

## Prevention of Infant Abductions and Mix-ups in Hospitals Proper Measures for Infant Identification and Security



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**S**he was so happy to learn that she is pregnant with this baby and she was following up with her obstetrician regularly and doing the recommended tests on time.

She knew the date of the next prenatal visit by heart and she was taking the recommended vitamins and medications religiously. She carried a copy of the latest ultrasound image in her purse and was so proud to show her baby's features to her friends. On the date of delivery, the mother-to-be packed her personal effects, attended to the hospital as instructed by her obstetrician, and delivered a gorgeous baby girl. The happiness was shared with her husband and together they cried of happiness and thanked God for this precious gift.

The obstetrician and the pediatrician cleared the mother and the baby for discharge on the next day. During that evening, one day before discharge, the horrible incident took place - the baby is missing from the nursery - she has been abducted. A thorough search by the hospital security did not lead to the abducted baby. The parents were in a state of shock and their family members were in dismay. The incident made it to the national news, the legal system was involved, and the situation went completely out of control.

Although the above is not a true story, the event could take place in any health care institution. In health care terms, this is called a sentinel event and some call it a "never" event. In the aftermath, one question keeps coming up: Is there anything that health care institutions can do to prevent such an event? The answer to this question should be seriously considered by every health care institution, who should concentrate on the prevention aspects since there is little, if any, to be done once the abduction takes place.

### INFANT ABDUCTION: MAGNITUDE AND GRAVITY OF THE PROBLEM

Infant abduction is a rising concern in health care institutions worldwide. In the United States (U.S.), statistics show that 171 infants -birth through the age of 6 months- were abducted between 1983 and 1997, and of those 97 were taken from hospitals. Out of the 97 infants, 55 were abducted from their mother's rooms, 14 from the nursery, 16 from pediatrics, and 12 from other hospital grounds<sup>1</sup>. In Lebanon, obviously, data on the magnitude of the problem are not available, yet the threat is always present.

In a collaborative study, investigators compared data on infant abductions that occurred between 1983 and 1992 with the ones that occurred between 1993 and 2006. New trends in the method of abduction were observed, and a common profile could be developed for the abductor<sup>2</sup>. In another study that involved analysis of 248 non-family member infant abductions, investigators developed a profile of a typical infant abductor, which included the following:

- Female of childbearing age
- Compulsive and manipulative, using deceit to gain access to the infant
- Has no prior criminal record
- Often claims having lost a baby or being unable to bear one
- Familiar with, and often lives in, the community from which the infant is abducted
- Has the means and ability to provide good care for the infant
- Initially visits the nursery and maternity units at more than one hospital before the abduction, and often asks detailed questions about

- procedures and the layout of the units
- Becomes familiar with the healthcare personnel at the maternity unit and even with the victim's parents
- Plans the abduction, but does not necessarily target a specific infant, choosing instead to act when the opportunity presents itself
- Often impersonates a nurse or other healthcare providers to gain access to the infant
- Uses fire exit stairwell to escape<sup>3</sup>

## INFANT ABDUCTION PLAN

Hospitals should develop effective measures for the prevention and management of infant abduction at their premises. This includes:

### 1. Preparation of a hospital-wide multidisciplinary infant abduction plan:

All concerned staff categories should participate in the formulation of the plan, including the nursing, medical, and other health professional staff from the obstetrics department, pediatrics, nursery, security, physical plant, and safety office. The main points to be covered in the infant abduction plan are:

#### a. **Prevention measures:**

- Proper mother-infant verification (during hospitalization and at discharge)/proper infant identification, and the use of electronic systems
- Supervising all infants/children present at the hospital
- Reporting of suspicious behaviors to concerned individuals
- Restriction of children transportation within the hospital to designated staff members
- Provision of physical security measures, which include the use of camera systems, self-closing exits, alarms, and electronic-asset-surveillance detection systems (tags, receivers, PCs, and excitors on exits)

#### b. **Intervention measures:**

- Announcement of the infant abduction code

- Assignment of responsibilities for designated staff members
  - Control of hospital exits
  - Head count of all pediatric patients
  - Thorough search of hospital premises
- c. **Post-intervention measures:**
- Clearance of the infant abduction code
  - Conducting root cause analysis (RCA)

### 2. Testing the plan:

An infant abduction drill is conducted to evaluate compliance with the plan and the hospital's readiness to deal with unforeseen infant abduction incidents

### 3. Staff education and training:

All hospital staff should be educated on infant abduction incidents, including measures for safeguarding infants, common profiles and behaviors of abductors, and the importance of reporting of such incidents. Staff should also receive training on the infant abduction plan, including the prevention and intervention measures.

