

# OTIK "BERDIKARI"

RI R.S. DR. KARIADI

Jln. Dr. Sutomo 16 Telp. 413476 ps. 498  
SEMARANG

Semarang, 26 Agustus 1998

## SURAT KETERANGAN NO.53/SK/BDK/VIII/1998

Dengan surat ini kami memberitahukan bahwa :

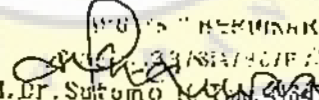
- Nama : Rr. Endang Khamelianti
- NIM : 93.30.1706
- Fakultas : Ekonomi
- Jurusan : Manajemen

Benar-benar telah mengadakan penelitian tentang

ANALISIS ANTRIAN PADA PELAYANAN PEMBELIAN OBAT  
di Apotik "BERDIKARI" RSUP Dr.Kariadi Semarang

Demikian untuk dapat dipergunakan seperlunya.

Apoteker Pengelola Apotik  
"BERDIKARI"



RSUP "BERDIKARI"  
Jl. Dr. Sutomo No. 16 Telp. 413476 PS-498  
SEMARANG  
Drs. Bambang Triwara, Apt. SFRS



**LAMPIRAN I**  
**BANYAKNYA/RATA-RATA KERTAS RESEP**  
**LOLOS TIAP HARI**

**Tabel 4.7**  
**Banyaknya kertas resep yang tak terlayani**

Tanggal	Dari poliklinik	Diterima apotik	Tak terlayani
16	88	78	10
17	85	73	12
18	83	70	13
19	42	23	19
20	53	43	10
21	58	39	19
22	49	28	21
23	77	38	39
24	73	39	34
25	54	43	11
26	55	33	22
27	79	55	24
28	85	53	32
29	89	49	40
30	73	58	15
			321

Sumber : data primer yang diolah

$$\text{Rata-rata lolos tiap hari} = \frac{\text{Jumlah tak terlayani}}{\text{Hari}}$$

$$= \frac{321}{15}$$

$$= 21,4 \text{ per hari}$$



**LAMPIRAN II**

**RATA-RATA PELAYANAN**

**KERTAS RESEP**

**Tabel 4.8**  
**Rata-rata pelayanan kertas resep**

Hari	Jml. Kertas resep	Jam kerja	Rata-rata Pelayanan
1	70	5	14
2	83	5	17
3	117	5	23
4	74	5	15
5	51	5	10
6	75	5	15
7	51	5	10
8	105	5	21
9	51	5	10
10	55	5	11
11	64	5	13
12	83	5	17
13	77	5	15
14	85	5	17
15	104	5	21

Sumber : data primer yang diolah

a. Rata-rata asisten apoteker melayani :

$$n = \frac{23}{5} = 5 \text{ kertas resep}$$

b. Waktu untuk 1 kertas resep

$$\frac{1}{n} = \frac{1}{4,6} = 0,2 \text{ jam} = 13 \text{ menit} , 24 \text{ detik}$$

c. Jumlah kertas resep pada 6 bulan = 9.597 lembar kertas resep  
 Perbulan = 1.599,5 lembar kertas resep  
 Perhari = 61,51 lembar kertas resep  
 Perjam = 12,3 lembar kertas resep

**LAMPIRAN III**  
**PERHITUNGAN c DALAM BEBERAPA ALTERNATIF**



untuk  $c = 5$

$$P_0 = \left[ \frac{r^n}{n!} + \frac{r^n}{c!(1-r/n)} \right]^{-1}$$
$$= \left[ \frac{1}{0!} + \frac{3^1}{1!} + \frac{3^2}{2!} + \frac{3^3}{3!} + \frac{3^4}{4!} + \frac{3^5}{5!(1-3/5)} \right]^{-1}$$
$$= 0,0466$$

$$P_n = \frac{r^n}{c^{n-c} \cdot c!} \times P_0$$
$$= \frac{3^5}{5^{5-5} \cdot 5!} \times 0,466$$
$$= 0,0188$$

$$L_q = \frac{r^{n+1}}{(c-1)!(c-r)^2} \times P_0$$
$$= \frac{3^{5+1}}{(5-1)!(5-3)^2} \times 0,0466$$
$$= 0,3538$$

