PRE AND POST TRAINING EVALUATION ON UNIVERSAL PRECAUTIONS (UP) PRACTICES AT PUTAT JAYA HEALTH CENTER, SURABAYA

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ABSTRAK

Praktek untuk mematuhi 'universal precaution' (UP) di institusi pelayanan kesehatan (termasuk puskesmas, klinik dsb) dimaksudkan untuk melindungi pasien dan petugas kesehatan dari penularan penyakit yang dapat terjadi karena tindakan pelayanan kesehatan yang kurang atau tidak tepat (tidak mengikuti UP). Penyakit yang mungkin dapat menular dengan tidak ditepatinya UP oleh petugas kesehatan antara lain adalah penyakit yang dapat menular lawat darah (blood borne diseases) termasuk HIV/AIDS dan Hepatitis B dan C. Mengingat kepatuhan terhadap UP di antara petugas kesehatan selama melayani pasien dinilai masih kurang, maka dilaksanakan Pelatihan UP di puskesmas. Studi ini dilakukan di Puskesmas Putat Jaya yang juga mempunyai klinik yang khusus melayani Pekerja Seksual Komersial (PSK) dalam rangka menekan terjadinya penularan penyakit kelamin dan HIV/AIDS. Puskesmas Putat Jaya merupakan sasaran yang strategis karena mempunyai daerah binaan antara lain Lokalisasi (PSK) Daily dan Jarak.

Studi evaluatif ini dimaksudkan untuk melihat tingkat kepatuhan petugas terhadap UP selama melayani pasien serta mengkaji adanya perubahan kepatuhan tersebut setelah mendapat pelatihan. Data kualitatif dan kuantitatif dikumpulkan melalui observasi, in depth interview dan diskusi.

Hasil studi menunjukkan bahwa setelah pelatihan, pengetahuan tentang UP secara umum serta kesadaran untuk melindungi pasien dari penularan penyakit meningkat. Penggunaan ulang jarum suntik sudah tidak dilakukan (selalu memakai jarum diposable), spuit dan jarum di-disinfeksi sebelum dibuang serta pelaksanaan disinfeksi/sterilisasi telah sesuai dengan prosedur.

Data kuantitatif menunjukkan bahwa dengan pelatihan terjadi peningkatan jumlah petugas kesehatan yang mempunyai kebiasaan mencuci tangan secara tepat pada waktu melayani pasien yaitu dari 10% menjadi 90%, mengganti sarung tangan dengan tepat dari 33,3% menjadi 66,67%, memakai 'one hand technique' waktu menutup jarum dari 0% menjadi 100%. dan membersihkan instrumen secara tepat rata-rata naik sekitar 35%. Kalau dihitung peningkatan kepatuhan terhadap UP pada setiap menangani kasus, maka terlihat bahwa kenaikan setelah pelatihan adalah dari 0% menjadi 19,6% untuk mencuci tangan sebelum menyuntik, mengganti sarung tangan setiap
melayani pasien meningkat dari 17.9% menjadi 59.5%, penggunaan 'one hand technique' dalam 'recapping' jarum suntik dari 6.7% menjadi 100%, serta mengganti sarung tangan untuk petugas poli gigi dari 20.5% menjadi 100%.

**Key words:** Training Evaluation, Universal Precaution, Health Center, Diseases Prevention

**BACKGROUND**

Universal Precautions (UP) refers to the measures taken by health care workers (HCWs) to protect themselves and other patients against the spread of blood borne diseases, such as HIV/AIDS and Hepatitis B and C. The spread of these diseases are often due to health care worker practices related to blood handling and exposure to medical equipment which has contact with blood, or body fluids known to have these viruses.

While the HIV epidemic in Indonesia is considered "low prevalence" compared to neighboring countries in the region (1043 documented HIV/AIDS cases as of 31 December 1999), the total number of HIV infected persons in Indonesia has doubled in only one year time. Health care facilities are grossly unprepared to care for the HIV/AIDS patient. Current practices of infection prevention (IP) and universal precautions (UP) are inadequate to protect the spread of disease to the health care worker or to other patients in the health care system.

Considering the conditions that the high risk of spreading blood borne diseases including HIV/AIDS and Hepatitis B and C due to improper HCW practices and improper health care facilities, the UP training and implementations could not be neglected. The succeed of the training and evaluation could be evaluated by the study that compared data on pre and post training.

