The Challenges of Infection Prevention and Control in Japan
Prof. Hiroyoshi Kobayashi, Tokyo Healthcare University Postgraduate School
Broadcast live from the Infection Prevention Society conference

Intervention manual of prophylactic antibiotics.
Department of Cardiovascular Surgery, the University of Tokyo Hospital for cardiac surgery was made mainly by Dr. Kobayashi in May 1966 for the first time in Japan.
Prophylaxes for the effective concentration during cardiac surgery was emphasized.

methicillin (MPC-PC) → cloxacillin (MI-PC) → cephalodine (CER) → cefazolin (CEZ) were successively employed according to the availability of newly introduced antibiotics.

Manual of Prophylactic Antibiotics for Cardiac Surgery
May 1966

1. 検査、手術、歯科外来を含む。
   ABPC
   MIPC 200 MIPC 100
   CEZ 500
2. 検査、手術、歯科外来を含む。
   ABPC
   MIPC 200 MIPC 100
   CEZ 500
3. 検査、手術、歯科外来を含む。
   After the surgery for 5–7 days
   ABPC
   MIPC 200 MIPC 100
   CEZ 500

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Organising Committee for
Japanese Society of Environmental Infections
on 2nd April 1985 at Tokyo University

Board
Yasusi Ueda
Kihachiro Shimizu
Rinji Kawana
Yoshiaki Kumamoto

Secretary
Humio Matsumoto
Hiroyoshi Kobayashi

1st Annual Meeting of
Japanese Society of Environmental Infection
1 February 1986 (Sat)
Tokyo

The number of attendants was approximately 200.
But at 28th Annual Meeting in February 2013 the number of attendant was over 5,000.

Guideline for Infection Control 1st ed. was published

Department of Infection Control and Prevention,
Graduate School of Medicine and Faculty of Medicine
The University of Tokyo was established on June 1994.

It was the beginning of new infection prevention and control era in Japan.

Surgical Hand Hygiene
in
The University of Tokyo Hospital (UTH)

Mercury(I) chloride (Calomel HgCl₂)
Mercury(II) chloride (Mercury dichloride HgCl₂) 1955

Surgical Suite, UTH
Cernuelised in 1955
Quaternary ammonium (Quats)
Hexachlorophene(G-11) partially since 1952
Povidone-iodine 1973
Chlohexidine 1977

As one like to selects

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Glycerol-ethanol was poured on the gauze sponges in the kidney tray in the basin which were all sterilised.

In March 1974
Introduced first time into Japan

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Hand Rubbing Alcohol Agents in Japan
1978 Dr. Kobayashi met Sterillium® in Germany and tried to import the antiseptics, but n-propanol (1-propanol) is not permitted for clinical use in Japan. So he asked the production of new antiseptics to a pharmaceutical company. 0.2wt% chlorhexidine in ethanol (2%CHG+Eth) and 0.2wt% quats in ethanol (0.2%BAC+Eth) were planned to develop, and the concerning studies had started.
1988 0.2%BAC+Eth was submitted to Ministry of Health and Welfare(MHW).
At that time chlorhexidine was re-evaluated officially by the government, so the submission was suspended.
1995 0.2%BAC+Eth was approved by the government.
1995 0.2%BAC+Eth was put on the medical market as a first hand rubbing agent in Japan.
1997 Official re-evaluation of pharmaceutical effect of chlorhexidine finished.
(58Sup : PharmNo.755)
1995 0.2%CHG+Eth was submitted to MHW.
1997 0.2%CHG+Eth was approved by the government.
1998 0.2%CHG+Eth was put on the medical market.

Supply of Surgical Instrument Set in the Container with Packing and Filter
In December 1987, whole container system for surgical instrument set is employed in Surgical Suite of the University of Tokyo Hospital after three years planning and discussion. The containers were imported from Germany. It was the first time in Japan to employ whole container of sterilized instrument and it followed 1994 dust container system for surgical instrument supply and began popular in many healthcare facilities.

Surgical instrument set after surgery were put in the removal container which is used for only removing to central service. The removal container were put on the robot station of surrounding corridor.

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Automatic Guided Vehicle comes to the station and automatically pick up the removal containers.

