



# Duration time for hand rub based on the hand hygiene behavior of healthcare workers in hospital wards

Erisa Sugawara. Hiroyoshi Kobayashi Takumi Kajiura  
Tokyo Healthcare University Postgraduate School



## BACKGROUND

### ★The duration time Alcohol-based for hand rub

1. not clearly described . . . . . CDC Guideline in 2002 2.20-30 seconds . . . . . WHO Guidelines in 2009  
3. At least 15seconds . . . . . Ministry Health, Labour and Welfare scientific research in Japan 2005

less than 15 seconds at many Japanese hospital wards

## PURPOSE

To know the actual and appropriate hand rub duration time of health care workers in general hospital wards

## METHODS 1

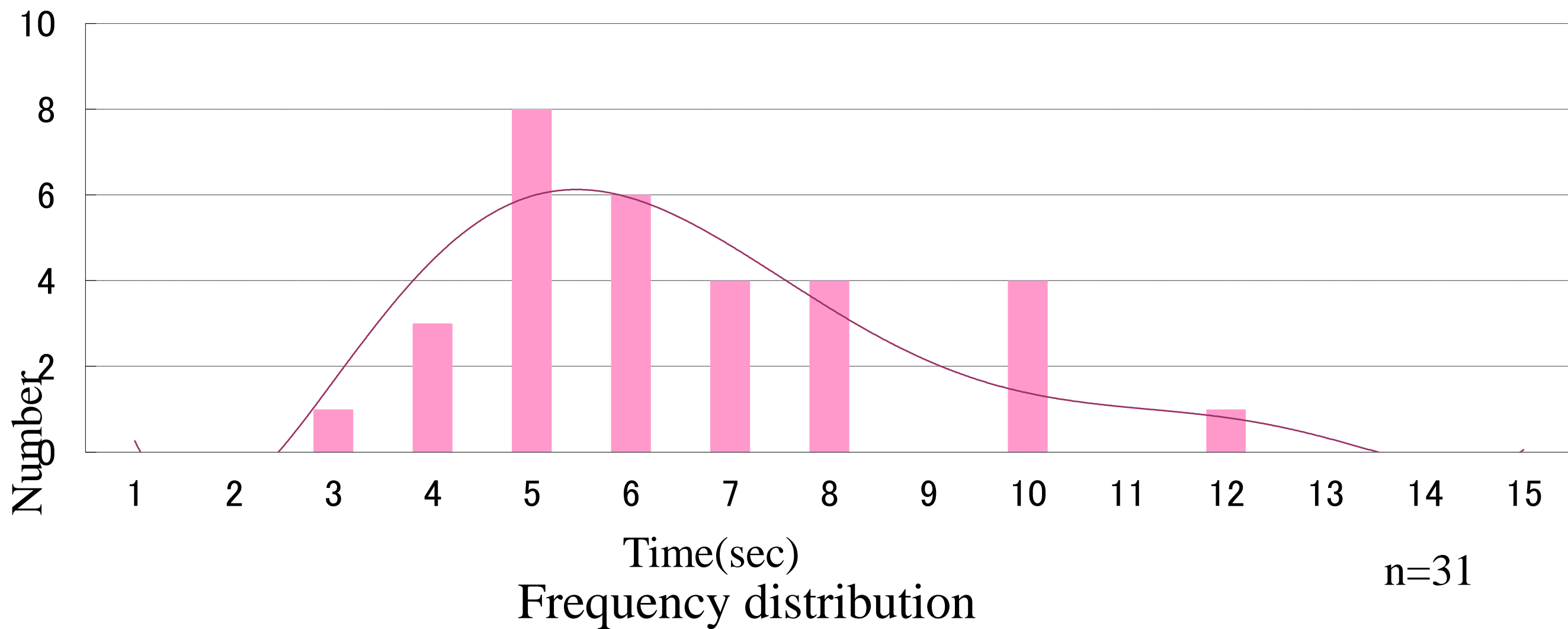
### Direct observation of actual duration time for hand rub in the ward

