IMPROVING THE MANAGEMENT OF UNCLAIMED BODIES IN THE NATIONAL INSTITUTE OF FORENSIC MEDICINE, KUALA LUMPUR HOSPITAL

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Abstract

Proper management of unclaimed bodies in a timely manner could maintain adequate body storage at the mortuary and counteract the medicolegal issue. The verification study in January 2019 to June 2020 revealed that 57.6% of the unclaimed bodies had obtained approval for disposition in more than 28 days. The inadequate of inter-departmental and inter-agency cooperation, and the lack of initiative and monitoring measures by forensic staff, are some of the contributing factors identified. As the outcome-based indicator, the standard was established at 100% for the proportion of unclaimed bodies whose disposition was authorised within 28 days of the body's receipt date. This quality improvement study involved unclaimed bodies, which were Malaysian and unidentified bodies who had died in the wards of Kuala Lumpur Hospital and had not been claimed by any claimants after more than three days upon arrival at the National Institute of Forensic Medicine. Brought-in-dead post-mortem cases, known foreigner bodies, body parts and foetus were excluded. Remedial actions were implemented in June–December 2020. Forensic Science Officers were assigned to work closely with the supervisor and monitor all the unclaimed bodies using a newly created Excel monitoring matrix. Inter-departmental and inter-agency meetings have been conducted with the support of the Hospital Director. The post-interventional data was gathered from January 2021 through December 2021 with a total of 90 unclaimed bodies, and Cycle 2 was completed from January through September 2022 with 24 unclaimed bodies. After two cycles, we were able to get National Registry Department response rates of 94.1% within 14 days and achieved 89.7% (Cycle 1) and 100% (Cycle 2) for the approval of body disposition within 28 days. The institute plans to further improve the body disposition procedure by working closely with the local authorities to ensure the appointment date of disposition given by them can be expedited.

KEYWORDS: Unclaimed body, Forensic Medicine, Body disposition management

Problem

Unidentified bodies, also known as "unknown" bodies, could be either received within the hospital or brought in dead (BID) by the police or public members from outside the hospital (1-3). Unclaimed bodies can be classified as unidentified or known bodies left unattended by their next-of-kin (NOK) or any potential claimants (2). A deceased body would be monitored if it has not been claimed after three (3) days upon arrival in the National Institute of Forensic Medicine (NIFM) and would be kept for at least fourteen (14) days while the identity and NOK were being traced (3).

The increase in unclaimed bodies occupying the limited body freezers available for an extended period without proper identification and tracking of NOK may lead to insufficient body storage and decomposition. The inefficient and improper management of unclaimed bodies could be a serious problem if efforts to track the NOK have never been undertaken by the hospital. This situation could give rise to medico-legal issues to be raised by the NOK, who come forward after the hospital has buried or cremated the unclaimed bodies. Hence, improving the human identification procedure and tracking of NOK for the final rite is necessary, as it would directly impact customer satisfaction.

For the police cases, the NIFM relies solely on the police to assist in identifying the body through the relevant authorities, i.e., Bukit Aman Police Headquarters or Immigration Department. Additionally, the police initiate the search for the NOK, which involves visiting their registered address or publishing notices in relevant media. This process can take a considerable amount of time due to the police's busy administrative duties and official investigation tasks. However, assistance from the police may not be applicable for non-police cases, especially for patients who passed away in the hospital, even if the hospital staff have filed police reports. In such circumstances, the police report would be categorised as "Refer Other Agencies" and the police would take no further action as the responsibility for hospital death cases rests with the hospital (3).

The fingerprints and personal data of unclaimed bodies could be referred to the National Registration Department (JPN) through the Medical Social Work Department (JKSP) at the hospital. If the identification of the deceased is successfully verified based on the available fingerprints, the family tree indicating the address and contact numbers of the deceased NOK can be traced with the assistance of local authorities, especially police officers, by visiting their addresses. Effective management of unclaimed bodies should encompass all feasible efforts to identify the deceased and locate the NOK, serving humanitarian and last-rite purposes (3).

