ISDS

Emerging Health Threats Journal 2011, **4**:s128. **doi:** 10.3134/ehtj.10.128

www.eht-journal.org

ABSTRACT

Integrating medical examiner data in Utah

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Objectives

The objectives of the Utah Medical Examiner Database (UMED) project are:

- To provide a single point of entry for medical examiner pathologists and staff to manage investigation information.
- To develop an operational system that links death certificate, medical examiner, and laboratory data in real time as a resource for epidemiology and public health surveillance.

Introduction

The Office of the Medical Examiner (OME) is a statewide system for investigation of sudden and unexpected death in Utah. OME, in the Utah Department of Health (UDOH), certified over 2000 of the 13,920 deaths in Utah in 2008.

Information from OME death investigations is currently stored in three separate UDOH data silos that have limited interoperability. These three electronic data systems include death certificates, medical examiner investigations, and laboratory results. Without interoperability, OME staff is required to enter the same data into multiple systems. In addition, the process of requesting laboratory analysis and receiving results is paper based, significantly slowing final cause of death determination in a majority of cases.

Epidemiological studies and surveillance activities are hindered by the lack of systems integration in UDOH and often require retrospective data linkage. As an example, in 2005, CDC and the UDOH reported that deaths in Utah caused by drug poisoning from non-illicit drugs had increased fivefold from 1991 to 2003.[1] This significant finding relied on retrospective linkage of death certificates, medical examiner records, and toxicology results to describe the problem.

In 2008, funding from a bioterrorism grant from the US Department of Homeland Security was secured to support development of a unique, integrated system for medical examiner and death certificate data.

Methods

The UMED was designed by staff from Utah's Office of Vital Records and Statistics, OME, and Department of Technology Services. UMED was designed with a three-tier architecture. In the data tier, information from historical medical examiner investigations has been linked with death certificate data to form a foundation database with combined death certificate and investigation information from 1991 to present. Moving forward, deaths entered into UMED will be intrinsically linked to death records in the data layer. Laboratory data is linked in the logic tier where UMED's unique person identifier is used to send and receive requests from the laboratory information system.

For deaths not under OME jurisdiction, funeral directors and non-OME physicians will interact through the web-based electronic death registration system interface to file death certificates. OME staff and physicians will interact through the web-based UMED interface that will provide a single point of entry for investigation, death certificate and laboratory data, eliminating multiple entry.

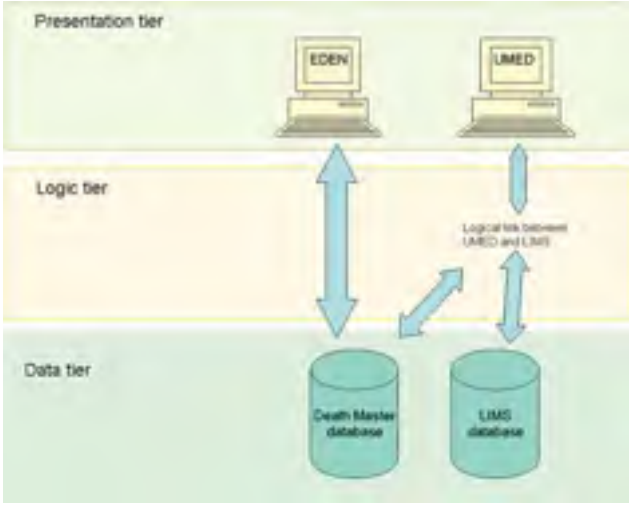

Figure 1 Architectural diagram of the UMED system.

The UMED system is currently undergoing internal testing and is scheduled for user acceptance testing in September 2010 (Figure 1).

Conclusions

The UMED system represents a major step forward for epidemiology and surveillance in Utah. The UMED database, containing linked medical examiner and death certificate data from 1991 to the present, is a rich resource for retrospective epidemiological research. Intrinsically linked operational data from UMED will facilitate real-time surveillance by public health programs in the UDOH.

Acknowledgements

This paper was presented as a poster at the 2010 International Society for Disease Surveillance Conference, held in Park City, UT, USA, on 1–2 December 2010.

Reference

1 Caravati EM, Grey T, Nangle B, Rolfs RT, Peterson-Porucznik CA. Increase in poisoning deaths caused by non-illicit drugs–Utah, 1991–2003. *MMWR* 2005;**54**:33–6.