



B.I.R.O.

Best Information through Regional Outcomes

A European Public Health Project, DG-SANCO, 2005-2008

B.I.R.O. Xml Export

**Cyprus 2nd annual
investigators meeting**

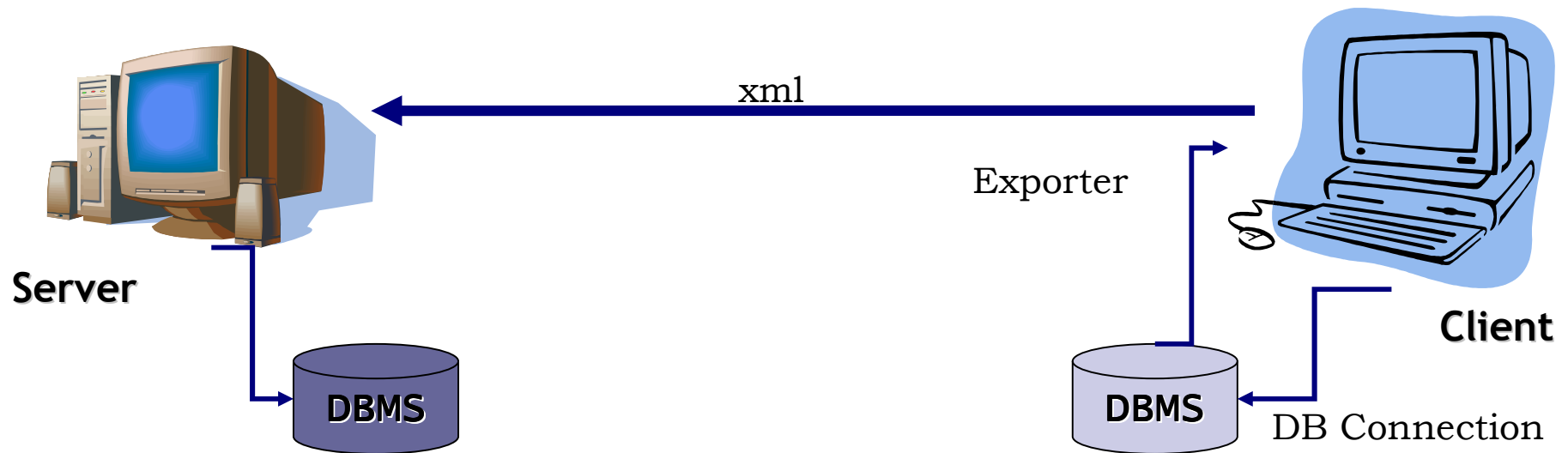


Summary

- Preliminaries about R.R.D.M. System
- Umbria System's Xml (**xml**)
- B.I.R.O. Xml Schema (**xsd**)
- B.I.R.O. Xml (**XML**)
- Future work

