CDSS – Part I
Medical Errors & Patient Safety

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إيقاف الطبيب المتسبب في وفاة (طفلة شرورة) والتحقيق يطول الفريق الطبي

نجران - علي الربيعان

وجّه وزير الصحة الدكتور عبدالله الربيعان بإيقاف الطبيب الذي باشر وتسبب في (فصل رأس مولودة عن جسدها) أثناء الولادة، التي عُرفت بـ(طفلة شرورة)، وإحالة الموضوع للجنة المخالفات الطبية للبت فيه.

وأشارت مديرية الشؤون الصحية إلى أن الإيقاف جاء بعد تشكيل لجنة طبية عاجلة للتحقيق مع الكوادر الطبية التي باشرت الحالة. وتعود تفاصيل حادثة (طفلة شرورة) إلى أنه عندما حضرت سيدة تبلغ من العمر 18 عاماً وهي حامل في شهرها السادس إلى المستشفى تشتكي من آلام بالبطن تمت معاينتها، واتضح أن وضع الجنين مستعرض، وأن المشيمة أعلى الرحم مع زيادة في السائل الأمنيني حول

الجنين، وتم تشخيص الحالة على أنها إجهاض، وتم إدخال المريضة المستشفى وإبلاغ أخصائي النساء والتوليد وكذلك أخصائي الأطفال. ورأى الفريق إعطاء فرصة للمولود للتعديل، وضعه داخل الرحم، وقام أخصائي النساء والتوليد بفحص المريضة، واتضح انفجار جيب المياه، وتبعه نزيف مهبلي، ومن ثم حدثت ولادة تلقائية لجسم وأقدام الجنين، بينما علق الرأس بعنق الرحم، ولم يعد هناك نبض بالحبل السري، بعدها قام الطبيب بالشد على الجنين عند مستوى الكتفين: فانفصل رأس الجنين عن باقي جسده. بعد ذلك تمت متابعة حالة المريضة، وتم نقلها للقسم الداخلي لحين خروجها بتاريخ 19-1-1433هـ بعد استقرار حالتها!

الصحة تغرم 11 مستشفى لمخالفتها إدارة النفايات الطبية

الجزيرة - ياسر المعارك

أصدرت لجنة مخالفات المؤسسات الصحية 11 قراراً يشمل عقوبات وغرامات على العديد من المخالفين على المنشآت الصحية الخاصة وفقاً لمواد وأحكام النظام الموحد لإدارة نفايات الرعاية الصحية بالدول الخليجية وقد تنوعت المخالفات ما بين عدم فصل حاويات لنفايات الأدوية الحادة، عدم وجود جهاز الأوتوكلاف، عدم استخدام ملصقات تعريفية كذلك عدم التخلص من النفايات الخطرة بشكل يومي، عدم وجود أكياس بلاستيكية قابلة للمعالجة المبدئية كثر في ذلك مدير الصحة المهنية بوزارة الصحة محمد السعد مضيفا أن الغرامات المالية

ضمن أكبر 20 مشغلا عالميا

الاتصالات السعودية تحقق المركز 14

IOM Report

* Estimated 48,000-98,000 deaths per year in US due to medical errors
* Randomly selected hospital discharges
    * from New York (30,000 cases) and Colorado/Utah (15,000 cases)
* Adverse events occurred in 2.9-3.7% of all hospitalizations
    * 50% were minor, temporary injuries
    * 7-14% resulted in death
    * 26% resulted in reversable disabling injury
    * 2.6% resulted in permanent disabling injury
    * 53-58% were preventable
    * 28% were due to negligence, i.e., failed to meet reasonable standard of care
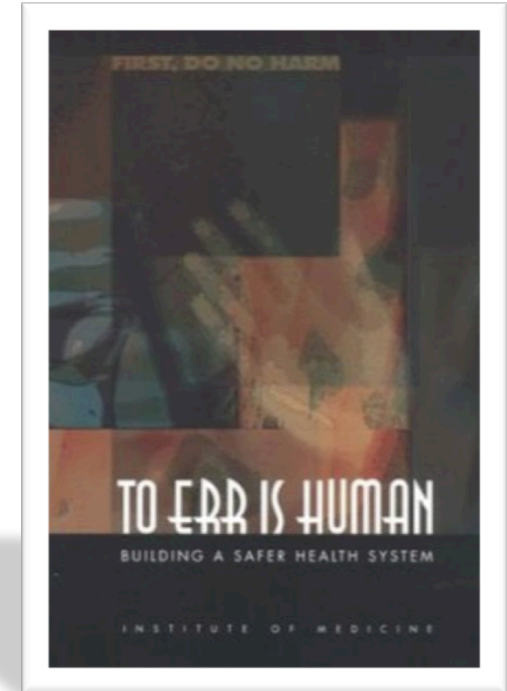
Leading causes of death