$$L_s = L_q + r = 0,3538 + 3 = 3,3538$$

$$W_q = L_q / \lambda = 0,3538 / 15 = 0,02358 \text{ jam, } 1 \text{ menit, } 24 \text{ detik}$$

$$W_s = W_q + 1/\mu = 0,02358 + 1/5 = 0,4358 \text{ jam, } 13 \text{ menit, } 24 \text{ detik}$$

$$E(Cw) = c \times C_f = 5 \times \text{Rp.}156,348 = \text{Rp.}781,74$$

$$E(CF) = L_s(\theta) \times C_w = 3,3538 \times \text{Rp.}1.173,138 = \text{Rp.}3.934,470$$

$$TC = c \times C_f + L_s(c) \times C_w = \text{Rp.}781,74 + \text{Rp.}3.934,470 = \text{Rp.}4.716,210$$

untuk  $c = 6$

$$P_0 = \left[ \frac{r^n}{n!} + \frac{r^n}{c!(1-r/n)} \right]^{-1}$$
$$= \left[ \frac{1}{0!} + \frac{3^1}{1!} + \frac{3^2}{2!} + \frac{3^3}{3!} + \frac{3^4}{4!} + \frac{3^5}{5!} + \frac{3^6}{6!(1-3/6)} \right]^{-1}$$
$$= 0,0489$$

$$P_n = \frac{r^n}{c^{n-c} \cdot c!} \times P_0$$
$$= \frac{3^5}{6^{5-6} \cdot 6!} \times 0,0489$$
$$= 0,0990$$

$$L_q = \frac{r^{c+1}}{(c-1)!(c-r)^2} \times P_0$$
$$= \frac{3^{6+1}}{(6-1)!(6-3)^2} \times 0,0489$$
$$= 0,0990$$

$$L_s = L_q + r = 0,0990 + 3 = 3,0990$$

$$W_q = L_q / \lambda = 0,0990 / 15 = 0,006 \text{ jam, } 1 \text{ menit, } 21 \text{ detik}$$

$$W_s = W_q + 1/\mu = 0,006 + 1/5 = 0,206 \text{ jam, } 12 \text{ menit, } 21 \text{ detik}$$

$$E(C_w) = c \times C_f = 6 \times \text{Rp. } 156,348 = \text{Rp. } 938,088$$

$$E(C_f) = L_s(c) \times C_w = 3,0990 \times \text{Rp. } 1.173,138 = \text{Rp. } 3.635,555$$

$$TC = c \times C_f + L_s(c) \times C_w = \text{Rp. } 938,088 + \text{Rp. } 3.635,555 = \text{Rp. } 4.573,643$$



untuk  $c = 7$

$$P_0 = \left[ \frac{r^n}{n!} + \frac{r^n}{c!(1-r/n)} \right]^{-1}$$
$$= \left[ \frac{1}{0!} + \frac{3^1}{1!} + \frac{3^2}{2!} + \frac{3^3}{3!} + \frac{3^4}{4!} + \frac{3^5}{5!} + \frac{3^6}{6!} + \frac{3^7}{7!(1-3/7)} \right]^{-1}$$
$$= 0,0496$$

$$P_n = \frac{r^n}{c^n - r} \cdot c! \cdot P_0$$
$$= \frac{3^5}{7^5 - 7} \cdot 7! \cdot 0,0496$$
$$= 0,1172$$

$$L_q = \frac{r^{n+1}}{(c-1)!(c-r)^2} \cdot P_0$$
$$= \frac{3^{7+1}}{(7-1)!(7-3)^2} \cdot 0,0496$$
$$= 0,0282$$

$$L_s = L_q + r = 0,0282 + 3 = 3,0282$$

$$W_q = L_q / \lambda = 0,0282 / 15 = 0,002 \text{ jam, } 0 \text{ menit, } 27 \text{ detik}$$

$$W_s = W_q + 1/\mu = 0,002 + 1/5 = 0,202 \text{ jam, } 12 \text{ menit, } 27 \text{ detik}$$

