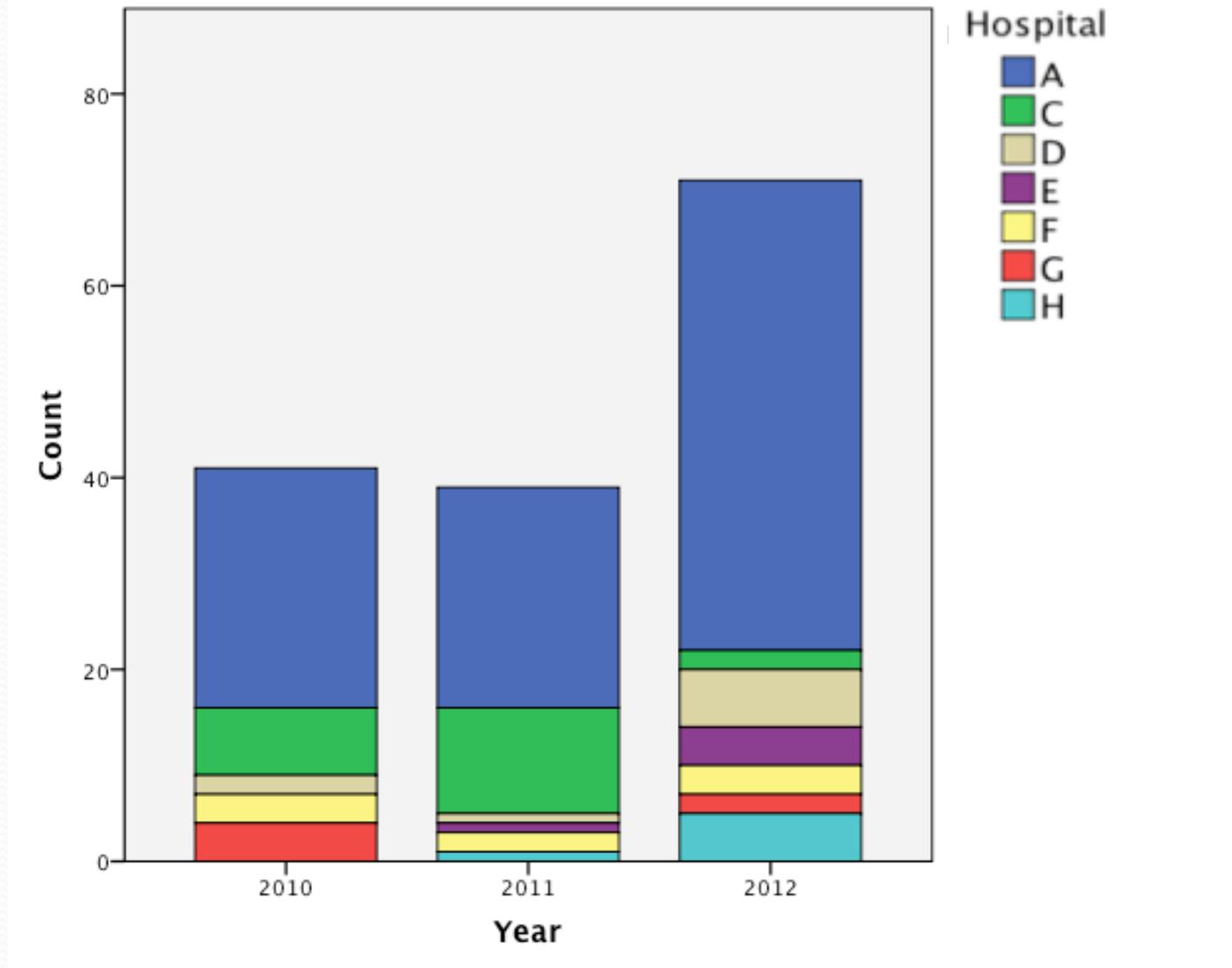
# Cases received colistin during ICU stay

- Hospital A: 150 -> 101
- Hospital B: 57 -> ?
- Hospital C: 44 -> 20
- Hospital D: 20 -> 11
- Hospital E: 19 -> 5
- Hospital F: 12 -> 6
- Hospital G: 11 -> 8
- Hospital H: 10 -> 6
- Hospital I: 6 -> 3
- Hospital J: 3
- Hospital K: 3
- Hospital L: 2
- Hospital M: 1
- Hospital N: 1
- Total 14 ICUs -> 7 ICUs
- 337 cases -> 157 cases

# Contribution of cases by different ICUs



# Usage over 3-year period



# Patient characteristics (Preliminary data)

- Gender M:F = 2.27:1
- Age: 18 – 89
  - Mean age = 60.7 +/- 15.7
- Parent Specialty
  - Med: 44.6%
  - Surg: 46.6%
    - Including Gen Surg, Urology, CTS, NS, ENT
  - O&T: 6.4%
  - O&G: 0.6%
  - Oncology: 0.6%