Automatic Guided Vehicle carries the containers automatically. The removal AGV system for surgical instrument sets was the first one in the world.

Sterility test of container was carried out.

The standard setting (110 ± 20 mm, 30° ± 1°) were inserted between surgical instruments, and test tips were inserted into test-sterile, and the containers were left unopened for 4 years 7 months in my office.

After 4 years 7 months, they were opened and test tips were cultured.

In the results, no contamination was recognized and all test tips were kept sterile. It is not for clinical application but for Guinness Book. Clinically the container set unopened for more than three months have to be retired.

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HBs-Ab Positive Personnel engaged in Surgical Suite more than Five Years (N=62)

Chimpanzee Colony in Kumamoto, Japan 1978

Plasma Dilution at Treatment

<table>
<thead>
<tr>
<th>Chimp No</th>
<th>Disinfection</th>
<th>Plasma dilution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1%GA 5min</td>
<td>1:2,000</td>
</tr>
<tr>
<td>2</td>
<td>0.1%GA 5min</td>
<td>1:1,000</td>
</tr>
<tr>
<td>3</td>
<td>ethanol 5min</td>
<td>1:1,500</td>
</tr>
<tr>
<td>4</td>
<td>98°C 2min</td>
<td>1:1,000</td>
</tr>
<tr>
<td>5</td>
<td>untreated</td>
<td>1:1,000</td>
</tr>
</tbody>
</table>

DIRECT TRANSMISSION STUDY (Chimpanzee)

10^6 infectious dose serum pool was diluted in physiological salt solution and injected iv.

Inactivation of hepatitis B virus

<table>
<thead>
<tr>
<th>Method</th>
<th>Inactivation Time</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA + phenol</td>
<td>20°C 10min</td>
<td>0.1w/v%</td>
</tr>
<tr>
<td>Isopropanol</td>
<td></td>
<td>80v/v%</td>
</tr>
<tr>
<td>Iodophors</td>
<td></td>
<td>121°C 2min</td>
</tr>
</tbody>
</table>

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1959 Methicillin was introduced as antibiotic
1962 Methicillin was introduced into Japan
1961 First methicillin-resistant *Staphylococcus aureus* isolated in England*


The late bacteriologist, Professor Patricia Jevons, discovered methicillin-resistant *Staphylococcus aureus*, or MRSA, at Clindal Laboratories in London on October 2, 1961, only two years after the drug methicillin was introduced to treat *Staphylococcus aureus* infections that had become resistant to penicillin.

Read more: Who first discovered MRSA? | Answerbag
http://www.answerbag.com/q_view/2084447/ixrzzWBfd8hbf

<table>
<thead>
<tr>
<th>Year</th>
<th>MRSA / Total <em>S. aureus</em> isolated %</th>
<th>Outpatients</th>
<th>Inpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Jul.-Dec. 1984</td>
<td>7/162 4.3%</td>
<td>28/452 6.2%</td>
<td></td>
</tr>
<tr>
<td>Jan.-Jun. 1985</td>
<td>9/154 5.8%</td>
<td>17/322 17.8%</td>
<td></td>
</tr>
<tr>
<td>Jul.-Dec. 1985</td>
<td>10/171 5.8%</td>
<td>142/440 32.3%</td>
<td></td>
</tr>
<tr>
<td>Jan.-Jun. 1986</td>
<td>12/152 7.9%</td>
<td>159/455 36.0%</td>
<td></td>
</tr>
<tr>
<td>Jul.-Dec. 1986</td>
<td>15/661 9.0%</td>
<td>204/475 42.9%</td>
<td></td>
</tr>
<tr>
<td>Jan.-Jun. 1987</td>
<td>15/170 8.8%</td>
<td>381/654 58.3%</td>
<td></td>
</tr>
<tr>
<td>Jul.-Dec. 1987</td>
<td>22/249 8.8%</td>
<td>386/752 51.3%</td>
<td></td>
</tr>
</tbody>
</table>

“Hospital Infection” written by a lady whose husband died after surgery with MRSA infection on 24th October 1987.

In the book published by Mr. Eniko Temme, psychologist, on 30th January 1990, the poorness of infection prevention system was pointed out.