LEADING CAUSES OF DEATH[1]

Diseases of the Heart	726,974
Cancer (malignant neoplasms)	539,577
Cerebrovascular Disease	159,791
Chronic Obstructive Pulmonary Disease	109,029
Medical Errors[2]	44,000–98,000
Accidents and Adverse Effects (motor vehicle accidents = 43,458; all others = 52,186)	95,644
Pneumonia and Influenza	86,449
Diabetes	62,636
Suicide	30,535
Kidney Disease	25,331
Liver Disease	25,175

SOURCES: 1. Centers for Disease Control and Prevention, 1997. 2. IOM, *To Err Is Human: Building a Safer Health System*, 2000.

(Courtesy, Dan Masys, MD)
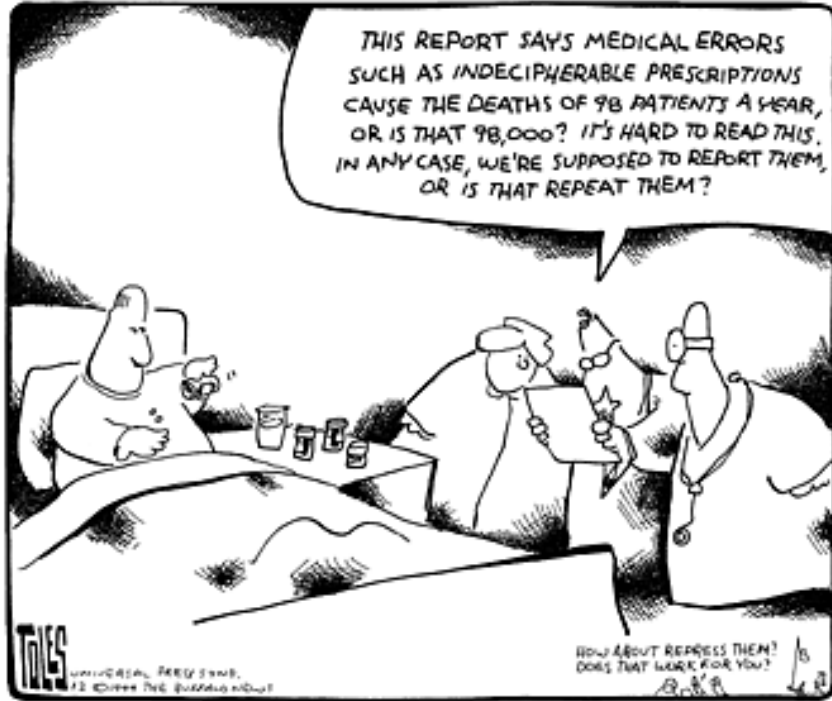
Criticism to the IOM report

* **Some challenged the numbers**
  * Reliability and reproducibility for these subjective assessments not measured (Sox, 2000)
  * Overstated due to sampling problems and underlying illness (McDonald, 2000)
  * In another sample, preventability of death from avoiding error estimated to be much lower (Hayward, 2001)
* **Others assert the attention was misguided**
  * Patient safety is one of many problems in health care to address and should not detract attention from larger health care problems (Woolf, 2004)
  * Errors of omission (i.e., too little care) is a larger threat to health care quality than errors of commission (e.g., medical errors) (Hayward, 2005)

وزير الصحة يهدي "رهام" المصابة بالإيدز iPad !

Other sources of medical error

* **Multi-tasking** and **interruption** (Laxmisan, 2006)
* **Communication deficits**
    * during patient transfer (Kripalani, 2007)
    * and handoffs (Singh, 2007; Horwitz, 2008)
* **Surgical error**
    * mainly in routine operations on complex patients (Regenbogen, 2007)
* Failure to **order** or **follow-up on test results** in ambulatory setting (Gandhi, 2006; Wh als, 2007)
* **Patient misunderstanding** directions from clinicians (Davis, 2006; Tarn, 2006) http://www.youtube.com/watch?v=21TL94NEzvg