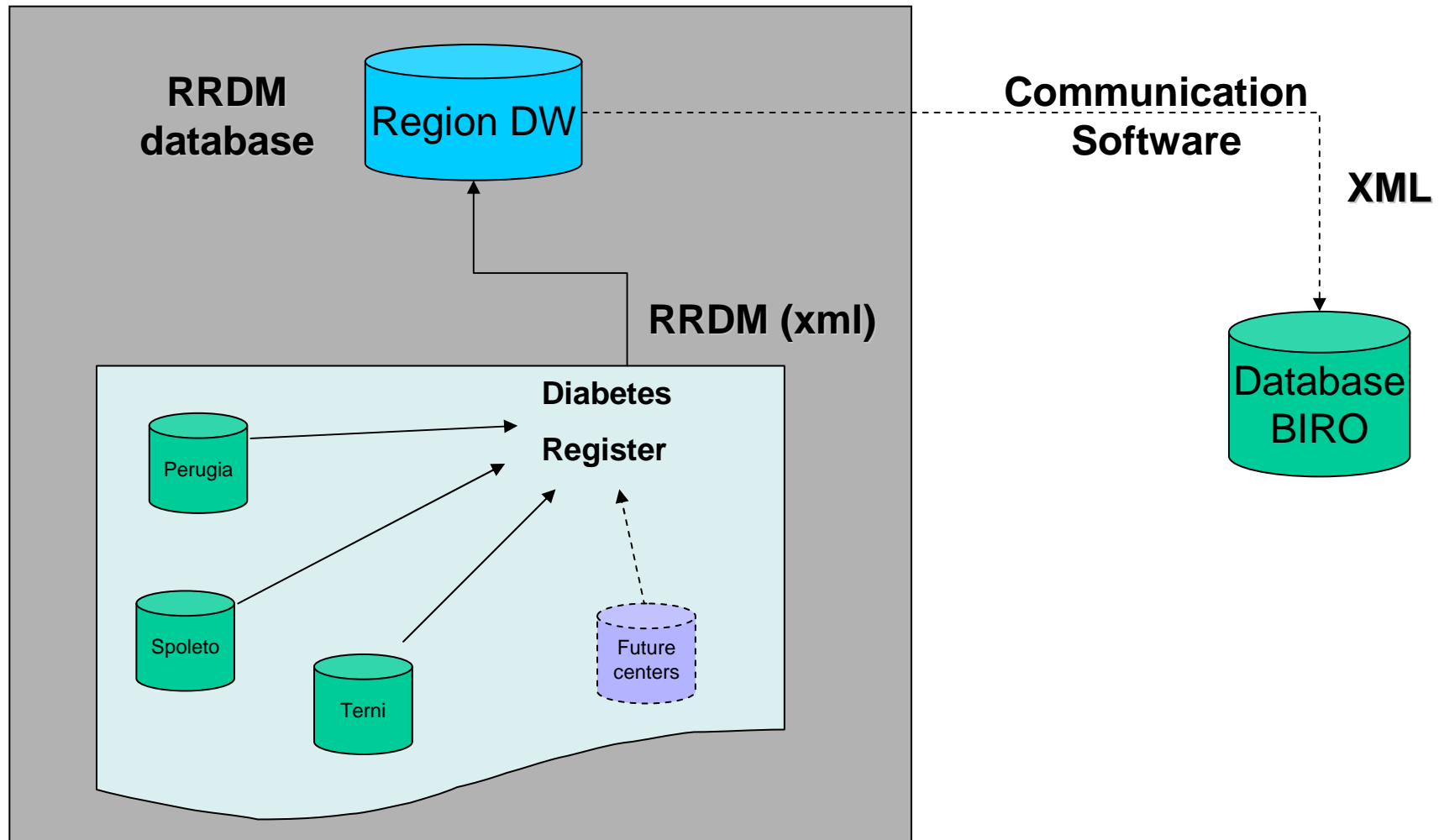


R.R.D.M. System





The Umbria architecture



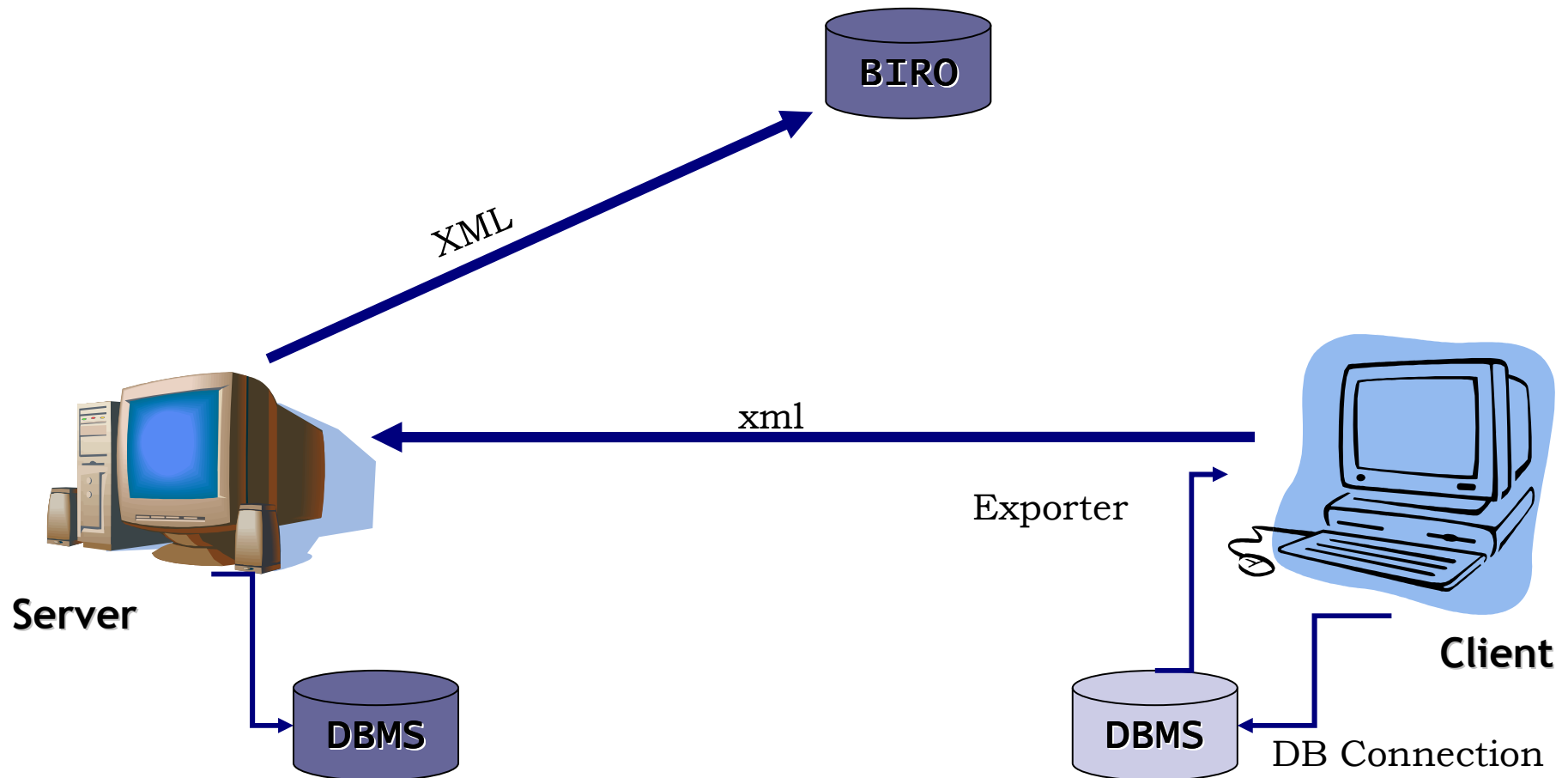


Umbria xml Data

```
<?xml version="1.0" encoding="ISO-8859-15"?>
<DATABASE date="wed Apr 19 12:41:23 CEST 2006">
  <TABLE name="Anagrafica" col_count="6" key="codice" size="13454">
    <DATA key="null">
      <COLUMN name="codice" value="null"/>
      <COLUMN name="id_anag" value="0"/>
      <COLUMN name="name" value="!"/>
      <COLUMN name="surname" value="!"/>
      <COLUMN name="genre" value="0"/>
      <COLUMN name="dateOfBirth" value="1900-01-01 00:00:00.0"/>
    </DATA>
    <DATA key="XXXXXXX">
      <COLUMN name="codice" value="XXXXXXX"/>
      <COLUMN name="id_anag" value="2"/>
      <COLUMN name="name" value="VITTORIO"/>
      <COLUMN name="surname" value="XXXXXXX"/>
      <COLUMN name="genre" value="M"/>
      <COLUMN name="dateOfBirth" value="1927-02-24 00:00:00.0"/>
    </DATA>
    ...
  </TABLE>
</DATABASE>
```