The study was conducted at Putat Jaya Health Center, considering several reasons, i.e.:

1. The HC catchment area covers the commercial sexual worker (CSW) area, called Dolly and Jarak.
2. The HC has the sexual transmitted disease (STD) clinic that provides special services for the CSWs.
3. Low knowledge on UP among the health center personnel.

Low knowledge on UP among the Putat Jaya HC staff might be due to lack of UP training. Current information (before UP training) showed that among 13 HC staff who directly had a risk from blood borne disease infection, 9 (69%) staff ever received training on the infectious diseases related subject. Most of the training related to STD and HIV/AIDS management in general. Only two out of 13 personnel (15%) ever got training covered small part of UP.
The study was needed to provide the project team that developed UP guidelines with understanding of current UP practices at the Putat Jaya Health Center and the rational of those practices. The information was used to strengthen UP guidelines and to design more effective training program for PHC staff. The initial assessment documented the quantitative and qualitative measures of performance that was used for evaluating post training behavior at the PHC.

STUDY OBJECTIVES

1. To assess the current level of staff and institutional compliance with infection prevention practices, particularly related to the prevention of blood borne diseases at a clinic site.

2. To identify behaviors and structural problems which promote and prevent compliance with MOH IP/UP guidelines.

3. To evaluate the results of IP/UP training by documenting post training practices and comparing performance to the pre training performance baseline.

METHODOLOGY

The study was an evaluative study, where the Putat Jaya Health Center and its STD Clinic in Surabaya were the location of the study. The Health Care Workers (HCWs) and STD clinic staff (medical, paramedical and auxiliary) responsible for the tasks in the HC/Clinic's building that exposed to the risk of transmission of blood borne diseases were the subject of the study.

The data/information of pre and post-UP training covered: UP-practices, supervisory practices and influencing factors to the compliance with UP guidelines. It was collected by observation, depth interview and discussion. Data collection was executed by the researcher. In data collection the researcher was assisted by a female dentist and a female doctor especially in conducting direct observation in the MCH and the STD clinic to overcome cultural barriers. Data collection was conducted twice, before and after UP-training, it took 7 working days each. Descriptive analysis was applied to compare data before and after UP-training and to indicate the changes of UP practices among HCWs and STD clinic staff.

FINDINGS

Putata Jaya Health Center

Putat Jaya Health Center consists of 8 rooms/sections, i.e. (1) Front office: ticketing and recording the patients' identification, (2) Administrative, (3) Examination and injection room, (4) Mother and Child Health (MCH), (5) Drugs, (6) Dental Care, (7) Family Planning, and (8) Nutrition, Sanitation and laboratory. There is an opportunity for
transmission of blood borne diseases in five of those rooms: (1) Examination and Injection room, (2) MCH, (3) Dental Care Unit, (4) Family Planning services room, and (5) Laboratory. In the first four rooms there were activities during my observation period, but not in the last room.

Before UP-training the HC had no access to running water at anytime during this period due to a leaking pipe in the water distribution system. In the interim, water was placed in small plastic containers for washing hands and instruments, especially in the Examination and Injection room, Dental Care room and Family Planning Services room. Disposable needles and syringes were used in every single injection. Drug from ampoules was drawn directly using disposable needle and syringe that was used for injection. While the drug from the vial - the drug was used for more than one patient - was drawn into disposable syringe using multiple used needle that always put in the vial up to the drug finished. Then the drug was injected to the patient with disposable needle.

House keeping tasks were done by Auxiliary Nurse or Auxiliary midwife in each room. They rub surfaces in their own room (table, chair, examination bed etc.) with dry napkin, and clean the floor daily with a mop dampened with a disinfectant (lysol). Used cotton balls, disposable needle wrappers and other waste collected in plastic bins during services were disposed of in the concrete box in front of HC together with waste from surrounding households before the service for the day finished. The concrete box was not protected from either animals or children.

Used syringes and needles were collected and stored in plastic buckets placed in each services room where the injections were given. A waiting someone who bought used syringes every 2, 3, or 4 weeks. What happened with syringes bought by someone - could not explained by HC staff. The auxiliary nurse explained that she brought home the used needles then burned and buried them. While the midwives said that they sold the used syringes and sent the used needles to the STD clinic and burned the needles there.