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Side room for isolation in recovery room. In cardiovascular surgery with removable panels was installed by Dr. Kobayashi, as there had no SICU with isolation rooms at that time in early 1990's in the University of Tokyo Hospital. In some sense, it was the original idea of ICU beds in Japan.

There is sufficient common area and it is unnecessary to change the shoes.

ICU & SICU, NTT Medical Center Tokyo since December 2000
Four open beds and four isolation rooms in this ICU

MRSA in the Air collected by RCS Sampler

Above the bed before tracheal aspiration

Above the bed during tracheal aspiration of MRSA-infected tracheostomy patient

The Univ. Tokyo Hosp. 1991

Air filtrating Unit

The Univ. Tokyo Hosp. 1991

MRSA Hospital Infection in UTH

<table>
<thead>
<tr>
<th>Year</th>
<th>Medical wards</th>
<th>Surgical wards</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N* Infected</td>
<td>N* Infected</td>
<td>N* Infected</td>
</tr>
<tr>
<td>1990</td>
<td>2,914 38 1.30%</td>
<td>6,254 158 2.53%</td>
<td>9,168 196 2.14%</td>
</tr>
<tr>
<td>1991</td>
<td>2,940 39 1.33%</td>
<td>6,290 65 1.03%</td>
<td>9,230 104 1.13%</td>
</tr>
<tr>
<td>1992</td>
<td>3,105 17 0.55%</td>
<td>6,541 66 1.01%</td>
<td>9,646 83 0.86%</td>
</tr>
<tr>
<td>1993</td>
<td>3,048 17 0.56%</td>
<td>6,607 73 1.10%</td>
<td>9,655 90 0.93%</td>
</tr>
<tr>
<td>1994</td>
<td>3,068 24 0.78%</td>
<td>6,682 73 1.09%</td>
<td>9,750 97 0.99%</td>
</tr>
</tbody>
</table>

1991*: Ward liaison started in Surgical wards
1992*: Ward liaison in all wards
N*: New admission

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MRSA Screening of Personnel
Engaged in the University of Tokyo Hospital
Nares and Throat
117 / 2,785 times (including more than twice of test)
4.20%
At the High Seasons

MRSA Hospital Infection
No Diagnosis Criteria were Shown

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>20</td>
<td>132,658</td>
<td>1,253</td>
</tr>
<tr>
<td>1991</td>
<td>42</td>
<td>303,454</td>
<td>1,735</td>
</tr>
<tr>
<td>1992</td>
<td>42</td>
<td>313,909</td>
<td>2,234</td>
</tr>
<tr>
<td>1993</td>
<td>42</td>
<td>322,729</td>
<td>2,346</td>
</tr>
<tr>
<td>1994</td>
<td>42</td>
<td>330,492</td>
<td>2,663</td>
</tr>
<tr>
<td>1999</td>
<td>59</td>
<td>513,445</td>
<td>4,058</td>
</tr>
<tr>
<td>2000</td>
<td>79</td>
<td>673,028</td>
<td>5,214</td>
</tr>
<tr>
<td>2001</td>
<td>93</td>
<td>863,770</td>
<td>6,277</td>
</tr>
<tr>
<td>2002</td>
<td>103</td>
<td>1,033,566</td>
<td>7,206</td>
</tr>
<tr>
<td>2003</td>
<td>130</td>
<td>1,350,248</td>
<td>10,042</td>
</tr>
</tbody>
</table>

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MRSA Infections in the University of Tokyo Hospital

<table>
<thead>
<tr>
<th>Year</th>
<th>Medical Wards</th>
<th>Surgical Wards</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N*</td>
<td>No. of Infect.</td>
<td>N*</td>
</tr>
<tr>
<td>1990</td>
<td>2,914</td>
<td>38</td>
<td>1.30%</td>
</tr>
<tr>
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<td>2,940</td>
<td>39</td>
<td>1.33%</td>
</tr>
<tr>
<td>1992</td>
<td>3,105</td>
<td>17</td>
<td>0.55%</td>
</tr>
<tr>
<td>1993</td>
<td>3,048</td>
<td>17</td>
<td>0.50%</td>
</tr>
<tr>
<td>1994</td>
<td>3,068</td>
<td>24</td>
<td>0.78%</td>
</tr>
</tbody>
</table>

N*: No. of Admission
Jan. 1991: Ward liaison for mainly surgical wards started
Apr. 1991: Ward liaison for all wards started

In April 1991 ICT was organised and ICT ward liaison began once a week for all wards.

