GCC FORENSICS
CONFERENCE & EXHIBITION
مؤتمر ومعرض الخليج العربي للأدلة الجنائية
13 - 14 NOV 2019 | THE GULF HOTEL BAHRAIN

Death certificate errors

Khaldoon Aljerian, MD MHSc FRCPC FCAP
Pathologist and Ethicist
Forensic Medicine Unit, Department of Pathology,
College of Medicine, King Saud University
Riyadh, Saudi Arabia, +966.555.49.46.49
khaldoonaljerian@gmail.com

جامعة الملك سعود
King Saud University
1957

Death certificate

- Last certificate, signed: “physician or Coroner”
- Deceased information:
  - Personal identification
  - Cause and manner of death
  - Epidemiological data
- Accuracy and standardization are paramount:
  - Resource allocation health programs
  - Morbidity and mortality statistics
  - Inheritances, insurance claims
  - Closure for family and friends

Khaldoon Aljerian khaldoonaljerian@gmail.com

DC - Death certification errors

- Universal problem, major error rates:
  - 24% to 37% United States
  - 56% in the United Kingdom
  - 89% among pediatric deaths
- Research and national programs to f/u quality
  - Resource allocation health programs
  - Morbidity and mortality statistics
  - Inheritances, insurance claims
  - Closure for family and friends

Khaldoon Aljerian khaldoonaljerian@gmail.com

Methods

- Retrospective audit DCs 1997-2016, University Hospital, criteria:
  - death 48 hr following admission
  - DC signed:physician
- Frequency, type(s) of errors:
  - WHO 1994: standard DC
  - Pritt 2005: Scale for grading errors in DC

Khaldoon Aljerian khaldoonaljerian@gmail.com

Results

- 1729 death certificates from the hospital records
- 41 excluded ← earlier than 2 days
- 1688 death certificates met the inclusion criteria
- The deceased were mostly men (66.4%)
- Mean age was 62 years (range 14–114, SD= 20.89)

Khaldoon Aljerian khaldoonaljerian@gmail.com

Grades: Minor I & II

- Grade Ia: incompleteness
- Grade Ib: abbreviation/illegible writing
- Grade Ic: diagnoses not in a logical order
- Grade II: missed minor comorbidities

→ No grade I or II errors

Khaldoon Aljerian khaldoonaljerian@gmail.com

Grades: Major III

- Missing or misclassified COD
- 75% of the reports:
  - 25% listed the conditions that may have led to death
  - 2% correctly listed the conditions in the appropriate row or column

Khaldoon Aljerian khaldoonaljerian@gmail.com

Grades: Major III

- Cancer-related causes of death:
  - Correct: colon, prostate, breast, and liver cancer, but detail was often lacking (histology type, locality).
  - Errors: “cancer,” “tumor,” “metastatic tumor,” “brain tumor,” or “colon tumor.”
- Non-cancer related causes of death included:
  - Correct: diabetic ketoacidosis, pneumonia, meningitis, gastrointestinal hemorrhage and perforation, or traffic accident,
  - Errors: lacked essential details such as the causative organism or complications leading to death.

Khaldoon Aljerian khaldoonaljerian@gmail.com

Grades: Major IV

- Incorrect cause or manner of death
- All (100%): incorrect or absent COD
- 1186 (70%) COD: “cardiopulmonary arrest”
- 30% comorbidities or mechanisms
    - chronic ischemic heart disease, myocardial infarction, malignancy, renal failure, diabetes and even “traffic accident”—rather than the specific cause.

Khaldoon Aljerian khaldoonaljerian@gmail.com

Grades: Major IV

- 4% organ failure (heart, kidney, liver, and multiorgan)
- 2% Diabetes without clearly stating a complication
- “Traffic accident”
    - manner of death
    - may not have been a cause
    - not all traffic collisions are accidents, and
    - traffic or transportation injuries may occur in cars, on motorbikes or bicycles, to drivers, passengers, or pedestrians).

Khaldoon Aljerian khaldoonaljerian@gmail.com

Discussion - Abbreviations

- Abbreviations may be misinterpreted
  - RTA: “renal tubular acidosis” or “road traffic accident” or not understood
- Hospital administration reject DC abbreviations
- No abbreviations → physicians need to be made aware

Khaldoon Aljerian khaldoonaljerian@gmail.com

Discussion - Grade III: Missing or misclassified COD

- list of some or all of an individual's conditions, but did not establish a causal link or indicate relevance.
  - physicians do not know how to correctly determine comorbidities
  - series of events constitute the chain leading to a patient's death;
  - high-pressure work and time constraints
  - wording or construction of the death certificate
- Further research is needed

Khaldoon Aljerian khaldoonaljerian@gmail.com

Discussion - grade IV: wrong COD or MOD

- “cardiopulmonary arrest” → unacceptable WHO, CDC
- Serious consideration → all stakeholders
- If certificates erroneously list COD → errors in resource allocation:
  - legal proceedings (insurance, compensation)
  - national statistics
  - epidemiology and quality of life will be based on incorrect information

Khaldoon Aljerian khaldoonaljerian@gmail.com

DC discussion

- Physicians Lacks:
    - importance of DC
    - knowledge, mandatory courses, exams
    - Pathway: violent vs natural, DOA, 48hrs, info
    - feedback
- DC Design:
    - difficult to follow
    - absent instructions or manual
- No committee that reviews death certificates to guarantee quality, local hospitals, systems, CBAHI

Khaldoon Aljerian khaldoonaljerian@gmail.com

Conclusion

- Proper→ vital: personal, legal and governmental
- All certificates: at least 1 major incorrect entry COD
- Multicenter, national approach
- Education & training of physicians
- Create pathway for non-violent deaths
- Continuous, regular, diligent and detailed f/u of DCs

Khaldoon Aljerian khaldoonaljerian@gmail.com

GCC FORENSICS
CONFERENCE & EXHIBITION
مؤتمر ومعرض الخليج العربي للأدلة الجنائية
13 - 14 NOV 2019 | THE GULF HOTEL BAHRAIN

Death certificate errors

Khaldoon Aljerian, MD MHSc FRCPC FCAP
Pathologist and Ethicist
Forensic Medicine Unit, Department of Pathology,
College of Medicine, King Saud University
Riyadh, Saudi Arabia, +966.555.49.46.49
khaldoonaljerian@gmail.com

جامعة الملك سعود
King Saud University
1957