After UP-training, there was a structural and procedure changes, such as:

1. The HC had access to running water any time by building the second water reservoir and fixing the pipe in the water distribution system.
2. Drug from vial - that used for more than one patient - was drawn using disposable needle and syringe, instead of using multiple used needle.
3. Before used needles and syringes were disposed, they were disinfected with chlorine solution.

Access to running water any time was one of the factors that persuaded the staff to wash their hand at least before provide services and after finish all of their task. They did hand washing more
frequent and properly. It seems that most important things that HC personnel change to be more compliance with UP was increasing knowledge after UP training. The improvement of knowledge after UP training was stated by most of the HC personnel during informal interview.

In the mean time, according to the HC leader, due to the absence of incinerator the waste disposal system was still unchanged. The HC leader planned to build the cheapest incinerator in the near future if the HC got sufficient fund from any sources.

**Examination and injection room**

Doctor, Nurse, and Auxiliary nurse provided services as a team in this room. The Doctor examined and diagnosed patients and gave prescriptions, the Nurse asked patients to come to the room and handled the patients’ status (recorded patients’ data) and the Auxiliary Nurse provided injections.

During the first observation (72 patients were treated) the Auxiliary Nurse always used disposable needles and syringes, unfortunately she never washed her hands before injected the patients. She felt no need to wash her hands before every single injection because it took time and it was uncommon to do that before every single injected. During discussion with the doctor –the HC leader– it was stated that it was unnecessary to wash hands for every single injection. In addition there was no SOP (Standard Operating Procedure) governing that procedure. The Auxiliary Nurse never applied the 'one hand technique' in recapping the needles due to its impracticality and her inability to use the technique. Used needles and syringes were collected in the small plastic box during service time, and placed in a plastic bucket before close of service. Used syringes were sold to someone who came every 2, 3 or 4 weeks. Used cotton balls, used ampoules and plastic wrappers of disposable needle and syringes were collected in the plastic bin and disposed of in the concrete box in front of HC together with waste from surrounding households before the end of each service-day.

The Nurse treated a child who was scratched on her face by a cat. She wore gloves but put them on and removed them using an inappropriate procedure. She took reused gloves from glass container with formalin tablet in it. She put gloves on her hand without checking for holes. Before gloves were removed, she washed her hands while the gloves were on-by pouring water with water-scoop, rubbing hands together with soap and rinsed by pouring water again. She dried the gloves by rubbing them with a napkin, pouring talc powder over them and removing them. Finally she put the gloves in the same glass container again. She did that procedure as a common action and felt that it was safe from risk of disease transmission and the gloves were disinfected properly. She injected the
patient for local anaesthetic using disposable needle and syringe, disposing of them in the same way as the auxiliary nurse.

In the second observation, a team that provided services in the examination and injection room was same as in the first observation i.e.: a Doctor, a Nurse and an Auxiliary Nurse. The doctor examined patients and gave prescription, the nurse assisted the doctor and did administrative tasks, while the auxiliary nurse provided injection. During this observation, 70 patients was treated. Doctor, Nurse and Auxiliary Nurse washed their hands properly at the beginning and the end of the services day that they never did it before. The auxiliary nurse provided 59 injection did not wash their hands between patients, but she always use 'one hand technique' in recapping needles that she never did it before. The reason why she did not wash her hands was that it took time and she could not manage all of the patients and other tasks due to time constrain. Besides the tasks that should be executed in the HC, each personnel also has tasks out of HC building, such as School Health Program, outreach immunization, etc.

In the first observation, the nurse provided services that needed aseptic technique procedure (wound dressing of cat scratching), unfortunately no single case that needed aseptic technique procedure in the second observation. Therefore the changes regarding the aseptic technique could not be observed.

Dental Care Unit

The team that provided dental care services in the HC consisted of two dentists, one dental nurse and one auxiliary dental nurse. It seems that they had different job descriptions. One dentist provided dental care services and the other dentist performed administrative tasks. She assisted her colleague in treating patients if necessary. Disinfected and sterilized instruments were the main job of the dental nurse and the auxiliary dental nurse.

During the first observation (before UP training) period 34 patients were treated, i.e. filling: 3 patients; injection for anaesthetic and extraction: 13 patients; one patient - extraction without anaesthetic; 16 patients received drugs and one patient was referred to the hospital.