# Patient characteristics (Preliminary data)

- OAHR: 5.1% (8 cases)
- DM: 32.8%
- Chronic renal impairment: 15.8%
- Chronic renal failure on dialysis: 5.7%
  
- APACHE II: 24.6 +/- 9.1
- APACHE IV: 91.5 +/- 35.0

# Microbiology results

# Micro-organisms in related to colistin treatment

| <b>Micro-organisms</b>  | <b>n</b>            | <b>%</b>   |
|---|---------------------|------------|
| Acinetobacter<br>'Carbapenem resistant'<br>'Ampicillin/Sulbactam sensitive' | 110<br>(106)<br>(4) | 70.1%      |
| Pseudomonas   | 21                  | 13.4%      |
| Stenotrophomonas  | 3                   | 1.9%       |
| ESBL Klebsiella   | 4                   | 2.5%       |
| ESBL E coli   | 1                   | 0.6%       |
| Enterobacter  | 1                   | 0.6%       |
| No growth   | 9                   | 5.7%       |
| Other (eg., CNS, candida)   | 8                   | 5.1%       |
| <b>Total</b>  | <b>157</b>          | <b>100</b> |

# Type of specimens

| Specimen  | n   | % of patient | Acinetobacter (MDR) | Pseudomonas |
|---|-----|--------------|---------------------|-------------|
| Respiratory (Sputum, TA, BAL)                           | 102 | 65.0         | 79                  | 16          |
| Blood   | 27  | 17.2         | 17                  | 4           |
| Surgical wound, drain or tissue                         | 26  | 16.6         | 16                  | 3           |
| Skin ulcer  | 4   | 2.5          | 3                   | 1           |
| Urine   | 2   | 1.3          | 2                   | 0           |
| IV catheter   | 3   | 1.9          | 2                   | 1           |
| Other (bile, pleural fluid, CSF, aspirate of cyst, etc) | 7   | 4.5          | 4                   | 1           |

+ve culture in > 1 site in 18.5% (29) of patients

## Respiratory Culture :-

Organism 1 : Acinetobacter baumannii (heavy)

Organism 2 : Proteus species (scanty)

23.6% cases had more than one micro-organism

### ANTIBIOTICS

Different hospitals report different antibiotic panels

|                           |   |   |
|---------------------------|---|---|
| Amikacin                  | R | S |
| Amoxicillin + clavulanate |   | M |
| Ampicillin                |   | R |
| Ampicillin + sulbactam    | R |   |
| Cefoperazone + sulbactam  | R |   |
| Ceftazidime               | R | S |
| Ceftriaxone               |   | S |
| Cefuroxime (iv)           |   | M |
| Cephalothin               |   | R |
| Ciprofloxacin             | R |   |
| Co-trimoxazole            | R | R |
| Gentamicin                | R | R |
| Imipenem                  | R | S |
| Levofloxacin              |   | S |
| Piperacillin              | R |   |
| Piperacillin + tazobactam | R |   |
| Ticarcillin + clavulanate | R |   |
| Tobramycin                | R |   |

ICU重症监护室床号: 1202 病历号: 0051342

采集部位: 合格

样本类型: 痰

气短

备注:

结果: 鲍氏不动杆菌

|      | 抗生素       | 敏感性  | MIC (ug/ml) | 成人剂量 (建议)                          | 血药浓度 (ug/ml)                | 尿药浓度 (ug/ml) |
|------|-----------|------|-------------|------------------------------------|-----------------------------|--------------|
| M    | 氨苄西林+舒巴坦  | 中介 I | 16          | IV3000(2000mg 氨苄)                  | 109-150                     | 1000mg 舒巴坦   |
| XC   | 替卡西林+棒酸   | 耐药 R | >16         | IV 3.1-3.2gms<br>>30分钟             | 330替卡西林<br>8-16棒酸           |              |
| Y    | 哌拉西林+他唑巴坦 | 耐药 R | >16         | IV 3.375gm.                        | 240                         |              |
| II   | 亚胺培南      | 耐药 R | >8          | IV 500mg                           | 40                          | 100          |
| AZ   | 头孢他啶      | 耐药 R | >16         | IV 1000mg                          | 60                          | 4000-6000    |
| EN   | 庆大霉素      | 耐药 R | >8          | IM 1.25mg/kg.                      | 5-7                         | >=100        |
| IP   | 环丙沙星      | 耐药 R | >2          | PO 500mg.                          | 2.0                         | 300          |
| EV   | 左旋氧氟沙星    | 耐药 R |             |                                    |                             |              |
| CF   | 舒普深       | 敏感 S |             |                                    |                             |              |
| SU   | 复方新诺明     | 耐药 R | >38         | PO 80mgT/400mgS<br>IV 160mgT800mgS | 1-3T/20-50S<br>3-9T/45-100S | 58-76T/97S   |
| RO   | 头孢曲松      | 耐药 R |             | IV 1000mg                          | 150                         | 995          |
| OL   | 多粘菌素 E    | 敏感 S | ≤2          |                                    |                             |              |
|      | 妥布霉素      | 耐药 R | >8          | IV 2.0mg/kg.                       | 3.1-14                      | 322          |
| N    | 阿米卡星      | 耐药 R | >32         | IV 7.5mg/kg.                       | 38                          |              |
| AERO | 美洛培南      | 耐药 R | >8          |                                    |                             |              |
| FEP  | 头孢吡肟      | 耐药 R | >16         | IV 2mg                             | 193                         |              |
| PIC  | 哌拉西林      | 耐药 R | >16         |                                    |                             |              |
| TIC  | 替卡西林      | 耐药 R | >16         | IV 3000mg>2小时                      | 140                         | 约2000        |