$$E(C_w) = c \times C_f = 7 \times \text{Rp. } 156,348 = \text{Rp. } 1.094,436$$

$$E(C_f) = L_s(c) \times C_w = 3,0282 \times \text{Rp. } 1.173,138 = \text{Rp. } 3.552,496$$

$$T_{\text{total}} = c \times C_f + L_s(c) \times C_w = \text{Rp. } 1.094,436 + \text{Rp. } 3.552,496 = \text{Rp. } 4.646,932$$

untuk  $c = 8$

$$P_0 = \left[ \frac{r^n}{n!} + \frac{r^n}{c!(1-r/n)} \right]^{-1}$$
$$= \left[ \frac{1}{0!} + \frac{3^1}{1!} + \frac{3^2}{2!} + \frac{3^3}{3!} + \frac{3^4}{4!} + \frac{3^5}{5!} + \frac{3^6}{6!} + \frac{3^7}{7!} + \frac{3^8}{8!(1-3/8)} \right]^{-1}$$
$$= 0,0497$$

$$P_n = \frac{r^n}{c^{n-c} \cdot c!} \times P_0$$
$$= \frac{3^5}{8^{5-8} \cdot 8!} \times 0,0497$$
$$= 0,15336$$

$$L_q = \frac{r^{c+1}}{(c-1)!(c-r)^2} \times P_0$$
$$= \frac{3^{8+1}}{(8-1)!(8-3)^2} \times 0,0497$$
$$= 0,008$$

$$L_s = L_q + r = 0,008 + 3 = 3,008$$

$$W_q = L_q / \lambda = 0,008 / 15 = 0,0005 \text{ jam, } 0 \text{ menit, } 18 \text{ detik}$$

$$W_s = W_q + 1/\mu = 0,0005 + 1/5 = 0,2005 \text{ jam, } 12 \text{ menit, } 18 \text{ detik}$$

$$E(C_w) = c \times C_f = 8 \times \text{Rp.}156,348 = \text{Rp.}1.250,784$$

$$E(C_f) = L_s(c) \times C_w = 3,008 \times \text{Rp.}1.173,138 = \text{Rp.}3.528,799$$

$$TC = c \times C_f + L_s(c) \times C_w = \text{Rp.}1.250,784 + \text{Rp.}3.528,799 = \text{Rp.}4.779,583$$

untuk  $c = 9$

$$P_0 = \left[ \frac{r^n}{n!} + \frac{r^n}{c!(1-r/n)} \right]^{-1}$$
$$= \left[ \frac{1}{0!} + \frac{3^1}{1!} + \frac{3^2}{2!} + \frac{3^3}{3!} + \frac{3^4}{4!} + \frac{3^5}{5!} + \frac{3^6}{6!} + \frac{3^7}{7!} + \frac{3^8}{8!} + \frac{3^9}{9!(1-3/9)} \right]$$
$$= 0,0498$$

$$P_n = \frac{r^n}{c^n - r} \cdot \frac{r^n}{c!} \times P_0$$
$$= \frac{3^5}{9^5 - 9} \cdot \frac{3^5}{9!} \times 0,0498$$
$$= 0,2187$$

$$L_q = \frac{r^{c+1}}{(c-1)!(c-r)^2} \times P_0$$
$$= \frac{3^{9+1}}{(9-1)!(9-3)^2} \times 0,0498$$
$$= 0,002$$

$$L_s = L_q + r = 0,002 + 3 = 3,002$$

$$W_q = L_q / \lambda = 0,002 / 15 = 0,0001 \text{ jam, } 0 \text{ menit, } 00 \text{ detik}$$

$$W_s = W_q + 1/\mu = 0,0001 + 1/5 = 0,2001 \text{ jam, } 12 \text{ menit, } 00 \text{ detik}$$

$$E(C_w) = c \times \mu F = 9 \times \text{Rp.}156,348 = \text{Rp.}1.407,132$$

$$E(C_f) = L_s(c) \times C_w = 3,002 \times \text{Rp.}1.173,138 = \text{Rp.}3.521,76$$

$$TC = c \times C_f + L_s(c) \times C_w = \text{Rp.}1.407,132 + \text{Rp.}3.521,76 = \text{Rp.}4.928,89$$