The NIFM serve as national referral centre and training facility for professionals in Forensic Medicine and Science. It operates under the management of Kuala Lumpur Hospital. It has the strength of human resources with 60 to 70 personnel, including specialists, medical officers, scientific officers, paramedics, and record administrative staff. Annually, the NIFM handles an average of over 3000 bodies, encompassing both police cases and deaths occurring within the hospital wards. The forensic medicine specialists and medical officers conduct an average of over 600 post-mortem cases per year, as requested by the police investigating officers. However, despite this workload, the NIFM is equipped with a limited number of body storage freezers: i.e., 36 for adults and 24 for paediatric cases. Paramedics are responsible for body management within the NIFM, whilst the forensic scientific officers are involved in the human identification procedures. The body management may include the local population and foreigners within the covered area, some of whom might be unidentified or unclaimed by their NOK. This situation ultimately leads to an accumulation of unclaimed bodies within the NIFM, highlighting potential inefficiencies in the disposition of these bodies.

Based on the department's daily record, the NIFM encountered that 4 to

6% of total received dead bodies being unclaimed from the year 2016 to 2020, showing a fluctuating trend. A verification study conducted in 2019 to 2020 revealed that 57.6% of the unclaimed bodies were disposited of after more than 28 days, deviating from the time frame of 14 days stated in the national standard operating procedure (2,3). Hence, this study aims to increase the percentage of unclaimed bodies that have been reported and authorised by the Head of Department (HOD) for disposition within 28 days.

Background

The number of dead bodies was increasing worldwide, especially during the pandemic of COVID-19 starting in the year 2020, as declared by the World Health Organization (4). Worldwide, on average, 4-10% of the total dead bodies reported to mortuaries are unidentified and this proportion rises to 25% in India (5). Based on the standard operating procedure (SOP) and the circular guidelines of the Ministry of Health, unclaimed bodies could be disposited if all the necessary efforts have been made before the deceased is classified as an unclaimed body based on the particular time frame, i.e., Muslim body (after three days), non-Muslim body (after 14 days), foreigner body (after 14 days) and unknown body (after 14 days) (1-3). The proper management of unclaimed bodies requires close cooperation with other authorities as this is important to optimise the allocated time frame and the limited body storage to avoid any disruption in the service provision. In some developed countries, unclaimed bodies are turned over to the State Anatomy Board after 72 hours if no claimant can be located through a “reasonable search” or declared as abandoned after more than three months duration used in Benin (5,6). The community and public understand that a deceased person’s rights are at least a decent burial within an appropriate, timely manner. Hence, the NIFM imposed the hospital burial for the disposition of unclaimed human remains respectfully by interment or cremation according to their belief and ritual aspect (2,6).

There were several factors contribute to the increase in unclaimed dead bodies, as highlighted in the literature. Failure to identify the unknown bodies, especially involving illegal immigrants and decomposed bodies, through various identifier methods, including deoxyribonucleic acid (DNA), dentition and fingerprints, would be the main challenge and abominable problem within the forensic fraternity (7). These could delay the identification process and hence the disposition process. Furthermore, the NOK may abandon the bodies left unclaimed in the mortuary, especially in third world countries, but not excluding some developed countries as they could have faced economic hardship due to the expensive cost of the funeral services, especially the purchase of burial sites and cremation charges (6,8). Certain groups of people, likewise the divorced, separated, or unmarried people, homeless poor, unemployed people, as well as substance abusers whom often presented with poor health-seeking behaviour, may also be some of the reasons from the social perspective causing them to be abandoned by their NOK even after death (6,9,10).

Unclaimed dead bodies could be the vital group in hospital mortuaries as the process of discharging them from the hospital in a respectful and dignified manner involves numerous administrative, legal, and social challenges (6). From the administrative perspective, a uniform mechanism may need to be developed to facilitate timely management to fulfil the standard of care. The intervention that has been highlighted in the literature was to assign a designated person among the staff of a mortuary to perform the task of keeping the record of unidentified dead bodies and facilitate their disposition with the help of local police under whose jurisdiction the case falls on the legal aspect and collaborate with all stakeholders in accordance to an algorithm (6).

Establishing a database and DNA databank for missing persons would be the way forward at the national

and international levels to facilitate the identification of unclaimed bodies (7). Perhaps a strategy could be taken by the government agencies to collaborate with a non-profit organisation and subsidise the burial or cremation of unclaimed bodies (8). To tackle the social challenges, social workers could also have been involved in identifying resources and making final arrangements for people who passed away without NOK, who may be institutionalised or unknown to the community, or whose bodies may be unclaimed for burial (11).