R.R.D.M. System





B.I.R.O. XML Schema - xsd

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- edited with XMLSpy v2005 U (http://www.xmlspy.com) by Douglas Boyle (NHS Tayside) -->
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:element name="ECDataExport">
    <xsd:annotation>
      <xsd:documentation>Created by Douglas Boyle, 2006-02-16</xsd:documentation>
      <xsd:documentation>Each participating client database / system / clinic has a
definition</xsd:documentation>
    </xsd:annotation>
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="SiteHeader">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="SiteIdentification" type="xsd:integer">
                <xsd:annotation>
                  <xsd:documentation>Each clinical site providing data is granted a unique site identification
number</xsd:documentation>
                </xsd:annotation>
              </xsd:element>
              <xsd:element name="DateInformationChecked" type="xsd:date" minOccurs="0" />
              <xsd:element name="ClinicalSiteName" type="xsd:string" />
              <xsd:element name="Address1" type="xsd:string" />
              <xsd:element name="Address2" type="xsd:string" minOccurs="0" />
              <xsd:element name="Address3" type="xsd:string" minOccurs="0" />
              <xsd:element name="Country" type="xsd:string" />
              <xsd:element name="ZipCode" type="xsd:string" minOccurs="0" />
              <xsd:element name="ClinicalContactName" type="xsd:string" />
              <xsd:element name="ClinicalContactPhone" type="xsd:string" />
              <xsd:element name="ClinicalContactEmail" type="xsd:string" />
              <xsd:element name="TechnicalContactName" type="xsd:string" />
              <xsd:element name="TechnicalContactPhone" type="xsd:string" />
              <xsd:element name="TechnicalContactEmail" type="xsd:string" />
              <xsd:element name="BIROLeadName" type="xsd:string" />
              <xsd:element name="BIROLeadPhone" type="xsd:string" />
              <xsd:element name="BIROLeadEmail" type="xsd:string" />
              <xsd:element name="Comments" type="xsd:string" minOccurs="0" maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```



RRDM2BIRO Converter

- Input:
 - RRDM Database (MergeTable) created from Umbria xml Data files
- Output:
 - XML file following the B.I.R.O. xsd Schema



Merged data (input)