耐药  
MIC:>16 用量1:IV  
4000mg>30分 用

ICU重症监护室床号: 1202 病历号: 0051342

采集部位: 合格

样本类型: 痰

气短

备注:

结果: 鲍氏不动杆菌

**Acinetobacter baumannii**

| 抗生素           | 敏感性  | MIC (ug/ml) | 成人剂量 (建议)                          | 血药浓度 (ug/ml)                | 尿药浓度 (ug/ml) |
|---------------|------|-------------|------------------------------------|-----------------------------|--------------|
| Unasyn        | 中介 I | 16          | IV3000(2000mg 氨苄)                  | 109-150                     | 1000mg 舒巴坦   |
| Timentin      | 耐药 R | >16         | IV 3.1-3.2gms >30分钟                | 330替卡西林<br>8-16棒酸           |              |
| Tazocin       | 耐药 R | >16         | IV 3.375gm.                        | 240                         |              |
| Imipenem      | 耐药 R | >8          | IV 500mg                           | 40                          | 100          |
| Ceftazidime   | 耐药 R | >16         | IV 1000mg                          | 60                          | 4000-6000    |
| Gentamicin    | 耐药 R | >8          | IM 1.25mg/kg.                      | 5-7                         | >=100        |
| Ciprofloxacin | 耐药 R | >2          | PO 500mg.                          | 2.0                         | 300          |
| Levofloxacin  | 耐药 R |             |                                    |                             |              |
| Sulperazon    | 敏感 S |             |                                    |                             |              |
| Septrin       | 耐药 R | >38         | PO 80mgT/400mgS<br>IV 160mgT800mgS | 1-3T/20-50S<br>3-9T/45-100S | 58-76T/97S   |
| Ceftriaxone   | 耐药 R |             | IV 1000mg                          | 150                         | 995          |
| Colistin      | 敏感 S | ≤2          |                                    |                             |              |
| Tobramycin    | 耐药 R | >8          | IV 2.0mg/kg.                       | 3.1-14                      | 322          |
| Amikacin      | 耐药 R | >32         | IV 7.5mg/kg.                       | 38                          |              |
| Meropenem     | 耐药 R | >8          |                                    |                             |              |
| Cefepime      | 耐药 R | >16         | IV 2mg                             | 193                         |              |
| Pipercilline  | 耐药 R | >16         |                                    |                             |              |
| Ticarcilline  | 耐药 R | >16         | IV 3000mg>2小时                      | 140                         | 约2000        |

耐药  
MIC:>16 用量1:IV  
4000mg>30分 用  
约2000

# Various definitions of

**Multi-drug resistant (MDR)**

Definitions

Resist to at least 3 classes of drugs:

1. All cephalosporins and inhibitor combination
2. Fluroquinolones
3. Aminoglycosides

Therapeutic options

Carbapenems  
Polymyxins

*Sensitive to Carbapenems*

**Does not exit in this cohort**

# Various definitions of 'MDR' Acinetobacter

|                     | Multi-drug resistant (MDR)   | Extensively-drug resistant (XDR)                    | Pan-drug resistant (PDR)                           |
|---------------------|--|---|--|
| Definitions         | <p><b>Sensitive to at least one class</b></p> <p>classes of drugs:</p> <ol style="list-style-type: none"> <li>1. All cephalosporins and inhibitor combination</li> <li>2. Fluroquinolones</li> <li>3. Aminoglycosides</li> </ol> | <p>MDR Acinetobacter + Resistant to Carbapenems</p> | <p>XDR Acinetobacter + Resistant to Polymyxins</p> |
| Therapeutic options | <p>Carbapenems<br/>Polymyxins</p>  | <p>Polymyxims<br/>Tigecycline</p>                   | <p>??Combination</p>                               |