Measurement

This Quality Improvement (QI) study was conducted to improve the management of unclaimed bodies by increasing the percentage of unclaimed bodies that have been reported and approved by the HOD for disposition within 28 days. The indicator was calculated as the percentage of unclaimed bodies with notification forms approved by HOD for body disposition within 28 days from the date of the body receipt at the NIFM. The standard was set at 100% based on the consensus of the specialists, scientific officers, and supervisors of NIFM only.

$$\text{Percentage of unclaimed bodies' disposition within 28 days} = \frac{\text{Number of unclaimed bodies' disposition within 28 days}}{\text{Total number of unclaimed bodies}} \times 100\%$$

The 28-day timeframe is determined based on the availability of 36 body freezers within NIFM, allowing for an average of one unclaimed body received per day. This could accommodate up to 80% of the freezers to allow 20% temporary storage of new coming active cases awaiting handover to the respective claimants.

This QI study involves unclaimed bodies from inpatient deaths at Kuala Lumpur Hospital, where no claimants have come forward within three days of arrival at NIFM. This includes both known Malaysian bodies and unidentified or unknown bodies. BID post-mortem cases, known bodies of foreign nations, body parts and foetus were excluded from the study.

The daily unclaimed body data were collected manually and retrospectively from January 2019 to June 2020. A total of 88 unclaimed bodies in NIFM were included during this period. The data were descriptively analysed using Microsoft Excel. Implementation of the strategy was performed from June to December 2020. Post-intervention (Cycle 1) data were collected from January 2021 to December 2021 with a total of 90 unclaimed bodies. The percentage of Achievable Benefit Not Achieved (ABNA) was then computed. Cycle 2 was then conducted from January to September 2022.

Initial Assessment of the Problem

A cause-and-effect analysis was conducted to brainstorm contributing factors to the problem. An in-depth discussion with the four supervisorial staff, who are senior medical assistants with several years of experience in the management of unclaimed bodies, was conducted during the audit session on the unclaimed body management procedures and documentation to explore the factors contributing to the problem. These contributing factors were refined according to their similarity in context after the discussion and brainstorming session. The audit and brainstorming session aimed to produce the questionnaire indicated with the list of multiple choices for the identified contributing factors. The questionnaires were distributed to the officers and paramedics who were involved in the process of care. All 25 participants were allowed to independently complete the questionnaire and select the four primary causes of the issue of managing unclaimed bodies.

Based on the Pareto Chart, six key contributing factors were identified as highlighted that led to 80% of the problem, as shown in Figure 1. The contributing factors were lack of monitoring (n=20), lack of interagency meetings (n=16), lack of communication (n=15), lack of proper interagency workflow (n=12), lack of virtual referral to JPN (n=9) and lack of collaboration with authorities (n=7).