1. Wards; Neurology and Neurosurgery wards
2. Observed behavior; Changing position time in bed in the afternoon
3. Observed numbers;31 nurses
4. Measuring; Duration time (rub the alcohol product \* over all of hands and fingers until dry) \* 80vol% Ethanol gel hand sanitizer



## RESULTS 1

### Direct observation of actual duration time for hand rub in the ward



	Time (sec)
Ave Time± standard deviation(SD)	6.55±2.16
Max time	12
Min time	3
Intermediate time	6

## METHODS 2

### Microbicidal efficacy of actual hand rub

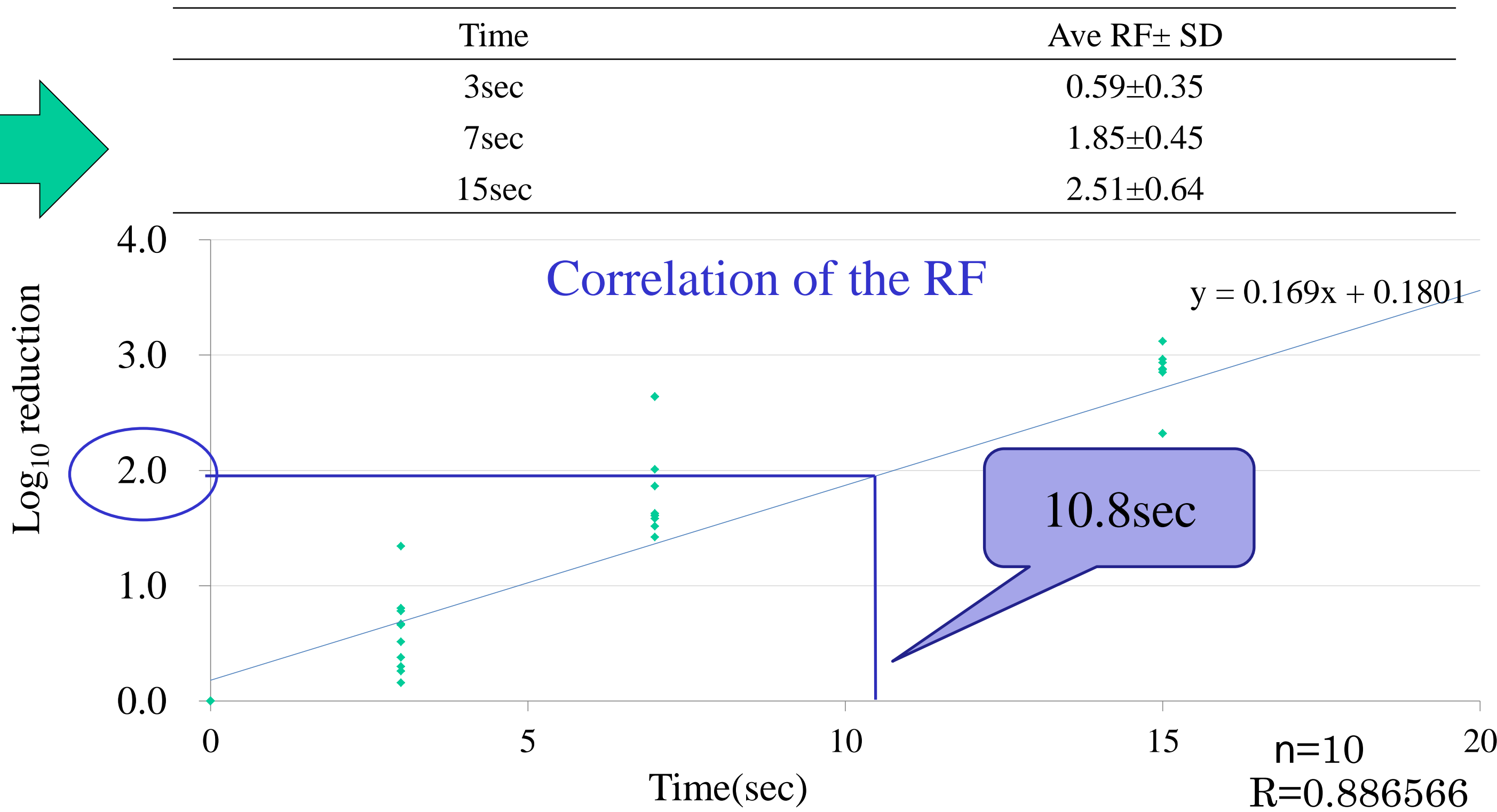
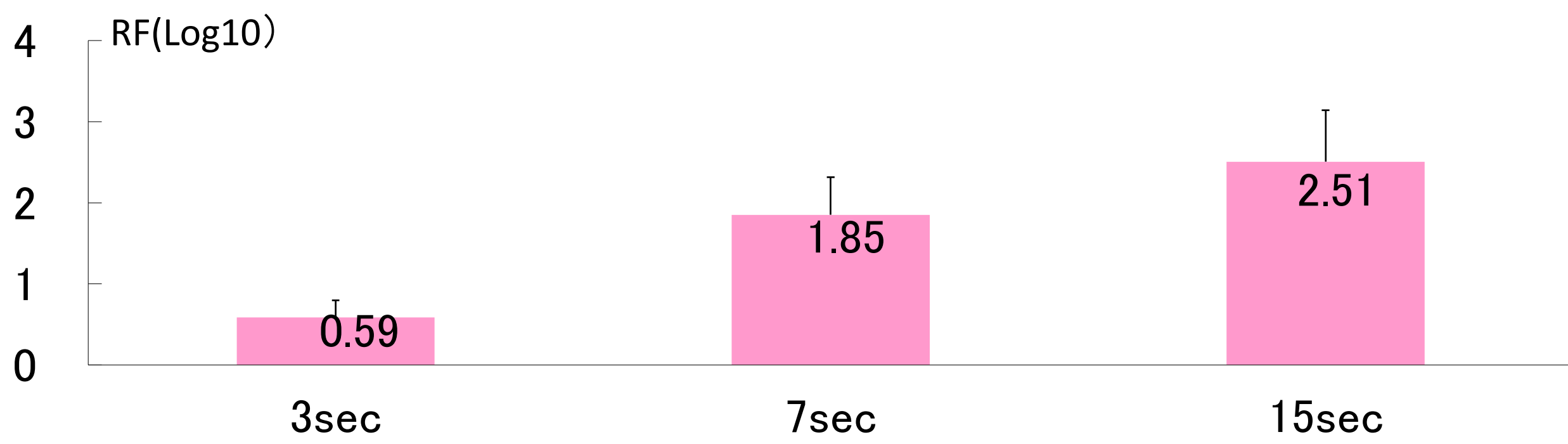
- 1.Subject  
Healthy 5 volunteers: (3 males, 2 females including 2 health care worker)  
Left and right hand of each volunteers is considered as a separate date.
2. Alcohol hand rub product  
0.5% glycerin containing 80%ethanol (80%ethanol)
3. Test Bacteria  
*Serratia marcescens* ATCC14756\*(10<sup>7</sup>/mL、0.5mL×2)  
\*The safety has been approved by American Society for Testing and Materials (ASTM)
4. Recovery  
Globe juice (G.J) method according to ASTM E1174
5. Duration time for hand rub  
About 3 sec, 7sec and 15sec  
Because ,result of direct observation.
6. Dosage preparation  
3sec → minimum time 7sec → Intermediate time 15sec→ recommendation time in Japan.