# Carbapenem-Resistant *Acinetobacter baumannii*

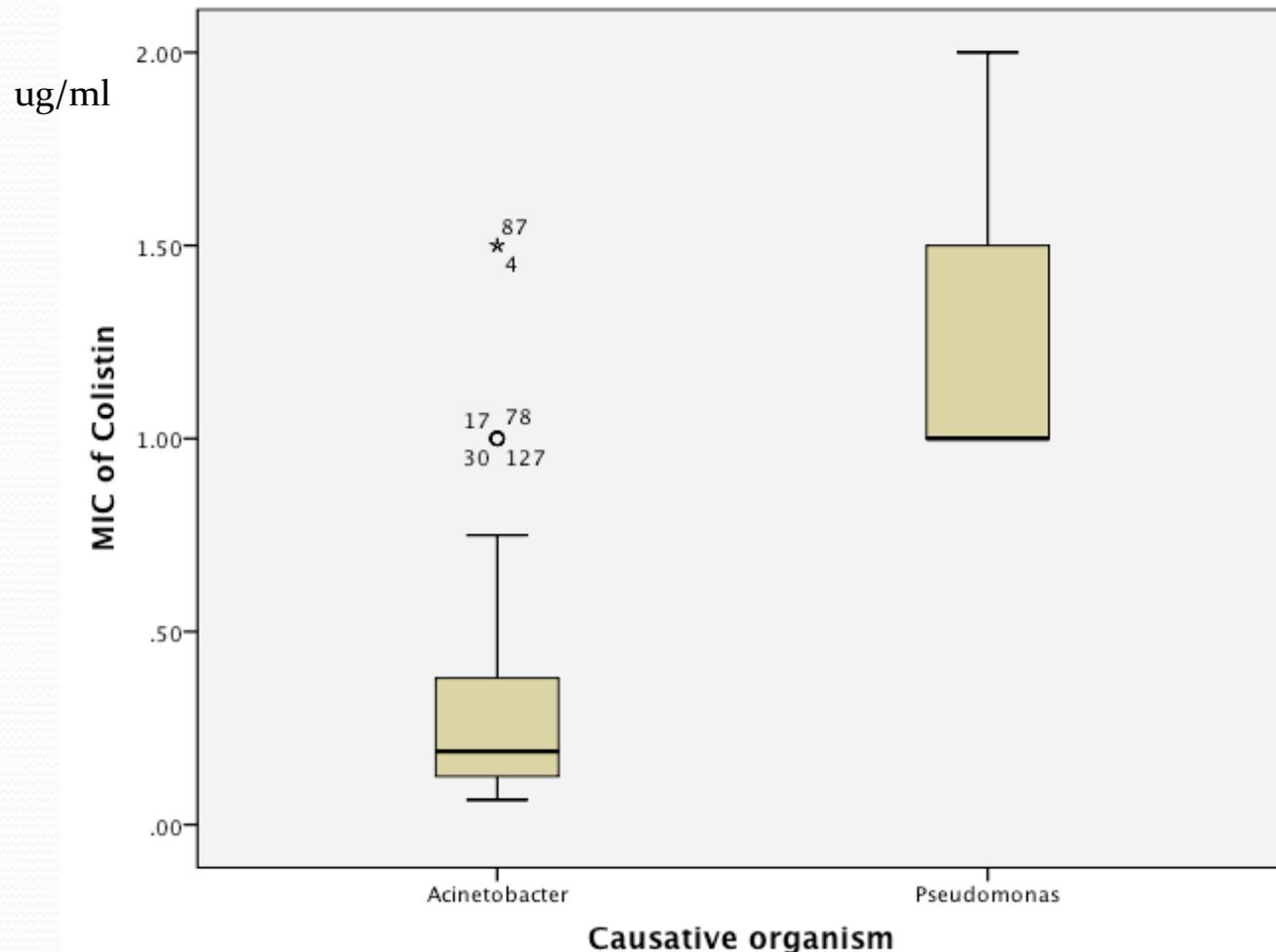
| <b>Sensitivity</b>    |           |              |           |
|-----------------------|-----------|--------------|-----------|
| Antibiotics           | Sensitive | Intermediate | Resistant |
| Gentamicin            | 13.7%     | 1.1%         | 85.7%     |
| Amikacin              | 32.3%     |              | 67.7%     |
| Cefoperazon/Sulbactam | 6.5%      | 40.9%        | 52.7%     |
| Fluoroquinolone       | 4.2%      | 2.1%         | 93.7%     |

# Pseudomonas

## Sensitivity, Pseudomonas (n=21)

| Antibiotics                  | Sensitive | Intermediate | Resistant |
|------------------------------|-----------|--------------|-----------|
| Carbapenems (n=21)           | 19%       | 4.8%         | 76.2%     |
| Gentamicin (n=21)            | 85.7%     | 4.8%         | 9.5%      |
| Amikacin (n=11)              | 81.8%     |              | 18.2%     |
| Cefoperazon/Sulbactam (n=17) |           | 23.5%        | 76.5%     |
| Fluoroquinolone (n=21)       | 52.4%     | 9.5%         | 38.1%     |