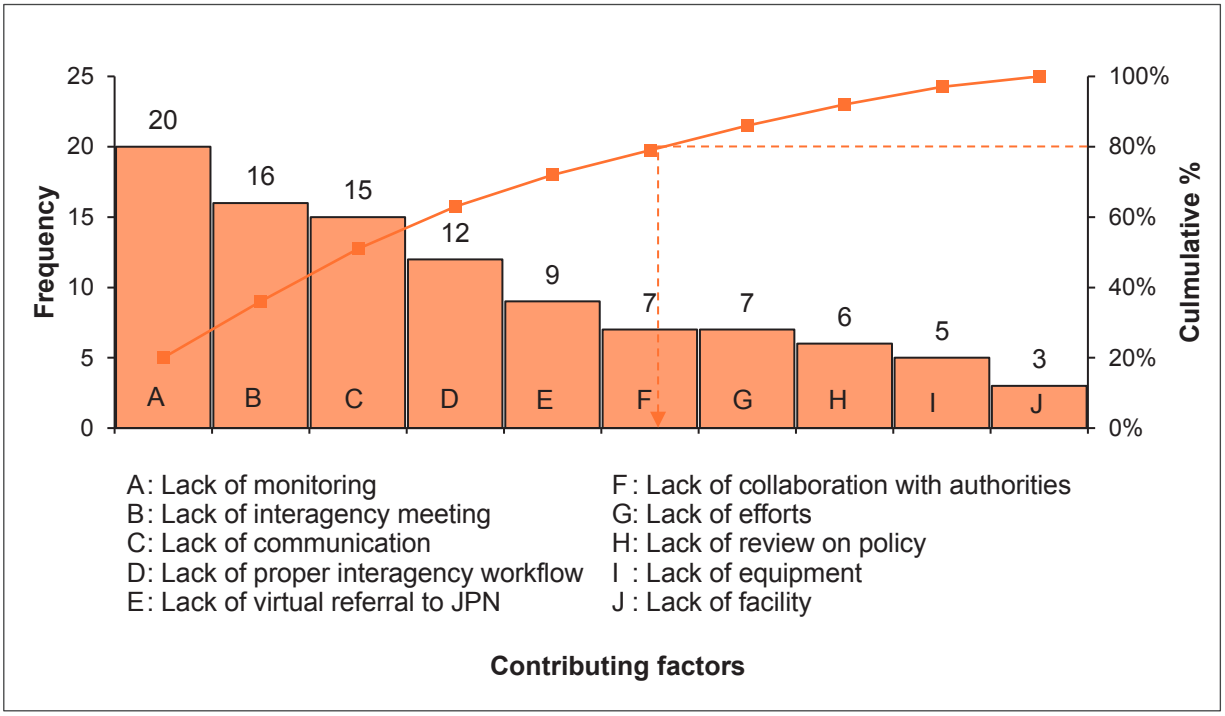


Figure 1: Factors contributing to the delay in the disposition of unclaimed bodies

According to the audit session during the verification study, none (0%) of the NOK were successfully contacted by the NIFM to claim the unclaimed bodies due to a lack of communication between JKSP and the NIFM regarding the available information on the family tree. Besides that, only 33.0% of unclaimed bodies were referred to JPN through JKSP , possibly due to a lack of inter-departmental and inter-agencies meetings.

However, non-availability of equipment (n=5) and facility (n=3) factors, including a portable fingerprint detection device that could establish a direct link with the JPN database system, cannot yet be tackled in these cycles due to potential legal and confidentiality implications. The authorisation of the device system is rendered impossible at this moment. Lack of review of the ministerial policy on the unclaimed bodies (n=6) may be an important factor, especially in standardising the identification procedure and efforts to track the NOK within an acceptable time frame before the body disposition. Addressing this matter would necessitate higher management to initiate the change and tackle the issue from the top down.

Strategy

There were two cycles conducted in this project using similar strategies. Four main strategies were implemented during the first remedial phase from June to December 2020. Two dedicated Forensic Scientific Officers (FSOs) were assigned to monitor the unclaimed bodies. The FSOs work closely with supervisors and periodically keep track of all the unclaimed bodies in the NIFM by using an Excel monitoring matrix. The introduction of the monitoring database using the Excel template in this study has systematically recorded the status of each unclaimed body (more than three days) in terms of identification and searching of NOK by the respective departments, including JKSP and other authorised agencies, including JPN and police officers.

Furthermore, inter-departmental and inter-agency strategies were implemented. One of these strategies includes establishing a new referral workflow to JPN through JKSP, as shown in Figure 2.