	About 3 sec	About7 sec	About 15 sec
Large (Gloves size8.5)	0.35 m l	1.0 m l	2.0 m l
Small (Gloves size7.5)	0.2 m l	0.75 m l	1.5 m l

◆Duration time for hand rub corresponding to **2-Log<sub>10</sub> reduction** is a required criterion which is prescribed by Tentative Final Monograph in US- Food and Drug Administration.

## RESULTS 2

### Hand rub reduction factor (RF) in each duration time

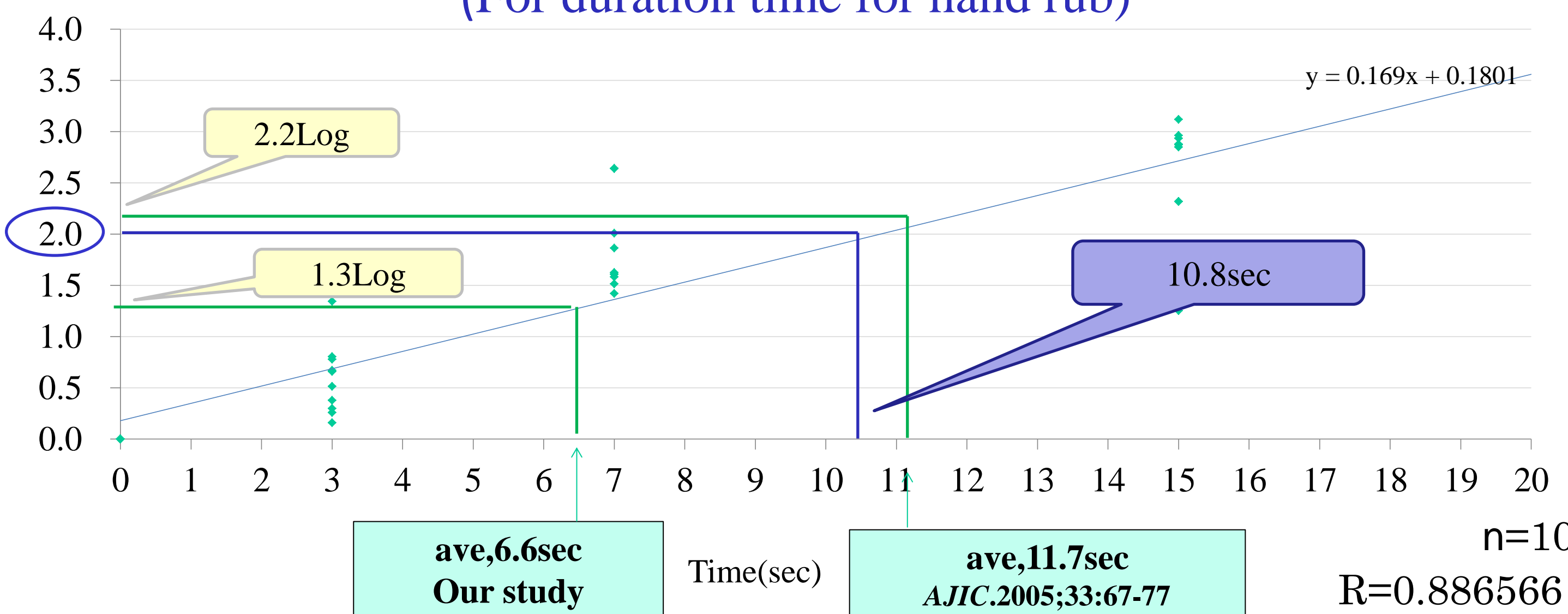


## Literatures about actual rubbing time

Duration time for hand rub	Literatures
30sec (29sec~33sec)	Efficacy of handrubbing with alcohol based solution versus standard handwashing with antiseptic soap: randomised clinical trial Emmanuelle G et al. <i>BMJ</i> 2002;325:362
Ave11.6sec (Intermediate10sec)	Comparative efficacy of hand hygiene agents in the reduction of bacteria and viruses Sickbert-Bnnett. et al. <i>AJIC</i> .2005;33:67-77
Ave 11 sec Ave 15 sec	Evaluation of the bactericidal efficacy of three different alcohol hand rubs against 57 clinical isolates of <i>S. aureus</i> Cheeseman K.E et al. <i>J hosp Infect</i> 2009;72:319-325

## DISCUSSION

### Correlation of the each RF in direct observation (For duration time for hand rub)



## CONCLUSIONS

These results indicates that **10.8 seconds** of duration time for hand rub will be effective, and it will be a realistic and an acceptable condition for busy health care workers. ICT(Infection Control Team) should encourage the ward nurses to rub their hands approximately 1.6 times longer than average duration time observed in this study.