Education programme for house keepers started in 1991
Twice a year

The budget for house keeping in national university hospital is not sufficient

A puppy new year party with house keepers in January 1991

I made effort to join the essence of house keepers to have good communication and to tell them realise the importance of house keeping for infection prevention.

The Mean Hospital Fee for Microbiological Examination per One MRSA Infected Patient
The University of Tokyo Hospital 1994

<table>
<thead>
<tr>
<th>Ward</th>
<th>No Cases</th>
<th>No Exam/Pt</th>
<th>Fee/Pt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
<td>18</td>
<td>110</td>
<td>\347,456</td>
</tr>
<tr>
<td>Surgical</td>
<td>73</td>
<td>55</td>
<td>\127,089</td>
</tr>
<tr>
<td>Total</td>
<td>91</td>
<td>66</td>
<td>\170,678</td>
</tr>
</tbody>
</table>

Legal situation of infection prevention and control

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10 days of additional hospital stay in the mean results of 16 facilities (1993) \( \times 205,783 \)  
Fee for microbiological examination \( \times 170,678 \)  
VCM1g/d \( \times 7 \) days \( \times 98,940 \)  
Antiseptics 500mL \( \times 2 \) \( \times 4,750 \)  
Single use devices \( \times 2,000 \) \( \times 7 \) \( \times 14,000 \)  
Total \( \times 494,151 \)


Items already carried out among those in the report to MHLW

1. Regional networks to support the hospitals with less than 300 beds where specialists are wanted for
2. National committee for adequate promotion of the networks
3. Publication of evidence-based guidelines
4. Database on the practical evidences of HCAI
5. Full-time specialists for HCAI in tertiary hospitals
6. Financial support for urgent research
7. Professional education to promote specialists of HCAI
8. Certification of professional in each specialty

New legal position of healthcare-associated infection
No.0306002 6 March 2006
Ministry of Health, Labour and Welfare
Notification to Local government etc.

Regulation for healthcare fee of healthcare insurance in Japan
No.20 Fee for Healthcare Risk Management
1. Additional fee for healthcare risk management
   (1) Healthcare risk management
   E. Independent personnel for Infection prevention and control

Partial revision of the medical law enforcement regulations 1-11
Enforced on 1 April 2007 6-10
1) Healthcare risk management
2) Chief executive or manager of hospital have to employ the following strategies.
2)-1 Development of nosocomial infection control system (It is only for hospital, clinic with beds and midwifery clinic with beds).
A) Development of manual for hospital infection prevention and control
B) Holding infection control committee
C) Educational programme for hospital personnel on infection prevention and control
D) Reporting the nosocomial infections and improvement of the strategies

Expert Panel Committee for Hospital Infection Control
Ministry of Health, Labour, and Welfare
July 2002 – September 2003  eight time meetings
Member: 22 specialists from different area including non-medical specialists (Chairperson: H. Kobayashi)
Report to the Ministry in September 2003

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Enforcement Regulations for HCAI
Enforced on 1 April 2007

<table>
<thead>
<tr>
<th>Category of Hospital</th>
<th>Educational Common with bed</th>
<th>Educational Common without bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual of own hospital</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Infection Control Committee</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Education for personnel</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Infection report</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Division for HCl</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Responsible person</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

○: Newly regulated  ○*: Already regulated ○*: Included into risk manage.

Newly developed guideline and manual examples
Proposed by MHLW

1. Guideline for hospitals with less than 300 beds 2007
   — Example of simplified and effective manual —
   — Example of simplified and effective manual —

Sponsored by Ministry of Health, Labour, and Welfare
Study on construction of safety environment for healthcare
Kobayashi H, et al

Additional Admission Fee for Infection Control Services
1,000 ¥ for each admission since 1st April 2010
Services should include:
1. Full time ICD or ICN
2. Full or part time ICN have to have more than 5 years experience for infection prevention and control and to be trained through 6 month training course officially authorized.