The patient's arrival at the hospital may be undocumented and registered

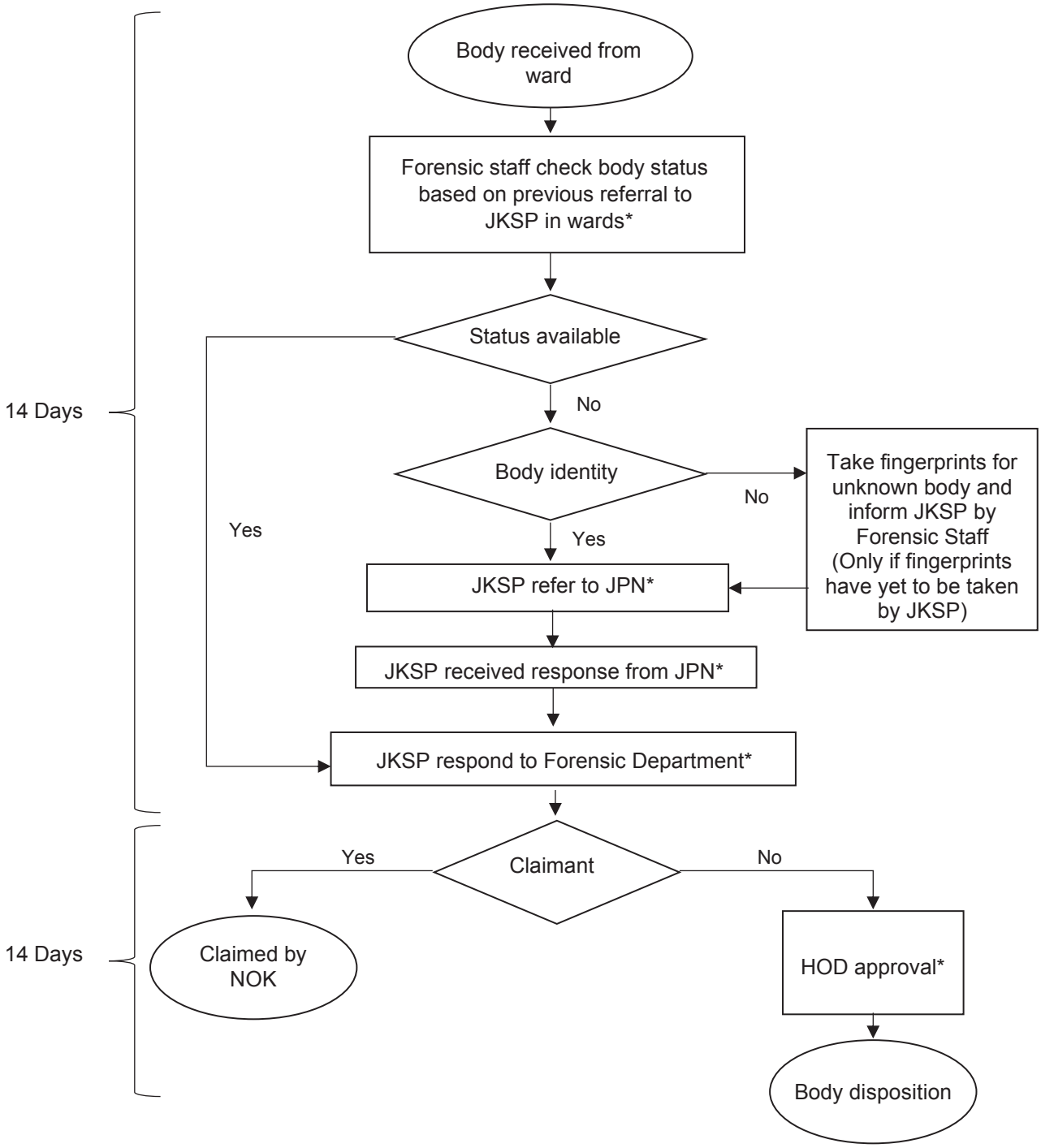


Figure 2: Process of care for the management of unclaimed bodies (* indicates critical steps)

as an unknown patient. Occasionally a known patient may be unconscious without any contact information of the NOK upon registration at the emergency department. These patients should have been referred to the JKSP by the hospital staff. Subsequently, these patients may have collapsed and passed away in the emergency department or the ward while receiving treatment and remained as unidentified or unclaimed bodies before being sent to the NIFM. The process of care starts with the body receiving in ward cases and ends with body claiming or disposition. Five main critical steps were identified as criteria in this QI study to formulate the model of good care, as displayed in Table 1.

Prior to the remedial phase, JKSP was only involved in handling the issues

of living patients in the hospital. The main job scope of the JKSP is to restore balance in a patient's personal, family and social life in order to help them to recover and strengthen their ability to reintegrate into society. The tracking of the identity and NOK of the deceased could be one of the humanitarian initiatives provided by the medical social workers in the hospital. The Hospital Director agreed in the meeting that JKSP acted as the hospital's referral centre, including alive patients and unclaimed bodies, by referring cases to JPN for identification and searching of NOK.

