

## Supplementary Appendix 1

### Data structure for the INTEGRATE critical admissions table

The INTEGRATE table structure, generated by the methodology, is designed to capture all the critical admissions from two data sources. The table is also designed to record the characteristics of the cases at each critical admission and the dates of the non-acute hospital admissions, emergency admissions and primary care interactions within the chosen time frame. The source of the critical admission is identified by means of a data source flag to identify those admissions common to both data sources (INTGRT) or those admissions recorded in a single data source (CCDS or ICNARC).

Supplementary table 1: Abbreviations used in the paper

Field name	Data type	Description	Valid entries
ALF	Integer	Unique Anonymised Linkage Field	10-digit integer
Week Of birth	Date	Monday of week of birth	Valid date
Sex	Character (1)	Sex	1 = Male;2 = Female
Date of death	Date	Date of death	Valid date
Main cause of death	Character (5)	Main cause of death	ICD10 diagnosis code
Underlying cause of death	Character (5)	Underlying cause of death	ICD10 diagnosis code
Critical care admission date	Date	Admission date to critical care	Valid date
Data Source Flag	Character (6)	Data source where the critical care admission was identified	'CCDS' 'ICNARC' 'INTGRT'
LSOA code (Lower Layer Super Output Area) at admission date	Character (9)	Lower-layer Super Output Area code (2011)	Welsh codes begin with 'W'
Deprivation quintile (on critical care admission date)	Integer	Welsh Index of Multiple Deprivation [30]	1 = most deprived 5 = least deprived
ICNARC hospital admission date	Date	Non-acute hospital admission date from ICNARC	Valid date or NULL
Hospital admission date Prior to	Date	Non-acute admission date from hospital records	Valid date or Null within time frame of interest
Emergency admission date	Date	Admission date from emergency admissions records	Valid date or Null within time frame of interest
Date of primary care interaction prior to critical admission	Date	Date of interaction with primary care services	Valid date or Null within time frame of interest
Admission Sequence	Integer	Admission sequence number for each ALF	Numeric value between 1 and 30

## Supplementary Appendix 2

Supplementary table 2: Data structure generated by the INTEGRATE methodology

ADDE	Annual district death extract
ALF	Anonymised Linking Field
CC	Critical Care
CCDS	Critical care minimum dataset
EDDS	Emergency department dataset
GP	General practitioner (primary care)
ICD 10	International classification of diseases
ICNARC	Intensive care national audit & research centre
ICU	Intensive care unit
IGRP	Information governance review panel
LSOA	Lower super output area
PEDW	Patient episode database for wales
SAIL	Secure anonymised information linkage (databank)
WDS	Welsh demographic service dataset
WIMD	Welsh index of multiple deprivation
WLGP	Welsh longitudinal general practice dataset