# Different in MIC between Acinetobacter and Pseudomonas



# Use of Colistin

# Dosage, interval, route

- Dosage range: 0.5 – 2mU
  - Mostly 1mU (86.1% of cases)
- Interval range: every 8 – 48 hours
  - Q8H: 47.3%
  - Q12H: 42.0%
- All cases had received colistin intravenously
- 4 cases were given IV + inhalation

# Duration of treatment

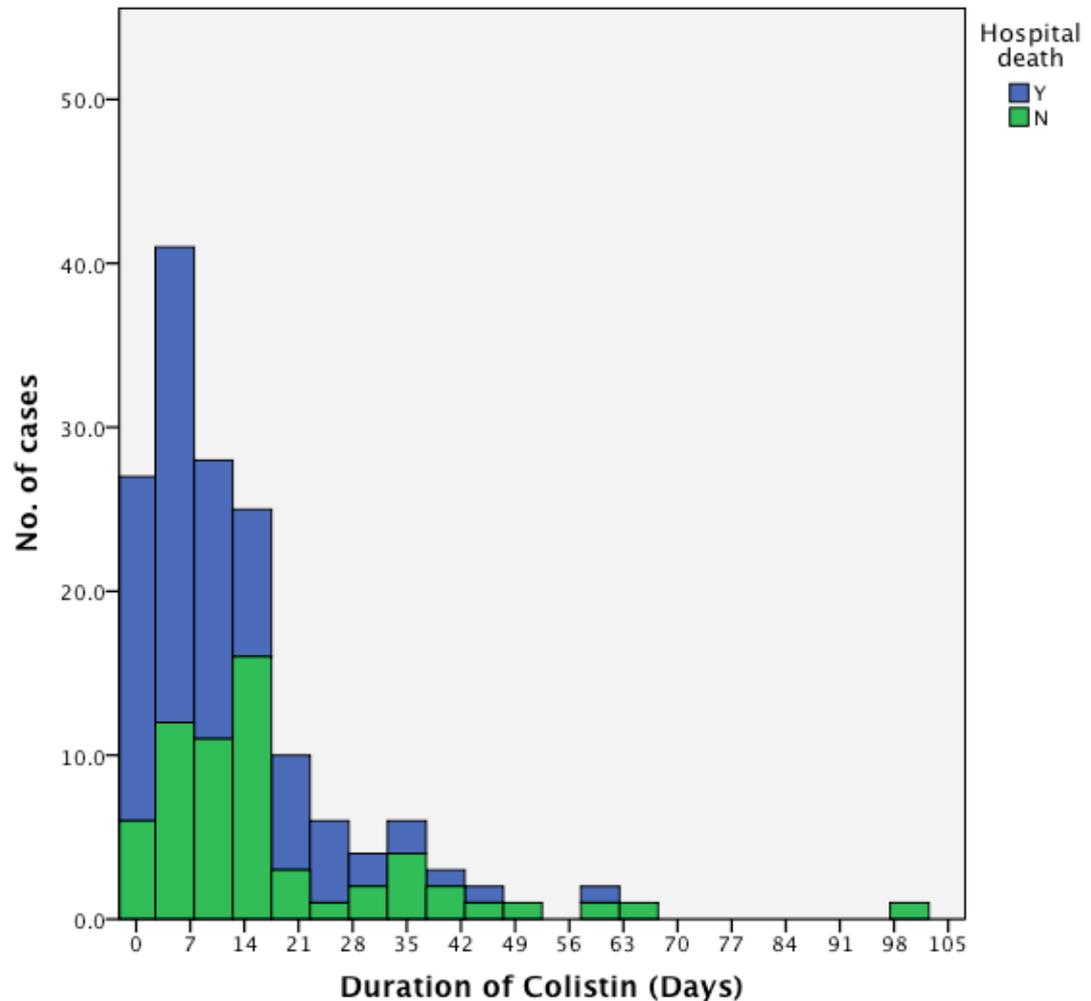
Range: 0-99 days

Mean: 13.4 +/- 14.4

70% cases < 2 weeks

80% cases < 3 weeks

Most common cause  
of termination:  
patient died (47.8%)



# Recorded possible side effect, apart from nephrotoxicity

- 2 cases stopped because of skin rash
- 1 case stopped because of thrombocytopenia
  - Plt dropped to 85
  - Plt increased after change to tigecycline

# Combination therapy

|                            |       |
|----------------------------|-------|
| <b>Combination therapy</b> | 38.9% |
| Aminoglycosides            | 15.9% |
| Rifampicin                 | 8.3%  |
| Tigecycline                | 3.8%  |
| Fluroquinolone             | 3.8%  |
| Co-trimoxazole             | 0.6%  |
| Cefoperazon/Sulbactam      | 0.6%  |
| Other                      | 5%    |