The dentist wore a mask and gloves while delivering services. She changed the gloves after using them for 3-5 patients. The gloves were not checked for holes before use. Used gloves were disposed of in the plastic bin same as cotton balls and other waste before being collected in the concrete box in front of HC. After she removed the gloves, she washed her hands inappropriately. She wet her hands by pouring water with water-scoop, rubbing them together with soap, sliding fingers and thumb back and forth less than 10 seconds and rinsing them by pouring water again and drying them with a towel.
During treatment execution—wearing gloves—she touched everything she needed—including writing something on patients' status cards—without removing the gloves. She applied the 'one hand technique' in recapping needles 3 times (out of 13 times injection). Unfortunately she did not feel that she used an incorrect procedure, thus it was difficult to explore her reasoning. In the interview she strongly complained that she always uses 'one hand technique' in recapping needles.

Instrument used for filling—bore—was disinfected with alcohol before and after treatment execution. In an informal interview, she said that all procedures she used were enough to protect her from transmission of diseases.

The other dentist did teeth extraction 5 times. She wore gloves only on her left-hand, but didn't wear a mask. She used only one glove for all 5 patients. Her reason was that only the left-hand came in contact with the patient, so there was no need to wear glove on the right-hand. Same as her colleague, she washed her hand only after treating patients and directly after removing the glove. She used the same hand washing procedure as her colleague i.e. wetting hand by pouring water with water-scoop, rubbing hands together with soap, sliding fingers and thumb back and forth less than 10 seconds. She rinsed her hands by pouring water again and drying them with a towel. She felt that this procedure was enough for cleaning hands.

Instruments that were already used were put on the wash-basin by the dentists. The nurse or auxiliary nurse wet the instruments, brushed them with soap and rinsed them by pouring water using water-scoop. The instruments were dried with a towel and then boiled in a small electrical boiler. The duration of boiling depended on frequency of instruments used. The range of the duration of boiling time was 3-10 minutes. The Dentists and nurse explained that the duration of boiling was so short because the number of instruments was inadequate in comparison with the number of patients to be treated. They said that HC only had 6 sets of instrument, while ideally there should be at least 15 sets to allow for proper sterilization. After instruments were boiled, they were placed on a dry towel for cooling and when the services finished, they were placed in the instrument-cupboard which formalin tablet in it.

In the second observation (after UP-training) 26 patients were provided services, i.e. extraction with anaesthetic injection: 6 patients; extraction with non anaesthetic injection: 6 patients; filling: 2 patients; 5 patients received drugs; 6 patients (referred from MCH services room) received health education and one patient was referred to the hospital. Due to one dentist on leave, the job description among dentist, nurse and auxiliary nurse was slightly changed. The dentist provided examination, anaesthetic, extraction, filling and health education; the
Nurse assisted the dentist and prepared instruments, while the Auxiliary Nurse responsible for cleaning instrument and sterilization.

The dentist washed her hands and changed the gloves between patients. She also used one hand technique in recapping needles and disinfected used needles before it was deposed. Those practices were never applied before. She told that after having UP training she became aware that in providing services she should not only protect herself but also protect the patients from disease transmission during treatment.

The auxiliary nurse sterilized the dental instruments properly. She did cleaning instruments procedure correctly and the duration of boiling the instruments during sterilization process was sufficient.

**Mother and Child Health (MCH) Services**

Two midwives and one Auxiliary Midwife as a team were responsible for providing Mother and Child Health and Family Planning Services. One midwife served as a coordinator in MCH room and the other as a coordinator in FP services room. During the first observation period, the behavior of the three staff in providing services could be observed. While executing their tasks, they never washed their hand (no wash basin exists in the room) and never used gloves. They are accustomed to doing this and are not aware of the risk from disease transmission.

One midwife (coordinator) provided injection (immunization and contraception) to 13 patients and never applied 'one hand technique' in recapping. All injection were given with disposable needles and syringes. Used needles and syringes were put on 'kidney-basin' before being collected in a plastic bucket, waiting for someone who came to buy syringes every 2, 3 or 4 weeks.

