

Anaesthetic Shoulder Arthroscopy Cases (ASAC) Database

This document intends to outline the data that is contained in the ASAC database and how to use some of the tools associated with it.

1.1. Purpose

There is currently a lack of high quality anaesthetic records from operations which can be used for research purposes (especially to do with physiologic signals). The purpose of this database is to allow an easily accessible resource for researchers and clinicians to deposit and/or obtain complete clinical recordings.

1.2. Data

Ethics approval was obtained to collect and make accessible the data in this database. Data was collected using the SAFERSleep system [1] set to the highest data sampling rate (0.2Hz). Recordings include patient data, time-stamped medical events/interventions (e.g. drug, gas, vapour administration, repositioning of patient etc.) and physiologic data (e.g. heart rate, oxygen saturation etc.).

The database contains 20 high quality anaesthetic cases made up of 13 male and 7 female patients aged between 21 and 70 years of age and weighing between 57 and 110kg undergoing shoulder arthroscopy operations. Each patient had between 17 and 26 measured variables over their procedure, between 5 and 24 events, and between 18 and 58 drug administrations. In total, there are 400 signals over approximately 20 hours with 274 events and 597 drug administrations.

Each case is a separate XML file and is easily navigated (Figure 0-1). The time series (physiologic) data is contained as comma-separated values (CSV) within the XML format. Combining the CSV and the XML makes the data easily read and allows for ease of creation should other researchers wish to add cases.

```

<anaesthetic>
  <case>Integer</case>
  <creationtime>TimeStamp</creationtime>
  <operation>
    <opdescription>String</opdescription>
    <opdate>TimeStamp</opdate>
  </operation>
  <patient>
    <age>Int</age>
    <weight>Double</weight>
    <height>Double</height>
    <sex>String</sex>
    <dob>DateStamp</dob>
    <asa>Int</asa>
    <comorbidities>String</comorbidities>
  </patient>
  <events>
    <event>
      <evtime>TimeStamp</evtime>
      <evdescription>String</evdescription>
    </event>
    ...
  </events>
  <drugs>
    <drug>
      <drname>String</drname>
      <drtime>TimeStamp</drtime>
      <drdose>
        <drvalue>Double</drvalue>
        <drunit>String</drunit>
      </drdose>
      <drroute>String</drroute>
    </drug>
    ...
  </drugs>
  <data>
    <var>
      <vaname>String</vaname>
      <vatimes>CSV</vatimes>
      <vavalues>CSV</vavalues>
    </var>
    ...
  </data>
</anaesthetic>

```

Figure 0-1: Structure of the XML files containing the data from recorded anaesthetic cases. Bold words indicate the type of data contained between the tags.

1.3. Tools

While there are a range of free XML and CSV editors and tools available, I have written a MatLab™ script to convert the XML and CSV into MatLab™ structures (*webXML2Matlab.m*). In order to use the script, either call it with the filename (*caseX = webXML2Matlab(c:\myData\case1.xml)*) or call it without the filename to select a file using *uigetfile.m*. The resulting structure will be the same as the XML schema but the time series data will be vectors.

1.4. References

1. Merry, A.F., C.S. Webster, and D.J. Mathew, *A new, safety-oriented, integrated drug administration and automated anesthesia record system*. *Anesthesia and Analgesia*, 2001. **93**(2): p. 385-390.