## **In-hospital mortality:**

|                         |       |           |
|-------------------------|-------|-----------|
| for combination therapy | 60.4% |           |
| for monotherapy         | 39.6% | (p=0.008) |

# Concurrent nephrotoxic agents

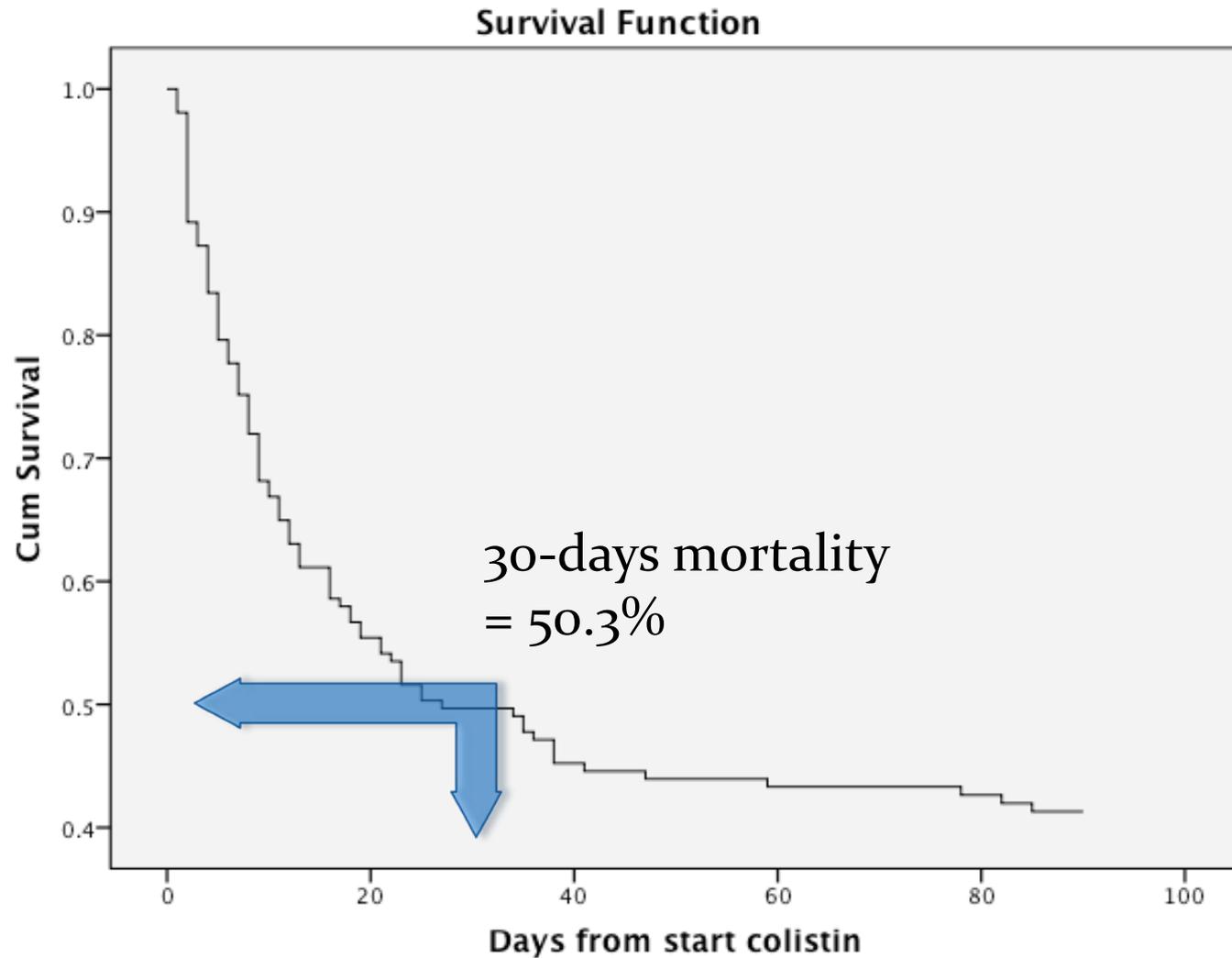
- Aminoglycosides
- Vancomycin
- IV contrast
- Amphotericin B
- ACEI / ARB
- NSAIDs
- Cyclosporin A
- 87.8% patients received at least one of these drugs, either before or during colistin treatment
- 93.9% if frusemide is also regarded as nephrotoxic