### 4. Parent education:

Parents should be educated on their role in safeguarding their infants while in the hospital premises<sup>4</sup>.

## *The latest infant abduction incident reported in India:*

### **Day-Old Baby Abducted from Hospital (The Times of India, M.A. TNN 14 July 2009, 03:09am IST)**

CHANDRAPUR: Sensation prevailed in the local Civil Hospital's maternity ward after an unidentified woman tricked a mother to abduct her one-day-old baby boy on Sunday afternoon. A woman posing as the hospital nurse sought V. M.'s permission to take away the baby for weighing but failed to return for a pretty long time. Alarmed by her disappearance, V.M. informed the hospital authorities following which the city police launched a massive hunt for the abductor woman. "I left my wife with our newborn boy in ward number nine at 2.30 pm and during the same time the women tricked my wife and took the baby away," said A. M., father of the abducted newborn. He informed that the solitary woman dressed in green sari with white bangles in hand approached his wife. "She woke up my wife and asked her to give the boy for weighing. Thinking the woman to be a nurse, V.M. handed the baby. It was only after my wife enquired with the hospital staff that she realized that she had been tricked. He further alleged mismanagement and poor security arrangements at the hospital.

We immediately tracked the auto-rickshaw driver who dropped the woman at the bus stand, informed PSO attached to the police station. We have acquired details of bus services on different routes from the bus stand during those hours, he added. The auto-rickshaw driver informed that the mild complexioned abductor woman was dressed in green sari and black blouse and spoke Hindi in Bengali accent.

Meanwhile, civil surgeon Dr R. B. suspended two staff nurses and terminated the services of private security guard who was posted at the ward.

## BABY-MOTHER MIX-UPS

In addition to abduction, another unfortunate event that could happen to infants in hospitals is the baby-mother mix-up during hospitalization or at the time of discharge. Dalton et al. reported that infant-mother mix-ups occur around 23,000 times each year in the U.S.<sup>5</sup>, while Steve Kaufer estimated that infant switching in hospitals occurs at a rate of 1 per 1,000 infants<sup>6,7</sup>. Kaufer further clarified that baby-mother mix-ups potentially take place during the immediate transfer after birth. Causes for mother-baby mix-ups in hospitals were investigated, and most of them were related to human errors, including:

- Misreading the infant or mother bracelet information
- Bracelets falling off the infants' ankles or wrists, which is particularly common in newborns whose arms and legs may shrink after birth due to water loss
- Bed mix-ups, following transfer of the baby for bathing or treatment
- Mix-ups of babies with similar or identical names
- Misreading of sequential names or identification numbers
- Inadequate physical security mechanisms at the hospital
- Ineffective communication between parents and staff, due to a different native language<sup>5,7</sup>

## INFANT MISIDENTIFICATION

"Over 50% of newborns on any given day are at risk for a misidentification error<sup>8</sup>". In fact, in a study performed over a one-year period, Gray et al.<sup>8</sup> found that of the 34 newborns admitted to a neonatal intensive care unit (NICU) in the U.S., 17 are at risk of a misidentification error at any given day.

