



# **THE BENEFITS OF CLINICAL PHARMACISTS ROLE IN IMPROVING EFFECTIVITY OF ANTIBIOTIC THERAPY COST AT PICU CIPTO MANGUNKUSUMO HOSPITAL**

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# Clinical Pharmacist

“Clinical pharmacist is a health science discipline in which pharmacists provide patient care that optimizes medication therapy and promotes health, wellness, and disease prevention”

(ACCP, American College of Clinical Pharmacy)





# BACKGROUND



**Role of Clinical Pharmacist**



Evaluation of drug →  
**Antibiotic Resistance**



**Qualitative and Quantitative  
Evaluation**



**Pharmacoeconomic Analysis:  
Cost-Effectiveness Analysis (CEA)**





# METHODS

- A quasi experimental study.
- All national health insurance patients who were hospitalized in the PICU from May to October 2014 with acute infection and were treated with antibiotics were included.
- The study population was divided into two groups:
  - those who did not received the recommendation of clinical pharmacists (NR group)
  - those who received the recommendation of clinical pharmacists (R group).
- Both groups were analyzed by Cost-Effectiveness Analysis (CEA), in which direct cost, the length of hospital stay of patient (LOS) as the effectivity unit, and average cost of effectivity ratio (ACER) were compared.





# RESULTS





## COST-EFFECTIVENESS ANALYSIS BETWEEN NR AND R GROUPS

| Description                           | NR (n=42)     | R (n=51)      |
|---------------------------------------|---------------|---------------|
| <b>Costs</b>                          |               |               |
| Antibiotic cost                       | Rp92.805.134  | Rp34.877.060  |
| Hospital administration cost          | Rp281.400.000 | Rp239.400.000 |
| Physician visit cost                  | Rp53.600.000  | Rp45.600.000  |
| Bacterial culture test cost           | -             | Rp29.425.000  |
| Total costs                           | Rp427.805.134 | Rp349.302.060 |
| Total costs per patient (B)           | Rp10.185.837  | Rp6.849.060   |
| <b>Effectivity</b>                    |               |               |
| Total LOS (days)                      | 268           | 228           |
| Average LOS per patient (days)<br>(E) | 6,4 (58,72%)  | 4,5 (41,28%)  |
| 1/ Average LOS per patient            | 15,63%        | 22,22%        |
| <b>ACER (B/E) (Rp/days)</b>           | 1.591.537     | 1.522.013     |



## RESULTS OF THE SENSITIVITY ANALYSIS

| Description                                      | NR (n=42)       | R (n=51)        |
|--|-----------------|-----------------|
| <b>Total costs per patient (B) at increased:</b> |                 |                 |
| 5% of acquisition cost                           | Rp10.695.128    | Rp7.191.513     |
| 10% of acquisition cost                          | Rp11.204.420    | Rp7.533.966     |
| 15% of acquisition cost                          | Rp11.713.712    | ↓ Rp7.876.419   |
| <b>Effectivity</b>                               |                 |                 |
| Total LOS (days)                                 | 268             | 228             |
| Average LOS per patient (days)<br>(E)            | 6,4 (58,72%)    | 4,5 (41,28%)    |
| 1/ Average LOS per patient                       | 15,63%          | 22,22% ↑        |
| <b>ACER (B/E) (Rp/days)</b>                      | 1.591.537       | ↓ 1.522.013     |
| 5% of acquisition cost                           | 1.671.113,88    | 1.598.114,00    |
| 10% of acquisition cost                          | 1.750.690,73    | 1.674.214,67    |
| 15% of acquisition cost                          | 1.830.267,59    | 1.750.315,33    |
| Position   | <b>Dominant</b> | <b>Dominant</b> |



# DISCUSSION

- Based on this study, the effectiveness obtained with the recommendation of clinical pharmacy is 40 days.
- When the effectiveness of monetary value calculated in assumption that savings obtained is Rp 78,503,074 with
  - care cost savings of Rp42.000.000,
  - doctor visit cost savings amounting to Rp8.000.000, and
  - cost savings antibiotics Rp 57,928,074.

These savings can reduce the budget of government and hospitals for the payment of *Badan Penyelenggara Jaminan Kesehatan* (BPJS) patients.







# Conclusion

- The participation of clinical pharmacists in antibiotic therapy in PICU of RSCM can reduce the cost and length of hospital stay of patients.





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**THANK YOU**