# Patient outcome

# Outcome: LOS and Mortality

|                                       |                              |
|---------------------------------------|------------------------------|
| ICU length of stay (mean)             | 0 – 349 days (26.5+/- 37.8)  |
| Hospital length of stay (mean)        | 3 – 410 days (57.1 +/- 51.5) |
| ICU mortality                         | 40.1%                        |
| In-hospital mortality                 | 59.1%                        |
| Carbapenam-resistant<br>Acinetobacter | 58.5%                        |
| Pseudomonas                           | 71.4%                        |
| Positive blood culture                | 74.1%                        |

# Survival



# APACHE scores and mortality

|           | Died in ICU    | Alive on ICU discharge |           |
|-----------|----------------|------------------------|-----------|
| APACHE II | 26.9 +/- 9.8   | 23.1 +/- 8.3           | P = 0.024 |
| APACHE IV | 100.8 +/- 40.2 | 85.3 +/- 29.8          | P = 0.021 |

|           | In-hospital death | Survivors     |           |
|-----------|-------------------|---------------|-----------|
| APACHE II | 26.3 +/- 9.0      | 21.8 +/- 8.6  | P = 0.006 |
| APACHE IV | 98.4 +/- 35.9     | 80.3 +/- 30.9 | P = 0.003 |
| Age       | 61.8 +/- 14.9     | 59.9 +/- 16.2 | P = 0.46  |

|   | <b>Carbapenem-resistant Acinetobacter</b> | <b>Pseudomonas</b> | <b>Other Multi-drug Resistant Organism</b> |
|---|---|--------------------|--|
| Total cases                               | 106                                       | 21                 | 9  |
| Survived > 14 days after stopped colistin | 49 (46.2%)                                | 6 (28.6%)          | 4  |
| <b>Among these survivors</b>              |   |                    |  |
| Clearance of organisms                    | 25 (51.0%)<br>N.B. 4 cases had recurrence | 1 (6.3%)           | 2 (50%)                                    |
| Failed to clear                           | 20 (40.8%)                                | 4                  |  |
| No repeated culture after treatment       | 4   | 1                  |  |

**No colistin resistance case was identified**

# Change of renal function

# Number of patients with possible AKI

157

- 22 patients: Died within 48H of start colistin

135

- 29 patients: Required RRT both before and after colistin

106

- 65 patients (61.3%): No lab evidence of AKI
  - Cr < 1.5 folds
- 41 patients (38.7%):
  - 7 patients: Required RRT after started colistin
  - 34 patients: Cr > 1.5 folds from baseline

# For 41 patients with 'AKI' by pre-defined criteria

34 patients: Cr > 1.5 folds increase.

- 14: Cr 1.5 – 2 folds
- 17: Cr 2 – 3 folds
- 3: Cr > 3 folds

No RRT required

7 patients: Required RRT after commencement of colistin

- 6 hospital death
- 1 survivor:
  - Recovered in renal function
  - Not required RRT while still on colistin

Average days to peak Cr: 12.0 +/- 8.7

# Baseline Serum Creatinine and age in related to AKI

|  | AKI group<br>(n=41) | No AKI group<br>(n=60) | p     |
|--|---------------------|------------------------|-------|
| Baseline Creatinine (umol/L)               | 111.4 +/- 91.9      | 130.7 +/- 133.0        | 0.441 |
| Peak Creatinine while on colistin (umol/L) | 218.6 +/- 180.1     | 137.6 +/- 134.6        | 0.019 |

|     | AKI group<br>(n=41) | No AKI group<br>(n=60) | p     |
|-----|---------------------|------------------------|-------|
| Age | 64.1 +/- 14.3       | 57.6 +/- 16.1          | 0.033 |

**Compared with other  
studies**

# Renal and neurological side effects of colistin in critically ill patients. Spapen et al. Annals of Intensive Care 2011, 1:143