The other midwife assisted the coordinator, and provided injection (immunization and contraception) to 5 patients. She applied 'one hand technique' in recapping needles twice (out of 5 patients). Same as the coordinator, she didn't wear gloves and never washed her hands during services. Both midwives knew and even learned 'one hand technique' in recapping needles, but they felt the technique took time and even though they did not use the technique they said that they never stuck by needles. The midwife who coordinator in FP services, wore reused gloves in providing the IUD check-up.

In the second observation, there were substantial changes in UP-behavior among them (midwife and auxiliary midwife). During observation 39 patients were provided services, 6 of them were provided immunization. The midwife did hand washing before immunized the patients properly, and did 'one hand technique' in recapping needles each time.
that she never did before. Same as all of other personnel, she used disposable needles and syringes for single patients. Used needles and syringes were disinfected with chlorine solution before they were disposed.

**Family Planning Services Room**

The services were provided by the midwife—who assisted her colleague in the MCH room—and was assisted by the Auxiliary Midwife especially for cleaning instruments and housekeeping tasks in this room. During observation, 3 patients asked for an IUD check up (to check whether the IUD still in the right position), 7 patients for Depo-injection (midwife provided for 5 and the Auxiliary provided for 2 patients) and one patient for Vitamin (B1) injection. In providing injection, both personnel did not washed their hands before and after every single injection. They said that there were no rules for performing that procedure.

Pelvic Examination was executed by midwife during the IUD check up. She wore reused gloves and changed it for every single patient. She also used newly sterilized equipment. The midwife always washed her hands appropriately (under running water and correct procedure) after removing gloves.

Used equipment was soaked in bayclean solution for 3-5 minutes, soaked in detergent solution for 1 minute and in water for 1 minute. After instruments were dried with napkin, they were boiled for 15 minutes. All disinfectant tasks were executed by Auxiliary Midwife and she always washed her hands (under correct procedure) after cleaning instruments.

In the other day observation, the midwife gave immunization to 8 patients. She never wore gloves, never washed her hands before providing injection. She applied 'one hand technique' 4 times (50%) in recapping needles. Disposable needles and syringes were used for every single patient. Used needles and syringes were put on 'kidney-basin' before being collected in a plastic bucket, waiting for someone came for buying syringes every 2, 3 or 4 weeks. While used cotton balls, used ampoules and plastic wrappers of disposable needle and syringes were collected in the plastic bin and disposed in the concrete box in front of HC together with waste from surrounding households before the end of each service-day.

Same as in the MCH services room, in the second observation same changes could be observed. There were 16 patients received services, i.e.: 3 patients did IUD check up and 3 patient received immunization and contraceptive injection. The midwife did hand washing in the end and start of the services day and after removed gloves in providing IUD control each time. Unfortunately in providing injection, she did not hand washing between patient, but she did it when she felt her hands were dirty/contaminated. She did hand washing procedure correctly. The hand washing practices of midwife was better than it was.
before (she never did it before in providing injection). However she has to be encouraged to do hand washing between patients. In recapping needles and wore gloves she did appropriately. She always did 'one hand technique' in recapping needles, whereas in the past she only did it 4 out of 14 (28.6%). Moreover the auxiliary midwife did cleaning instruments procedure properly. She did scrubbing instruments under the surface of water and rinsed the instruments thoroughly with clean water to remove all detergent that she did not do that before UP training.

The Sexual Transmitted Diseases (STD) Clinic of Putat Jaya Health Center

The STD Clinic in the morning session only has 4 personnel i.e. a doctor, a nurse, an assistant of medical analyst (laboratory technician) and an administrative staff. In the afternoon session — during HIV/AIDS Prevention Project (HAPP) — there were two personnel i.e. a doctor and administrative staff. There were 3 main rooms that highly correlated with chance of transmission of bloodborne diseases. Those three rooms were (1) Examination Room for STD, (2) Examination and injection room for general patients and (3) Laboratory. The clinic did not have access to running water during the observation period due to a leaking pipe in a water distribution system. Housekeeping was done by a rickshaw driver who acted as guard of the clinic and housekeeper. Daily after services, he cleaned the floor outside of these rooms with a cloth dampened with a disinfectant (lysol). Cleaning floor and surfaces in the rooms was done by staff — who work in it, such as in the laboratory these tasks were performed by laboratory technician, in both examination rooms these tasks were completed by the nurse. Surfaces were cleaned by wiping with cloth and the floor was cleaned with a cloth dampened with a disinfectant (lysol).