The most common causes of misidentification errors included similarly appearing medical record numbers, identical surnames, and similar sounding names. In 2008, the Joint Commission (JC) made patient identification as the number one national patient safety goal. Infants and nonverbal children pose additional challenges compared to older children and adults as they are not able to communicate their identification information. Moreover, if identification (ID) bracelets of newborns are fixated at beside or on the medical chart, they contribute to identification errors. This is especially the situation in critical newborns in

the intensive care unit where the arm bracelet is removed to rotate peripheral IV sites. Simpson, et al.<sup>9</sup> in a study over 6 month's period in a NICU in the United Kingdom, demonstrated that 25% of significant medication errors occurred due to patient misidentification. Similarly, Suresh et al.<sup>10</sup> reported that of the 1,230 errors submitted to the Vermont Oxford Network, 11% involved a patient misidentification. Misidentification errors have been attributed to many factors including workflow, identification process by hospital staff, and materials used in the identification process<sup>8</sup>. For example, errors attributed to bracelet content are reported to account for 7.4% of the total errors. Most causes of the wrist bracelet errors were related to missing bracelets and missing, conflicting, or incorrect information<sup>9</sup>.

## WHAT SHOULD BE DONE: PROPER INFANT / NEWBORN IDENTIFICATION

### *Identification of the Newborn at Delivery*

The most crucial step in the identification of the infant is the identification in the delivery area immediately following birth and before separation from the mother. The Lebanese Ministry of Public Health hospital accreditation standards mandate "swift and appropriate mother/baby identification in the delivery room." The standards require that all babies be "fitted with two identity bracelets, one on an upper limb and one on the contra lateral lower limb<sup>11</sup>."

The National Center for Missing and Exploited Children (NCMEC) in the U.S. developed guidelines for health care professionals on the prevention and response to infant abductions<sup>2</sup>. In those guidelines, the NCMEC recommends a combination of measures for proper newborn identification immediately after delivery and before separation of the infant and mother, including: placing identically numbered ID bracelets for the infant (2 bracelets), mother (1 bracelet), and father / significant other (1 bracelet), obtaining legible footprints of the infant, obtaining a color photograph or color video image of the infant, and a obtaining a sample of the infant's cord blood. This information must be noted in the infant's medical record.

### *ID bracelets*

Two ID bracelets are placed on the newborn, one on an upper limb and the other on the contra lateral lower limb. If the newborn's medical condition prohibits the application of the ID bracelets to the extremity, the ID bracelet must be attached to a visible part of the body. The ID bracelet on the newborn contains information that identifies the newborn and links him/her to the mother including the mother's full name, the newborn's gender, medical record number and date and time of birth, and a unique serial number that links the mother, infant, and father/significant other. Some models of identification bracelets designed for labor and delivery areas have 3 or 4 bracelets in one set with the serial number already preprinted by the manufacturer (picture 1). The serial number can also be generated by the hospital during the admission process of the mother. The serial number and the mother's name serve as two identifiers that link the mother to the newborn. Infants admitted after delivery must be identified in the same manner in the admission area.



Picture 1: Sets of 4 ID bands with preprinted serial number

Computer generated bar coding on the bracelet has been utilized in the identification of newborns as well<sup>12</sup>. A barcode is generated for the newborn and the mother and the two bar codes are linked electronically through a computer and a bar coding scanner in the delivery area. This link is performed prior to the separation of the infant and mother. An audible and visual signal identifies a correct identification. The bar code scanning is utilized to confirm the identity of the infant prior to special procedures such as blood administration, surgical operations, and medication administration. With every mother-infant encounter, both the mother and the infant bracelets are scanned and a visual and audible signal confirms the proper matching of the infant and mother. An alarm sounds if the match is incorrect<sup>10</sup>. Two dimensional bar codes encode data in both the horizontal and vertical dimensions. These bar codes are preferred over one dimensional bar-coding because they are smaller, have bigger data capacity, and can be scanned from any direction<sup>13</sup> (picture 2). The photo of the infant and mother can be added to the ID band as well, as an additional method of identity verification (picture 3). Advanced bracelet types carry radiofrequency identification (RFID) tags that enable staff verify the correct mother-baby relationship electronically<sup>5,7</sup>.