IT sources of error

* Wrong bar code on patient (McDonald, 2006)
* Errors introduced into non-locked fields of Excel spreadsheet (de Wildt, 2007)
* Joint Commission Sentinel Event Alert (2008)
  * Added as one of many safety alerts
  * Cite US Pharmacopeia data indicating 25% of all medication errors related to IT, including barcodes, dispensing devices computer displays and order entry
  * Calls for monitoring safety of IT implementation and usage, i.e., cannot assume IT will only improve safety

Other sources of error – working conditions

* Increased staffing levels of nurses in hospitals will likely improve patient outcomes (Hickam, 2003)

* Nurses working longer shifts and overtime more likely to make errors (Rogers, 2004)

* Interns made substantially more errors (Landrigan, 2004) and reported more motor vehicle accidents (Barger, 2005) when working 24+ hour shifts; reducing such shifts increased sleep and decreased attentional failures (Lockley, 2004)

* A systematic review of other studies assessing work hours on patient safety did not find a benefit for reducing work hours (Fletcher, 2004)

أخطاء طبية !!

Sitamol.Net

Classification of Medical Errors and ADEs
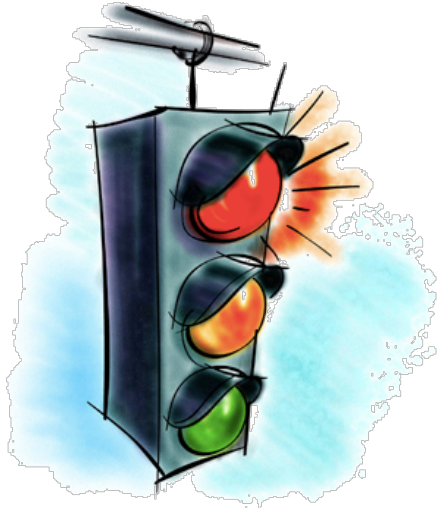
		Adverse events		No adverse event
		Preventable (non-intercepted)	Non-preventable	
Errors	Adverse outcome	🟥		
	No adverse outcome ("near miss")			🟨
	No error		🟩	

Medical Errors and ADEs

* First documented by Bates (1995)
* 6.5 ADEs and 5.5 potential ADEs per 100 hospital admissions
* Of all ADEs:
    * 1% were fatal (none preventable)
    * 12% life-threatening
    * 30% serious
    * 57% significant
* 28% of ADEs were associated with error
* Errors more likely to occur at ordering (56%) vs. administration (34%)

Other documentation of medication errors

* **In ambulatory settings**
  * For elderly patients, 13.8 preventable ADEs per 1000 person-years (Gurwitz, 2003)
* **In a general medicine clinic**
  * 28% of prescriptions contained errors but only 0.2% caused harm (Devine, 2007)
* **In a large teaching hospital**
  * pharmacists identified 62.4 errors per 1,000 medication orders,
  * 31% of which were rated clinically serious (Bobb, 2004)
* **Pediatric patients**
  * 816 harmful outcomes in a voluntary reporting system over five years (Hicks, 2006)
* **In cancer chemotherapy**
  * at least one error in 10% of all prescriptions and in 19% of all patients (Taylor, 2006)

Related topic "abbreviations"

Official "Do Not Use" List[1]

Do Not Use	Potential Problem	Use Instead
U (unit)	Mistaken for "0" (zero), the number "4" (four) or "cc"	Write "unit"
IU (International Unit)	Mistaken for IV (intravenous) or the number 10 (ten)	Write "International Unit"
Q.D., QD, q.d., qd (daily)	Mistaken for each other	Write "daily"
Q.O.D., QOD, q.o.d, qod (every other day)	Period after the Q mistaken for "I" and the "O" mistaken for "I"	Write "every other day"
Trailing zero (X.0 mg)*	Decimal point is missed	Write X mg
Lack of leading zero (.X mg)		Write 0.X mg
MS	Can mean morphine sulfate or magnesium sulfate	Write "morphine sulfate"
MSO_4 and $MgSO_4$	Confused for one another	Write "magnesium sulfate"

[1] Applies to all orders and all medication-related documentation that is handwritten (including free-text computer entry) or on pre-printed forms.