Equipment (speculums) disinfection was done by a female servant. In the morning (07:00) she brought the used equipment (speculums) that soaked in lysol solution in the plastic bucket since the day before (after used) to the bathroom. She stirred the speculums in lysol solution and poured the solution out. Then she washed the speculums by pouring water with water-scoop without soap on the speculums. She brought 'clean speculums' to the STD examination room, put the speculums on wash-basin together with unused speculums the day before. Finally she poured hot water on the speculums in wash-basin, but only a quarter so that not all of speculum under hot water surface. The procedure certainly did not match the Standard Operating Procedure (SOP) that was pasted on the wall. She felt that the procedure she did was enough to clean the equipment.
The servant also collected the waste disposal from the plastic-bin in each room daily and disposed them in the concrete box located in the backyard of the clinic. Every two or three days the servant burned the waste disposal.

In the second observation, the doctor was on leave and substituted by other doctor. The substitute doctor attended the UP training, same as others personnel. Some changes occurred in services process, i.e. to do hand washing more frequent, to apply 'one hand technique' in recapping needles each time and to boil instruments in sterilization process.

The staff did hand washing not always under the running water, because the STD clinic did not access with running water anytime. The leaking pipe in water supply system did not fix yet, due to shortage of budget.

The sterilization of equipment was done by the same people (a female servant). The differences of sterilization process between before and after UP training were:

a. before UP training was done the servant did not use gloves, but she did after the training,

b. the equipment was boiled before it was put on washbasin in the STD examination room, while before UP training it was never boiled.

Using the informal training could be explore that the servant not always wore the gloves if she cleaned the instrument (speculums). She felt that the size of the gloves too small for her and difficult to wear. She wore it if she was reminded by others staff. This was one of indicators that supervision and monitoring should be strengthened in maintaining the positive changes.

Examination room for STD

During the first observation, there were 3 personnel responsible for providing STD control services, i.e. a doctor, a nurse and a laboratory technician. In the first day observation at STDs Clinic, 14 Commercial Sexual Workers (CSWs) were examined for STD infections (to fill in Client status on HAP project). The nurse wore double gloves on each hand, used speculum from washbasin—that was already prepared by female servant as mentioned above—to do pelvic examination and took specimen from vagina (vaginal swab). Used speculum was soaked in the lysol solution in the plastic bucket while specimens were sent to laboratory. As mentioned above the used speculums would be cleaned by the servant in the next day. Used cotton bud and used gloves that were disposed in the plastic bin were disposed of by the servant in the concrete box in the backyard of the clinic. The nurse washed her hands after removing the gloves in the bathroom. She wet her hands by pouring water with water-scoop and rubbing her hands with soap and then rinsed with water.
In the second day of the observation in the STD Clinic, 16 CSWs were examined for STD infections. Vaginal swab—look specimens—conducted by Laboratory technician. Procedure that was applied was the same as the nurse did in the first day of observation. Both staff (nurse and laboratory technician) said that the procedure was enough to protect them from risk of blood borne infection.

In the second observation, there were two personnel i.e. a doctor (to substitute the doctor who on leave) and a nurse. The doctor provided STD examination (pelvic examination) while the nurse assisted her and provided injection. The doctor did hand washing before started to provide services and after task (all of patients) done and changed gloves 5 times for 20 patients (CSWs). The nurse did injection for treating 5 patients, she did hand washing before each injection and she did recapping needles—used 'one hand technique'—each time properly. Before UP training she only did hand washing before started to provide services and after all patients were treated, while in recapping needles she never applied 'one hand technique'.

Examination room for general patients

During the first observation, 7 patients were provided vitamin injection. The nurse did not wash her hands between patients. Same as the other staff, she said that there was no rule about wearing gloves for injection. She used disposable needles and syringes for every single patient. 'One hand technique' was not applied in recapping during provided services. She felt that her procedure was safe enough to protect her from disease transmission and more practical. She disposed used cotton and wrappers of disposable needles in the plastic-bin that would be collected by the servant for disposing in the concrete box in the backyard of clinic. She washed her hands with the same procedure as when she finished providing services for CSWs. Used disposable needles and syringes were collected in plastic bucket waiting for someone (came to the clinic) who bought used syringes, while needles were burned together with other waste.