**Table 1 Dosage, duration, outcome, and toxicity of intravenous colistimethate sodium in critically ill patients**

| Author                  | Patients (N)       | APACHE II (mean ± SD)      | CMS dose/duration [mean ± SD or median (range)] | Clinical cure N (%) | Nephrotoxicity N (%) | Neurotoxicity |
|-------------------------|--------------------|----------------------------|---|---------------------|----------------------|---------------|
| Levin                   | 59 (60 infections) | 13.1 ± 7                   | 152.8 mg ± 62.8 mg<br>12.6 ± 6.8 days           | 35 (58.3)           | 22 (37)              | none          |
| Markou                  | 11 (10 infections) | 13.5 (mean)                | 3 MIUq8h<br>13.5 days (4-24 days)               | 17 (65.4)           | 3 (14.5)             | none          |
| Gamachal<br>Montero     | 12-258 patients    | 13.5 ± 7.2                 | 2.5 mg-5 mg/kg/day<br>14.7 ± 4.1 days           | 12 (57.1)           | 5 (24)               | none          |
| Michalopoulos           | 45                 | 25.8 ± 7.7                 | 3 MIUq8h<br>18.6 ± 5.8 days                     | 32 (74)             | 8 (18.6)             | none          |
| Falagas                 | 17 (19 infections) | 14 (median)<br>43.4 ± 15.8 | 4.4 MIU ± 2.1 MIU                               | 14 (74)             | 1 (5.2)              | 1             |
| Kasiakou                | 50 (54 infections) | 16.1 ± 6.1                 | 4.5 MIU ± 2.0 MIU<br>21.3 ± 16 days             | 36 (66.7)           | 4 (8)                | 1*            |
| Reina                   | 55                 | 21 ± 7                     | 5 mg/kg (max 300 mg/day)<br>13 ± 5 days         | NA                  | 0 (0)                | none          |
| Petrosillo <sup>b</sup> | 14                 | NA                         | 2 MIUq8h<br>12 days (mean)                      | 9 (64)              | 1 (7.1)              | none          |
| Kallel                  | 75 (78 infections) | NA (SAPS II 37 ± 14)       | 15 mg/kg (mean)<br>MIU<br>9.3 ± 3.8 days        | 25 (66.7)           | 22 (49.5)<br>(13.5)  | 1             |
| Koomanachal             | 78                 | 21.9 (mean)                | 179.6 mg/day (mean)<br>11.9 days (mean)         | 63 (80.8)           | 24 (30.8)            | none          |
| Betrosian               | 15                 | 14 ± 2                     | 5.83 MIU ± 2.3 MIU<br>duration NA               | 9 (60)              | 5 (33)               | none          |
| Bassett <sup>b</sup>    | 29                 | 17 ± 3.7                   | 2 MIUq8h<br>17.7 ± 10.4 days                    | 22 (76)             | 3 (10)               | none          |
| Kallel                  | 60                 | NA (SAPS II 35 ± 12)       | 2 MIUq8h<br>9.5 ± 3.8 days                      | 45 (75)             | 0 (0)                | NA            |

26 studies  
Local experience  
12-258 patients  
N=157

APACHE II: mean 8.3 - 25.8  
APACHE II: 24.6

Clinical cure: 32.5-80.8%  
Hospital survival: 40.8%

Nephrotoxicity: 0-53.5%  
'AKI' 38.7%

# Compare with recent studies using RIFLE

|          | Hartzell et al. 2009 | Kwon et al. 2010 | DeRyke et al. 2010 | Pogue et al. 2011 | Local    |
|----------|----------------------|------------------|--------------------|-------------------|----------|
| n        | 66                   | 71               | 30                 | 126               | 106      |
| % of AKI | 45%                  | 53.5%            | 33%                | 43%               | 38.6%    |
| Risk     | 13 (20%)             | 11 (15%)         |                    | 16 (13%)          | 14 (13%) |
| Injury   | 10 (15%)             | 10 (14%)         | 3 (10%)            | 22 (17%)          | 17 (16%) |
| Failure  | 7 (11%)              | 17 (24%)         | 5 (17%)            | 16 (13%)          | 10 (9%)  |
| Loss     |                      |                  |                    |                   |          |
| ESKD     |                      |                  | 2 (7%)             |                   |          |

N.B. different in patient characteristics between studies  
 All received at least colistin for 48 or 72 hours

# Limitations

- Wide difference in practices of different hospitals
  - Indication
  - Dosage
  - Route
  - Combination of therapy
- 64.3% (101/157) cases was contributed by one hospital

# Limitations

- Difficult to identify the cases of AKI purely attributed by colistin
  - Overlapped with sepsis / critical illness
  - Used nephrotoxic agents in about 90%
    - AKI required RRT: 6.6%
- Not able to follow up the renal function in those patients who died early
  - Days to peak Cr level: 12 +/- 8.7
  - more AKI / higher peak if receive longer colistin

# Summary

For critically ill patients treated with IV colistin in this cohort,

- High mortality: 59.2% in-hospital mortality
- Suboptimal clearance: <50% showed long term clearance
- Colistin-resistant micro-organism did not emerge
- Transient increase in serum creatinine is not uncommon (38.6%, but confounded by various factors)
- No cases had long term renal function loss due to colistin

Studies for optimal dosage and route is needed

# Acknowledgement

## KWH

- Dr CL Watt
- Dr KF Au

## NDH

- Dr KK Wong
- Dr CC Tsang
- Dr SY Lam
- Ms Debby

## PMH

- Dr Tom Buckley
- Dr E Ho

## PWH

- Prof G Joynt
- Dr G Choi

## QEH

- Dr KY Lai
- Dr KW Lam

## QMH

- Dr WM Chan
- Mr E Ling

## TKOH

- Dr CK Ching
- Dr J Chan

## TMH

- Dr CK Koo
- Dr CM Ho

## UCH

- Dr KI Law
- Dr KL Lee

Dr WW Yan and all  
CCM board members