idPaziente	DataDiNascita	Sesso	DiagnosiDiab	Diab	data	Altezza	BMI	Peso	Colesterolo	Colesterolo_HDL	Colesterolo_LDL	Creatinina	Emoglob.	Glicata_HBA1C	Glicemia_a_digiuno	Trigliceridi_post_12h_dig.	Insulina	Metformina	Ipoglicemizzanti
884	01/03/1918	M	01/01/1971	2	14/10/2002	170.00.00						0,067361111		6.10			True	False	False
885	24/01/1938	M	01/01/1994	2	01/10/1999			89.00.00	229.00.00						154.00.00	3570.00.00	False	True	False
885	24/01/1938	M	01/01/1994	2	01/12/1999	162.00.00		76.00.00	246.00.00	40.00.00				8.20	164.00.00	137.00.00	False	True	False
885	24/01/1938	M	01/01/1994	2	06/06/2001			84.00.00	874.00.00					0,673611111	479.00.00	8720.00.00	False	True	False
885	24/01/1938	M	01/01/1994	2	28/06/2001	162.00.00	32.00.00	84.00.00	154.00.00	32.00.00		1.00			166.00.00	285.00.00	False	True	False
885	24/01/1938	M	01/01/1994	2	19/08/2003	162.00.00			210.00.00	33.00.00	155.00.00	1.02		8.10	210.00.00	108.00.00	False	True	False
885	24/01/1938	M	01/01/1994	2	10/10/2003	162.00.00			152.00.00	33.00.00	103.00.00	1.02		7.20		79.00.00	False	True	False
885	24/01/1938	M	01/01/1994	2	02/01/2004	162.00.00			117.00.00	27.00.00	66.00.00	1.02		0,305555556	152.00.00	119.00.00	False	True	False
885	24/01/1938	M	01/01/1994	2	11/11/2005	162.00.00			116.00.00	40.00.00	60.00.00	1.29		7.30	140.00.00	81.00.00	False	True	False
886	08/11/1912	M	01/01/1981	2	01/01/1997	172.00.00	22.10	65.50.00									False	False	False
887	13/01/1924	F	01/01/1900	2	01/01/1997	153.00.00	35.70	83.50.00									False	False	False
888	21/10/1946	M	01/01/1996	2	01/01/1997	166.00.00		75.00.00									False	True	True
888	21/10/1946	M	01/01/1996	2	08/10/2000	166.00.00	27.20.00	75.00.00	210.00.00	47.00.00		0,0625		7.50	185.00.00	186.00.00	False	True	True
888	21/10/1946	M	01/01/1996	2	11/04/2002	166.00.00	0.00	0.00	212.00.00	40.00.00	118.00.00	0,0625			169.00.00	279.00.00	False	True	True
888	21/10/1946	M	01/01/1996	2	09/09/2003	166.00.00			207.00.00	56.00.00	120.00.00	0,058333333		0,298611111	139.00.00	153.00.00	False	True	True
889	16/09/1937	F	01/01/1997	2	01/01/1997	165.00.00	31.80	86.50.00	208.00.00	55.00.00				0,472222222	246.00.00	191.00.00	False	False	True
889	16/09/1937	F	01/01/1997	2	30/03/2004	165.00.00	32.30.00	88.00.00	133.00.00	281.00.00	240.00.00	0.55		7.20	154.00.00	51.00.00	False	False	True
890	11/08/1930	F	01/01/1989	2	01/01/1997	156.00.00	31.60	77.00.00	226.00.00	49.00.00					123.00.00	236.00.00	True	True	False
890	11/08/1930	F	01/01/1989	2	21/01/2003	156.00.00	28.40.00	69.00.00	295.00.00	44.00.00	200.00.00	1.00		0,298611111			True	True	False
890	11/08/1930	F	01/01/1989	2	01/02/2004	156.00.00								0,354166667	156.00.00		True	True	False
890	11/08/1930	F	01/01/1989	2	01/04/2004	156.00.00			221.00.00	44.00.00	141.00.00					179.00.00	True	True	False
890	11/08/1930	F	01/01/1989	2	06/06/2004	156.00.00			200.00.00	45.00.00	127.00.00	1.33		0,347222222	142.00.00	142.00.00	True	True	False
890	11/08/1930	F	01/01/1989	2	01/01/2005	156.00.00			189.00.00	48.00.00	106.00.00	1.13			138.00.00	176.00.00	True	True	False
890	11/08/1930	F	01/01/1989	2	01/01/2006	156.00.00			235.00.00	51.00.00	144.00.00	1.03		8.40	164.00.00	242.00.00	True	True	False
891	17/11/1934	F	01/01/1993	2	01/01/1997	157.00.00		71.00.00									False	True	False
896	16/02/1918	F	01/01/1970	2	14/05/2002	157.00.00			205.00.00	57.00.00	117.00.00	0,0625		6.30		175.00.00	False	True	False
896	16/02/1918	F	01/01/1970	2	26/03/2003	157.00.00			199.00.00	64.00.00	115.00.00					101.00.00	False	True	False
896	16/02/1918	F	01/01/1970	2	06/10/2003	157.00.00						1.00			151.00.00		False	True	False
896	16/02/1918	F	01/01/1970	2	12/12/2003	157.00.00			224.00.00	62.00.00	139.00.00	0,055555556		0,3125	111.00.00	115.00.00	False	True	False
896	16/02/1918	F	01/01/1970	2	05/05/2005	157.00.00			221.00.00	70.00.00	124.00.00			7.50	155.00.00	137.00.00	False	True	False
897	17/01/1944	M	01/01/1995	2	01/01/1997	178.00.00	27.80	88.00.00							146.00.00		False	True	False
897	17/01/1944	M	01/01/1995	2	23/03/2002	178.00.00	23.40	74.00.00	150.00.00	28.00.00	102.00.00	1.10		5.30		103.00.00	False	True	False
897	17/01/1944	M	01/01/1995	2	24/06/2003	178.00.00			151.00.00					5.10	123.00.00	198.00.00	False	True	False
897	17/01/1944	M	01/01/1995	2	10/05/2004	178.00.00			150.00.00	29.00.00	98.00.00	0,056944444		0,270833333	142.00.00	114.00.00	False	True	False
897	17/01/1944	M	01/01/1995	2	08/08/2005	178.00.00			177.00.00	36.00.00	100.00.00			6.10	150.00.00	365.00.00	False	True	False
897	17/01/1944	M	01/01/1995	2	02/02/2006	178.00.00			168.00.00	33.00.00					274.00.00		False	True	False
897	17/01/1944	M	01/01/1995	2	04/04/2006	178.00.00								5.30			False	True	False
898	24/12/1948	M	01/01/1993	2	01/01/1997	180.00.00	27.80	90.00.00	141.00.00	30.00.00		0,066666667		0,229166667	141.00.00	244.00.00	False	True	True
898	24/12/1948	M	01/01/1993	2	25/10/2002	180.00.00	27.50.00	89.00.00	160.00.00	43.00.00	94.00.00	1.10		0,270833333		113.00.00	False	True	True
898	24/12/1948	M	01/01/1993	2	02/02/2004	180.00.00			182.00.00	38.00.00	86.00.00	0,064583333		7.00	224.00.00	289.00.00	False	True	True
899	09/01/1938	M	01/01/1980	2	01/01/1997	176.00.00	27.00.00	83.50.00						0,375			False	False	False
900	05/04/1927	M	01/01/1984	2	01/01/1997	164.00.00	19.00	51.00.00	151.00.00	46.00.00		0,048611111		8.40	172.00.00	98.00.00	False	False	False