In the second observation, 21 patients were provided services. 13 patient got injection and 8 patients received drugs. During providing services she only did hand washing 3 times, i.e.: before started to provide services, after patient number 18 and after all of the patients treated. She did not wash her hands each time as when she did injection for CSWs. Her reason was she felt that the risk of diseases transmission was less than when treated the CSWs. In recapping needles she used 'one hand technique' each time same as when she provide services to CSWs.
During the first observation, 7 patients had their urine and blood examined for pregnancy. The Laboratory Technician did not use gloves. Blood was taken by needle puncture and disposable needle used for every single patient. Used needles were disposed in the plastic bin. While urine after examination was disposed in the water basin, after which the laboratory technician washed her hands without soap by pouring water with water scoop. As the other staff she felt safe from blood borne disease infection by applying the procedure.

In the second observation, the laboratory technician did not do any laboratory task. She did administration task and assisted in preparing drug (pharmacies tasks). So that the changes in executing laboratory task could not be observed.

As mentioned in the Study Objectives and Methodology, the baseline data (before UP-training) would be compared to the data after UP-training to see whether UP-training influenced changes in UP practices among HCW. From the qualitative and quantitative data that were collected by observation, discussion and in-depth interview, could be drawn behavior changes on UP practices among HCW at Putat Jaya Health Center as well as at its STD clinic. The changes could be seen in Tables below.

From the first observation data (before UP training) could be drawn that one of the influencing factors of low compliance on washing hands was that HC did not access to running water anytime, besides low UP knowledge among HCW. Therefore the researcher encouraged the HC leader to build the

<table>
<thead>
<tr>
<th>Prior to UP training:</th>
<th>After UP training:</th>
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<tbody>
<tr>
<td>1. No access to running water</td>
<td>Continuous access to running water</td>
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<tr>
<td>2. Low UP knowledge</td>
<td>Increase UP knowledge</td>
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<tr>
<td>3. Low awareness in protecting patients</td>
<td>High awareness in protecting patients</td>
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<tr>
<td>4. Drug from vial was drawn by multiple use needle</td>
<td>Drug from vial was drawn by disposable needle</td>
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<tr>
<td>5. Used needles and syringes were not disinfected before disposal</td>
<td>Used needles and syringes were disinfected before disposal</td>
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<tr>
<td>6. Insufficient duration for boiling instruments</td>
<td>Sufficient duration for boiling instruments</td>
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<tr>
<td>7. Did not boil used speculums (STD clinic)</td>
<td>Boiled used speculums (STD clinic)</td>
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</table>
second water reservoir and fixed the pipe in the water distribution system at the HC, and finally, the leader agreed to do that. After UP training, the continuous access to running water (extrinsic factor) and increasing UP knowledge as a result of training (intrinsic factor) stimulated HC personnel to wash their hands at least before starting to provide services, and after treating all of the patients. Moreover, the dentist provided anaesthetic and extraction, and midwife provided IUD control. did wash their hands between patients that they did not do that before UP training. The HC staff did hands washing more frequent and properly after UP training.

Some HC staff said that the increasing UP knowledge among them also had impact to improve their knowledge and UP practices that they had to provide services compliance with UP not only for protecting themselves but also for protecting the patients. The changes of practices compliance with UP also could be seen in how the HC staff drew drug from multiple doses vial, treated needles before disposed and sterilized instruments. The staff changed from drew the drug from multiple doses vial by multiple use needle with disposable needle. Before UP training used needles and syringes did not disinfected before disposal but it did after UP training. Moreover, the staff did boil used instruments in a sufficient duration, and boiled used speculums at STD clinic during sterilization process that they never did it before UP training.

These changes behavior more likely due to improvement of UP knowledge and awareness among HC personnel that they got from UP training.

From quantitative data that basically was collected by observation, the behavior changes on UP practices could be identified (Table 2) i.e.:

a. In the first observation, 1 staff out of 10 (10.0%) - who wash their hands - did hand washing properly, while in the second observation, 9 of 10 (90.0%) personnel did it properly.