Another strategy involved conducting inter-departmental and inter-agency collaboration meetings to address issues related to unclaimed bodies. These meetings, scheduled once or twice a year, were chaired by the Hospital Director, and attended by the NIFM Director, JPN representative, HOD of JKSP and other relevant agencies. JPN agreed to allow virtual referral via email, providing the fingerprints or identification numbers of the unclaimed bodies for further verification, as well as search the family tree of the unclaimed bodies to trace the NOK. JPN has committed to response to the referral in a timely manner during the meeting.

Results

After implementing the remedial measures, data from Cycle 1 and Cycle 2 were collected, as shown in Table 1. In Cycle 1, there were a total of 90 unclaimed bodies, and in Cycle 2, there were 24. The percentage of unclaimed bodies with notification forms approved by HOD for body disposition within 28 days of the body receiving increased from 42.4% to 89.7% and 100% during both cycles, respectively. The ABNA has reached 0%, as shown in Figure 3. There was a great improvement in status checking with JKSP on the previous referrals from the ward by forensic staff, which subsequently referred to JPN through JKSP. The achievement reached to 100% during Cycle 1 and maintained 100% throughout the two cycles of the QI study. This could be attributed to the new workflow implemented in this study. There was an increasing percentage of response within the time frame of 14 days by JPN from 33.3% to 91.1% during Cycle 1 and further increase up to 94.1% during Cycle 2. JKSP responded 100% to the status of referral to NIFM during both cycles, compared to the prior 0% before the implementation of the new workflow. We identified a delay in response rate within 14 days from JPN, accounting for about 5.9%, equivalent to only 1 case, even during the pandemic period.

In addition, about 47% of cases were identified through the fingerprints of the deceased throughout the study. About 68% of the family trees received throughout the study was indicated with details of the NOK for the respective deceased, including contact numbers and residential addresses; otherwise, only the details of the deceased indicated might not be useful, but it would be subsequently posted on the official social media of the hospital. There would be fewer unclaimed bodies if NOK were successfully traced.

From the post-remedial data, about 53.5% (n=47) of the unclaimed bodies being referred to JKSP have been successfully claimed by the NOK of the deceased during Cycle 1. Indirectly, this could reduce the unclaimed rate from the total body being received by the NIFM.

Lessons and Limitations

We encountered significant challenges while coordinating with multiple agencies and departments to ensure the success of this study. Cooperation from all parties, including inter-departments and inter-agencies, is the key to achieving this improvement. The main contributing factor to the delay in the response rate within 14 days from the JPN was the COVID-19 pandemic. In July 2021, most of the staff were working from home, which could have affected the service provision of the JPN.

The other reason could be that the quality of the retrieved fingerprints might make the identification process more difficult. This is because fingerprint retrieval from a deceased body may not

Table 1: Model of Good Care (MOGC) of Verification, Cycle 1 and Cycle 2 phases

No	Process	Criteria	Standard	Verification (n=88)	Cycle 1 (n=90)	Cycle 2 (n=24)
1	Forensic staffs check body status based on a previous referral to JKSP in wards	The referral letter should be indicated with the SMRP reference number (if any)	100%	0%	100%	100%
2	JKSP refer to JPN	The referral letter from JKSP to JPN is attached with the deceased's thumbprint or indicated with the identity number	100%	33.0%	100%	100%
3	JKSP receive a response from JPN (cc to NIFM)	Reply letter with indicated status and received within 14 days	100%	33.3%	91.1%	94.1%
4	JKSP respond to Forensic Department	Reply copy of the JPN email with indicated ID status and respond within 14 days	100%	0%	100%	100%
5	HOD approval	The notification form is approved by the HOD for disposal within 28 days from the body receiving date	100%	42.4%	89.7%	100%

Note: The number of days includes the public holidays. SMRP refers to Sistem Mengurus Rekod Pesakit

be as optimal compared to alive patient. With these limitations during Cycle 1, the response rate within 14 days from the JPN has impacted and contributed to the ABNA for the body disposition within 28 days. In Cycle 2, the ABNA had further improved in terms of the delayed response rate within 14 days from the JPN as well as the HOD approval of body disposition within 28 days. Hence, this study exhibited sustainability as all remedial actions were maintained.