This additional fee for infection control services is developed by "Study on expenses of the items used for infection prevention and control in a tertiary university hospital." by Rika Yoshida.

New Additional Admission Fee for Infection Control Services
April 2012
Additional fee for infection control services -1 4,000/admission (Ca $25)
Additional fee for infection control services -2 1,000/admission
Additional fee for regional collaboration 1,000/admission

Additional Fee for Infection Control Services - 1
① Full-time specialist should be appointed and responsible division should be organised.
② ICT with following personnel should be organised.
   a) Chargeable ICD with the experience for more than three years.
   b) Chargeable ICN with the experience for more than five years and official diploma in adequate six-months-education.
   c) Chargeable pharmacist with more than three year hospital experience.
   d) Chargeable clinical technologist with more than three year hospital experience.
   ITN or ICD should be full-time.
③ More than four times of conferences with the facilities of additional fee -1 should be held.

Additional Fee for Infection Control Services - 2
① The facilities with 300 beds or less is mainly targeted.
② ICT should be organised. Six months education for ICN or full-time personnel is not requested.
③ More than four times of conferences with the facilities of additional fee -1 should be held.
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Additional fee for regional collaboration
1. Collaboration with another facility which submitted additional fee for infection control services – 1.
2. Visitation to audit another collaborating facility more than once a year.
3. Visitation to be audited by another collaborating facility more than once a year.

Independent Infection Control Nurse in Japan

<table>
<thead>
<tr>
<th>No. of beds</th>
<th>No. of facilities(A)</th>
<th>Independent ICN(B)</th>
<th>A/B(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8,789</td>
<td>2,787</td>
<td>31.7</td>
</tr>
<tr>
<td>20-49</td>
<td>1,051</td>
<td>277</td>
<td>26.4</td>
</tr>
<tr>
<td>50-99</td>
<td>2,288</td>
<td>651</td>
<td>28.5</td>
</tr>
<tr>
<td>100-149</td>
<td>1,433</td>
<td>436</td>
<td>30.4</td>
</tr>
<tr>
<td>150-199</td>
<td>1,313</td>
<td>425</td>
<td>32.4</td>
</tr>
<tr>
<td>200-299</td>
<td>1,130</td>
<td>374</td>
<td>33.1</td>
</tr>
<tr>
<td>300-399</td>
<td>745</td>
<td>273</td>
<td>36.6</td>
</tr>
<tr>
<td>400-499</td>
<td>366</td>
<td>147</td>
<td>40.2</td>
</tr>
<tr>
<td>500-599</td>
<td>200</td>
<td>88</td>
<td>44.0</td>
</tr>
<tr>
<td>600-699</td>
<td>115</td>
<td>48</td>
<td>41.7</td>
</tr>
<tr>
<td>700-799</td>
<td>57</td>
<td>25</td>
<td>43.9</td>
</tr>
<tr>
<td>800-899</td>
<td>33</td>
<td>18</td>
<td>54.5</td>
</tr>
<tr>
<td>900-</td>
<td>63</td>
<td>25</td>
<td>39.7</td>
</tr>
</tbody>
</table>

No. of Beds among the Facilities of Additional Fee 1

Certification of Infection Prevention and Control in Japan

Certified Infection Control Doctor (CICD)
- Certification of Infection Control Doctor (ICD) by the Joint Commission consisted of six scientific societies started in 1999 in order to increase the number of ICDs interested in hospital infection prevention and control.
- Doctors engaged in the laboratory researches are also included in the certification as specialists to be consulted with.
- On 1 January, 2000, 832 doctors were certified for the first time.
- As of September 2013, 7,106 ICDs had been certified by the Joint Commission consisted of 22 scientific societies.

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CICD: 7,106 as of September 2013
- ≥500 beds: 456 hospitals
- ≥300 beds: 1,546 hospitals
- ≥200 beds: 2,654 hospitals

General beds: 899,385 (-10,052 -1.11%)
Chronic bed: 330,167 (-9,191 -2.71%)
Total: 1,583,073 (-26,330 -1.64%)


Diploma for Infect Control Staff (ICS) since 2002
In smaller or middle size healthcare facilities, number of infection control staff specially educated were wanted for. So the new certification programme was discussed in the committee of Japan Hospital Association in which main members are smaller and middle size facilities.