Picture 2: One-dimensional bar code (left) and two-dimensional bar code (right)



Picture 3: A newborn ID band with the baby's and the mother's photo

### Foot-prints and finger-prints

Foot-printing and/or finger-printing of the newborn also serve as a means for infant-mother identification. Foot-prints of the infant should be obtained clearly at birth before separation of the mother and infant. Although foot-printing and finger-printing technologies have improved over the past 20 years, chances for error do exist, possibly due to incomplete or unclear foot or finger prints. Occasionally, foot-prints of newborn are unreadable despite training of the staff and carefully performing the foot print. Shepard, et al.<sup>14</sup> investigated 2 sets of "carefully done foot printing" of newborns at birth and at 5-6 weeks, and only 10 out of 51 sets could be correctly identified. It is also

reported that a child will not produce a well defined finger-print until 4-6 years of age<sup>15</sup>.

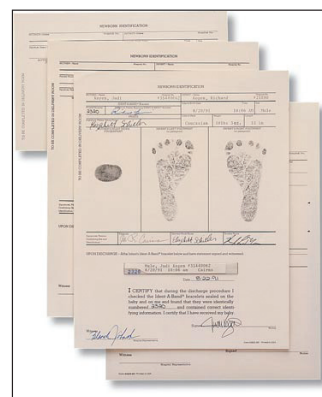
### DNA sampling

DNA testing, on the other hand, is the gold standard to identify beyond doubt the true identity of the newborn. Blood samples from heel sticks, cord blood, or oral buccal swabs are acceptable methods to collect a DNA sample from the newborn at birth. While a buccal swab is painless to collect and is the preferred method for the parents, the sample may undergo degradation if not processed or frozen soon after collection. Therefore, a blood sample may be a more reliable method for DNA collection<sup>15</sup>.

Sophisticated means of DNA sampling include the Biometric infant identification tools, which collect and store samples of salivary DNA and scent of an infant. The DNA sample and scent are maintained for up to 3 years within the system and are given to the family in a double sealed bag on discharge. During those 3 years, the DNA samples may be retrieved from the system and the scent may be provided to a scent dog to locate the infant<sup>16</sup>.

### Documentation of the identification process

Documentation of the identification process is crucial to provide legal evidence in court. Newborn identification forms may be utilized to document the identification process in the delivery area (picture 4) and at the time of discharge. The forms usually contain the mother's and the baby's identification information, in addition to the foot prints and finger prints, signature of the staff performing the identification process, and a witness signature.



Picture 4: Newborn identification form

## ***Identification throughout Hospitalization***

Health care providers are accountable to ensure that the correct ID bracelets are placed on the infants. If the ID bracelet must be removed by a staff member, a new bracelet shall be made, identification re-confirmed, and the bracelet placed on the infant.

The ID bracelets are checked at inter-shifts and frequent intervals. Verification of the infant identity must be performed prior to blood transfusions, surgical procedures, circumcision, medication administration, radiographic imaging, or feeding. Verification of the infant's ID bracelet against the mother's at every mother-infant encounter and the handling of the right infant to the right mother are critical and are the responsibility of the health care provider.

## ***Identification at Discharge from the Hospital***

A thorough discharge process that ensures proper identification of the infant and mother/father must be in place. An acceptable method is to verify the mother/father ID with the newborn's ID bracelet. For infants whose stay in the NICU extends beyond the mother's stay in the maternity unit, or in the event of a lost maternal/paternal ID bracelet, a photo identification of the mother/father may be used to verify their identity. The verification process at discharge must be documented in the infant's medical record on the newborn identification form initiated in the delivery area (picture 4).

## **CONCLUSION**

Abductions and mix-ups are two unfortunate events that could happen to infants while in hospital premises. Infants are considered a vulnerable population since they are not able to protect themselves or verbalize their identification information. Health care facilities should have policies and procedures in place to protect infants and provide newborns with the correct identity at delivery, throughout hospitalization, and at discharge. Advanced technology helps confirm the infant's identity and reduce the risk of newborn abductions. Under all circumstances, hospital personnel are responsible to implement strict infant identification and security policies to prevent mix-ups and

abductions. Finally, it is worth considering the design and implementation of a national database that would help assess the magnitude of the problems of infant abductions and mix-ups in Lebanon. This undoubtedly requires the collective efforts of all hospitals and all disciplines in the health care field.

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