Conclusion and the Next Steps

The objective was achieved throughout the study. The post-remedial performance proved to be sustainable, as demonstrated in Cycle 2. The managment of unclaimed bodies, both Muslim and non-Muslim, was facilitated by the respective local authorities, namely *Jabatan Agama Islam Wilayah Persekutuan* (JAWI) and Kuala Lumpur City Hall (DBKL). The NIFM

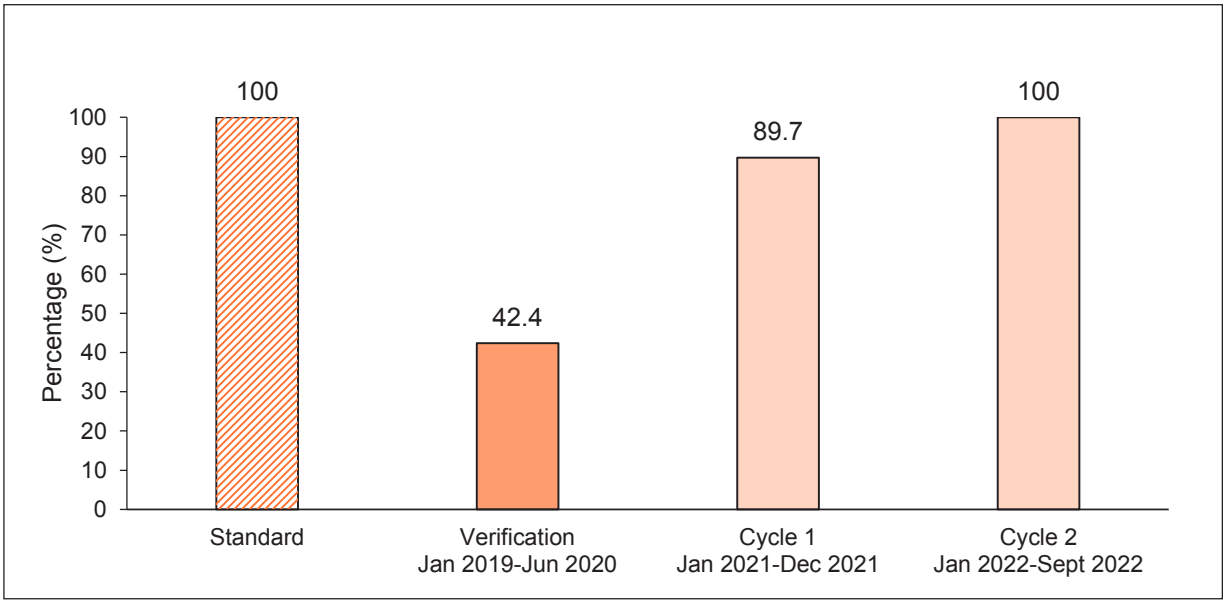


Figure 3: Percentage of unclaimed bodies that have been notified and approved by HOD for body disposition within 28 days.

aims to further improve the body disposition procedure by fostering close collaboration with the local authorities. This collaboration will ensure that the appointed dates provided by them can be expedited with the cooperation of the responsible personnel at NIFM. We are also in the process of establishing a new internal referral system at the hospital level with the workflow shown in Appendix 1 to break the silo and bring all the interested parties together. This could assist all interested parties in tracking the up-to-date status of each referral from the beginning of admission of each patient at the emergency department and wards.

Acknowledgement

The authors would like to thank the Director General of Health, Malaysia, for his permission to publish this paper. Special thanks to the Director of Kuala Lumpur Hospital, Dr Rusilawati Jaudin, Dr Mohamad Azaini Ibrahim, and colleagues in NIFM, HKL. We also would like to express our appreciation towards the full support of the Medical Social Work Department (JKSP) and Corporate Communications Unit (UKK).

Conflict of Interest

The authors declare that there was no conflict of interest.

Funding

This research did not receive any specific grant from funding agencies from the public, commercial or not-for-profit sectors.