*Exception: A "trailing zero" may be used only where required to demonstrate the level of precision of the value being reported, such as for laboratory results, imaging studies that report size of lesions, or catheter/tube sizes. It may not be used in medication orders or other medication-related documentation.

http://www.jointcommission.org/assets/1/18/Official_Do%20Not%20Use_List_%206_10.pdf

Human error

* **Two general types of errors** (Leape, 1994)
  * Slips – "Unconscious glitches in automatic activity," usually due to diversion of attention
  * Mistakes
    * Rule-based
      * wrong rule chosen due to misperception or misapplication
    * Knowledge-based
      * novel situation with no preprogrammed solution; lack of knowledge or misinterpretation of problem
* **Approach to human error** (Reason, 2000)
  * **Person**: Individual blamed, improve by blaming, litigation, retraining, etc.
  * **System**: Put systems in place to capture and correct human fallibility
  * In most complex systems, system approach more effective

Programs for improving safety

* 10 Safety Tips for Hospitals (AHRQ, 2007)
    * Assess and improve your patient safety culture
    * Build teamwork
    * Limit shifts for hospital staff, if possible
    * Insert chest tubes safely
    * Prevent central line-related bloodstream infections
    * Make good use of senior ICU nurses
    * **Use reliable decision-support tools at the point of care**
    * Set up a safety reporting system
    * Limit urinary catheter use to 3 days
    * Minimize unnecessary interruptions

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OCCURRENCE/ VARIANCE REPORT

CONFIDENTIAL	**Reference No.:** *(For QMD use only)*

Patient ID	**File No.:**	
	Dept./Ward	
	Sex/ Age	

Incident Time:	**Incident Date:**	**Incident Location/Dept.:**

Person Involved: ❑ Patient ❑ Staff ❑ Visitor/ Watcher ❑ Others

SENTINEL EVENT: ❑ YES ❑ NO if yes please specify:

Name of Person Involved:	**Position:**	**Badge No.:**	**Dept./ Unit:**

Classification of Occurrence/ Variance: (*Please tick the appropriate box*)

Clinical Practice/ Procedure	Medication	Family/ Visitor/ Watcher	Staff/ Employee	Equipment/ Supplies
❑ Documentation ❑ Missing Files ❑ Medical records unavailable ❑ Policy not available ❑ Confidentiality ❑ Procedure/s not followed ❑ Others (*specify*) ------------------------------	**Wrong:** ❑ Drug ❑ Time ❑ Route ❑ Dose ❑ Patient ❑ I.V. not given ❑ I.V. infiltration ❑ Allergic Reaction ❑ Others (*specify*) ------------------------------	❑ Dissatisfaction ❑ Hematoma ❑ Needlestick/ prick ❑ Food Hygiene ❑ Fall ❑ Hosp. Acquired Infection ❑ Others (*specify*) ------------------------------	❑ Infection Control Issues ❑ Infectious Subs. e.g. blood ❑ Needlestick/ prick ❑ Vehicular Accidents ❑ Fall ❑ Policies/ Procedures ❑ Others (*specify*) ------------------------------	❑ Improper Handling ❑ Not available ❑ Missing/damaged ❑ Failure/malfunction ❑ Wrong Equipment ❑ Improper Storage ❑ Others (*specify*) ------------------------------
Safety	**Fire/ Security**	**Behavioral**	**Patient Care**	**Occupational**
❑ Injuries ❑ Electric Shock ❑ Physical assault ❑ Structural ❑ Others (*specify*) ------------------------------	❑ Fire/ Smoke Incident ❑ Property Missing ❑ Unauthorized Entry ❑ False Alarm ❑ Others (*specify*) ------------------------------	❑ Assault ❑ Verbal Aggression ❑ Violent Behavior ❑ Sexual harassment ❑ Others (*specify*) ------------------------------	❑ Assessment ❑ Care Plan ❑ Procedure ❑ Investigation ❑ Others (*specify*) ------------------------------	❑ Disability ❑ Exposure to Hazards ❑ Unconsciousness ❑ Work related Illnesses ❑ Others (*specify*) ------------------------------

Description of Occurrence/ Variance:

Programs for improving safety (cont.)

* Institute for Safe Medication Practices (www.ismp.org)
  * All medications should be checked for the "five rights" (1999)
    * Right patient
    * Right drug
    * Right time
    * Right dose
    * Right route
* High-Alert Medication List (2007)

What can be done about medical error?

* Better detection to identify causes and solutions, especially through use of EHR data (Sauer, 2007)
* Voluntary reporting systems (Garbutt, 2008)
* "Systems" approach and thinking (Shortell, 2008)
* Apology (Lazare, 2006)
* Technology
  * Barcoding (Poon, 2006)
  * Computerized decision support (CDS) and computerized provider order entry (CPOE) – *next lecture*