untuk  $c = 10$

$$P_0 = \left[ \frac{r^n}{n!} + \frac{r^n}{c!(1-r/\mu)} \right]^{-1}$$
$$= \left[ \frac{1}{0!} + \frac{3^1}{1!} + \frac{3^2}{2!} + \frac{3^3}{3!} + \frac{3^4}{4!} + \frac{3^5}{5!} + \frac{3^6}{6!} + \frac{3^7}{7!} + \frac{3^8}{8!} + \frac{3^9}{9!} + \frac{3^{10}}{10!(1-3/10)} \right]^{-1}$$
$$= 0,0498$$

$$P_n = \frac{r^n}{c^{n-c} \cdot c!} \times P_0$$
$$= \frac{3^5}{10^{5-10} \cdot 10!} \times 0,0498$$
$$= 0,3335$$

$$L_q = \frac{r^{c+1}}{(c-1)!(c+r)^2} \times P_0$$
$$= \frac{3^{10+1}}{(10-1)!(10-3)^2} \times 0,0498$$
$$= 0,0005$$

$$L_s = L_q + r = 0,0005 + 3 = 3,0005$$


$$W_q = L_q / \mu = 0,0005 / 15 = 0,00004 \text{ jam}, 0 \text{ menit}, 00 \text{ detik}$$

$$W_s = W_q + 1/\mu = 0,00004 + 1/15 = 0,20004 \text{ jam}, 0 \text{ menit}, 00 \text{ detik}$$


$$E(C_w) = c \times C_f = 10 \times \text{Rp.}156,348 = \text{Rp.}1.563,48$$

$$E(C_f) = L_s(c) \times C_w = 3,0005 \times \text{Rp.}1.173,138 = \text{Rp.} 3.250$$

$$T_0 = c \times C_f + L_s(c) \times C_w = \text{Rp.}1.563,48 + \text{Rp.}3.250 = \text{Rp.}5.083,48$$

The logo of Universitas Katolik Soegijapranata is a yellow shield with a scalloped border. Inside the shield, there is a central emblem featuring a cross above a stylized figure, possibly representing a religious or academic symbol, with an open book at the base. The text "UNIVERSITAS KATOLIK" is written along the top inner edge of the shield, and "SOEGIJAPRANATA" is written along the bottom inner edge.

**LAMPIRAN IV**  
**PERHITUNGAN SAAT INI DENGAN PERHITUNGAN TINGKAT**  
**PELAYANAN OPTIMAL**

The logo of Universitas Katolik Soegijapranata is a yellow shield-shaped emblem with a scalloped border. Inside the shield, there is a stylized white and grey figure of a person with arms raised in prayer, topped with a white cross. Below the figure is an open book. The text "UNIVERSITAS KATOLIK" is written in a semi-circle at the top, and "SOEGIJAPRANATA" is written in a semi-circle at the bottom, both in a light grey font.

**LAMPIRAN IV**  
**PERHITUNGAN SAAT INI DENGAN PERHITUNGAN TINGKAT**  
**PELAYANAN OPTIMAL**

## Penerimaan

saat ini

penerimaan/bulan

= jumlah resep/bulan x laba bersih/ kertas resep

$$= \frac{9.597}{6} \times \text{Rp. } 247,098 = \text{Rp. } 395.233,25$$

Tingkat pelayanan optimal

penerimaan/bulan

= ( $\mu$  opt x 5jam x 6hari x 4minggu) x laba bersih/kertas resep

= (25 x 5 x 6 x 4) x Rp.247,098

= Rp.741.294

## Pengeluaran

Saat ini

gaji

1 orang Kepala Apoteker	Rp.1.000.000
1 orang kepala bagian	Rp.1.500.000
5 orang asisten apoteker	Rp.1.250.000
2 orang tenaga gudang	Rp. 600.000
5 orang juru resep	Rp.3.750.000
	<u>Rp.8.100.000</u>

Tingkat pelayanan optimal

1 orang Kepala Apoteker	Rp.1.000.000
1 orang kepala bagian	Rp.1.500.000
6 orang asisten apoteker	Rp.1.500.000
2 orang tenaga gudang	Rp. 600.000
5 orang juru resep	Rp.3.750.000
	<u>Rp.8.350.000</u>