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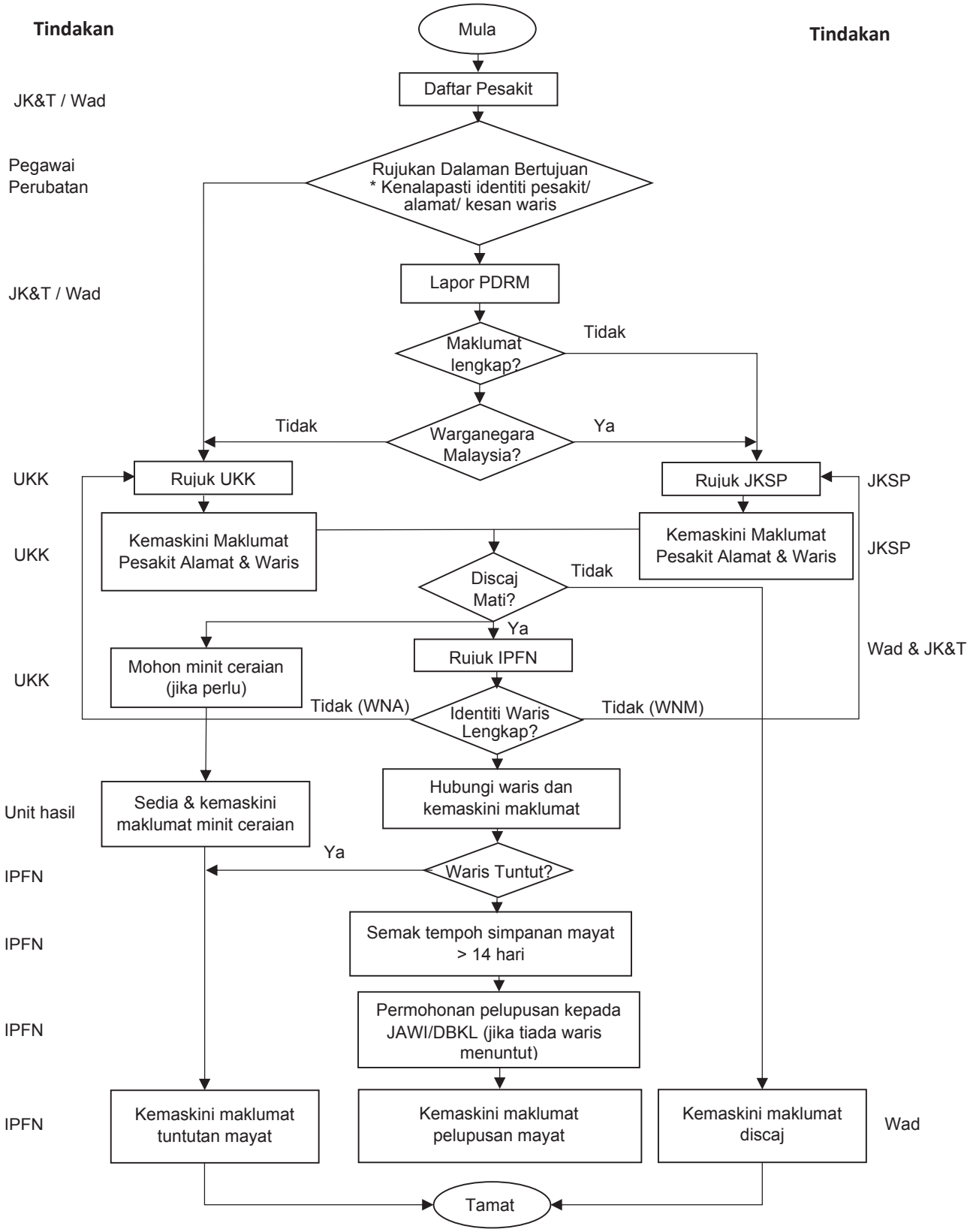
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Appendix 1

User Requirement Specification (URS)
Carta Alir Sistem Rujukan Dalaman Perkhidmatan Kejururawatan - JKSP, UKK dan IPFN



Abbreviation:

JKSP : Jabatan Kerja Sosial Perubatan
UKK : Unit Komunikasi Korporat
IPFN : Institut Perubatan Forensik Negara
JK&T : Jabatan Kecemasan dan Trauma
PDRM : Polis Diraja Malaysia
WNA : Warganegara Asing
WNM : Warganegara Malaysia