However, I objected to make same kind of certification system in infection prevention and control and proposed to make educational programme to be able to become ICS with three week ends (totally full 6 days) curriculum. It was accepted in the committee. In the results, for these ten years the educated personnel became key person for infection prevention and control in those facilities.

Diploma for Infect Control Staff (ICS) since 2002

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
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<tbody>
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<td>2012</td>
<td>449</td>
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<td>Total</td>
<td>4,575</td>
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</tbody>
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Certification of Sterilization Service Technician and Sterilization Specialist

2nd grade Certified Sterilization Service Technicians (CSST) and 1st grade Certified Sterilization Specialist (CSS)
- May 2000 : “Guideline for sterility assurance” published by Jpn.Ame Med Instrument (JAMI), and edited by Kobayashi, H.
- June 2000: Certification programme for CSS by JAMI started
- November 2003: Certification programme for CSS by JAMI started
- 2002: Certification programme for CSS by JAMI started
- As of September 2013: 3,202 CSSTs (2nd grade) and 245 CSSs (1st grade) have been certified.

Training programme for certified ICN
By Japanese Nursing Association
- Japanese Nursing Association since 2000
- National College of Nursing since 2001
- Four educational facilities from 2004

A Webber Training Teleclass
www.webbertraining.com
The Challenges of Infection Prevention and Control in Japan
Prof. Hiroyoshi Kobayashi, Tokyo Healthcare University Postgraduate School
Broadcast live from the Infection Prevention Society conference

Certification of ICN
- Too small number of certified nurse in infection control (CNIC) by Japanese Nursing Association to cover even large hospitals only
- Unfortunately, more than half of CNIC cannot engaged in full-time ICN job, because those CNIC went to the educational course by their own will and not by the recommendation of CE or Director of Nursing
- Complemental education systems should be necessary to obtain the sufficient number of ICN

Tokyo Healthcare University Postgraduate School
Educational programme for six months to become officially certified nurse in infection prevention and control was submitted to MHLW on 5th March 2010 and met with approval of MHLW on 11th June 2010. In the programme, for six months, the student has to have more than five year experience in infection control and prevention in clinical settings and must be recommended to come to the school by the recommendation of CE or Nursing Director. In the programme, different from that of Japanese Nursing Association, one can learn with continuing one’s daily nursing job and learn on weekends and every day by internet communications but with three times of full week condensed education.

Curriculum of Practical Nursing for Infection Prevention and Control 6 months
1. History and future
2. Regal regulation of infection control and prevention
3. Healthcare insurance system and fee, and hospital economy
4. Role and strategy of infection control nurses and ability required
5. Team healthcare, collaboration technique and humanity
6. Quality of healthcare, and evaluation and improvement of it
7. Strategy for cost benefit of measures and economical evaluation
8. Evaluation and improvement plan for own hospital depending on the size of it
9. Actual experiences and improvement strategies of infection prevention and control practices in clinical settings
10. Risk management and collaborative practices
11. Suits and their actual examples each for 90min ≈ 1 times

Professional Nurse for Infection Prevention and Control
Tokyo Healthcare University Postgraduate School
~ 3rd year (2012) 55 certified

| Independent | 28 |
| Mainly engaged in | 17 |
| Total | 47 82% |
| Member of ICT | 4 |
| Link nurse | 4 |
| Others | 2 |

Certification of Specialists in Infection Prevention and Control

| Certification |
| Certified Infect. Control Dr. 1999- | 7,106 |
| Certified Nr. in Infect. Control 2001- | 1,808 |
| Professional Nurse for Infection Prevention and Control | 55 |
| Certified Infection Control Pharmacy Specialist 2006- | 242 |
| Certified Pharmacist in Infection Control 2009- | 646 |
| Certified Sterilization Specialist 2003- | 245 |
| Certified Sterilization Technician 2006- | 3,202 |
| Infection Control Microbiological Technologist 2006- | 455 |
| Diploma for Infect Control Staff 2002- | 4,596 |

Cooperation and information exchange with neighbour countries should be necessary and indispensable.

East Asian Conference on Infection Control consists of Japan, Korea and China is held once a year since 2002, this year in Hangzhou, China in November.

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