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What happened to my patient after I dropped them off at the ED? Linking Welsh ambulance to secondary care and mortality data

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Introduction

The Welsh ambulance service hold very detailed information about emergency calls received, incidents and associated ambulance journeys, but very little about what happens to patients after they have been conveyed to hospital.

Linkage of ambulance data to secondary care and mortality data can allow new outcome measures to be developed.

Conclusion/Implications

The work demonstrated how the linked data could provide managers, commissioners and policy-makers with a more holistic view of the unscheduled care system. Work to-date has focussed mainly on conveyances to ED, however the next stage will be to develop outcome measures relating to those patients treated at the scene or advised by phone.

Objectives and Approach

A proof of concept was jointly initiated by the Welsh Ambulance Service, Welsh Government and the NHS Wales Informatics in order to explore how ambulance conveyance data could be linked to other routinely collected secondary care and mortality data, with the aim of developing new outcome-based measures for the evaluation of the effectiveness of the ambulance service and the unscheduled care system as a whole.

As there were very few patient demographic data items common to both the ambulance and secondary care datasets, the resulting probabilistic linkage relied largely on the use of time and location-based distributions.

Results

The linkage methodology proved to be highly successful for those patients conveyed by ambulance to an ED, with the various location and time-based fields from the ambulance dataset combining well with similar fields in the ED dataset. Out of all ED attendance records which had "Ambulance" as the stated mode of arrival, an associated ambulance record was found in over 90% of cases.

Additional exact and rules-based deterministic methods were used to link the ED attendances to associated admissions, critical care and mortality records, with new ED, in-hospital and longer term outcome variables developed.

Finally, the project team analysed the impact of ambulance response times and ED handover delays on these outcome measures.