<table>
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<tr>
<th>Activities:</th>
<th>Prior to UP training:</th>
<th>After UP training:</th>
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<tbody>
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<td></td>
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<td>#staff</td>
</tr>
<tr>
<td>1. Proper hand washing</td>
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<td>10</td>
</tr>
<tr>
<td>2. Changed gloves each time</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>3. Use 'one hand technique' each time</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>4. Cleaning instrument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wore gloves</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>- Scrubbing under the surface of water</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>- Cleaning appropriately</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>5. Dental care: Changed gloves each time</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
b. Before UP-training, 2 staff out of 6 (33.3%) changed gloves each time. After UP-training, only three staff wore gloves, 2 of them (66.7%) changed gloves each time.

c. Before UP-training 2 staff out of 7 ever used 'one hand technique' in recapping needles, i.e. 1 staff used the technique 3 times out of 13 and 1 staff used the technique 6 times out of 19. But none of them (0.0%) did the technique each time. While in the second observation (after UP-training) all of personnel (100.0%) who provided injection use 'one hand technique' every recapping the needles.

d. In the first observation 4 personnel did cleaning instrument, i.e.: 
   - 1 out of 4 (25.0%) wore gloves
   - 0 out of 4 (0.0%) did scrubbing under the surface of water
   - 0 out of 4 (0.0%) did cleaning instrument appropriately

   While in the second observation, 3 personnel did cleaning instrument, i.e.: 
   - 1 out of 3 (33.3%) wore gloves

   - 2 out of 3 (66.7%) did scrubbing under the surface of water
   - 1 out of 3 (33.3%) did cleaning instrument appropriately.

e. Before UP-training, in providing Dental Care Services: 2 (dentists) out of 2 did not change gloves for every single patient. They changed gloves every 3-5 patients. In the second observation only one who did dental care services could be observed. She changed gloves every single patient.

Table 3 analyzed quantitative data by task as a unit of analysis showed that:

a. In the first observation (before UP training) non (0.0%) of injection was preceded by hand washing, while in the second observation (after UP training) 19.6% injection were preceded by hand washing.

b. The percentage of changed gloves each time after UP training (59.5%) was higher than it was prior UP training (17.9%).

c. After UP training all of recapping needles done by applying 'one hand technique', while before UP training
'one hand technique' only be done for 6.7% of recapping needles.

d. In dental care, changed gloves each time increased sharply from 20.5% before UP training to 100.0% after UP training.

Based on quantitative data (Summary Table 2 and 3) could be concluded that after UP training the HC staff did proper hand washing and changed gloves more frequent than they did before UP training. As a consequence of frequent in changing gloves, the consumption of gloves would increased. According to the HC leader the consumption of gloves became at least double than before. The behavior of using 'one hand technique' in recapping needles changed drastically. After UP training all of recapping needles was used 'one hand technique'. It was one of indicators that UP training not only increased UP knowledge and awareness but also changed in daily practices.

In general, changes in cleaning instrument was not so sharp as changes in recapping needle and hand washing. The main reason of that was limited human resources in STD clinic, so that a low educated people (a female servant) was appointed to be responsible for sterilization of equipment. To changed behavior of the servant was very difficult, it was needed tightly monitoring and guidance from her supervisor.

Accessibility to running water at STD clinic was very important to facilitate the staff to do hand washing properly and to do other task that needed running water such as cleaning instrument. The hand washing properly and hand washing before injection could be predicted, it will increased sharply if the STD clinic access to running water continuously.

RECOMMENDATION

The positive behavior changes on UP should be maintained and improved by all of the HC staff. Some actions can be taken to promote positive changes, such as:

1. To meet the increasing supplies (Gloves, disinfection agents etc) HC must have a proper plan in increasing budget for the supplies.

2. To remind the HC staff in order always compliance with UP, job aids must be posted in every related service room.

3. Supervision needs to be strengthened, and checklist monitoring must be institutionalized.

4. Introduce reward system to encourage staff compliance with UP guidelines.

5. Goodwill and high commitment from Municipality/District Health Office (Dinas Kesehatan Kota/Kabupaten) in implementation of UP guidelines at all of HC.

Besides those actions, providing some other equipment and facilities are still needed to facilitate more behavior changes, i.e.
1. To build incinerator and to provide specific waste container for fostering changes in waste disposal system.
2. To build second water reservoir and to fix pipe in the water distribution system at STD clinic.
3. To provide additional sterilization equipment (autoclave) and dental care equipment if possible.

REFERENCE


World Health Organization, Regional Office for South-East Asia. 1999. Guidelines for Preventing HIV, HBV and Other Infections in Health Care Setting. New Delhi, India.