B.I.R.O. XML Data - SiteHeader

```
<?xml version="1.0" encoding="UTF-8" ?>
  <!-- BIRO Export File created by RRDM on Wed May 09 11:41:24 CEST 2007 -->
  <ECDataExport xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="biro/xml/ECDataExtractDefinition.xsd">
  <SiteHeader>
    <SiteIdentification>1</SiteIdentification>
    <ClinicalSiteName>Perugia</ClinicalSiteName>
    <Address1>Via E. Dal Pozzo, Perugia</Address1>
    <Country>IT</Country>
    <ZipCode>06132</ZipCode>
    <ClinicalContactName>Massimo Massi Benedetti</ClinicalContactName>
    <ClinicalContactPhone>+390755727627</ClinicalContactPhone>
    <ClinicalContactEmail>massi@unipg.it</ClinicalContactEmail>
    <TechnicalContactName>Pietro Palladino</TechnicalContactName>
    <TechnicalContactPhone>+390755853676</TechnicalContactPhone>
    <TechnicalContactEmail>palladino@diei.unipg.it</TechnicalContactEmail>
    <BIROLeadName>Massimo Massi Benedetti</BIROLeadName>
    <BIROLeadPhone>+390755727627</BIROLeadPhone>
    <BIROLeadEmail>biroeu@unipg.it</BIROLeadEmail>
  </SiteHeader>
```



B.I.R.O. XML Data - SiteProfile

```
<SiteProfile>  
  <SiteType>HC</SiteType>  
  <CatchmentAreaPopulation>850000</CatchmentAreaPopulation>  
  <CatchmentAreaDiabetesPopulation>5100</CatchmentAreaDiabetesPopulation>  
  <EstimatedDiabetesPrevalence>6%</EstimatedDiabetesPrevalence>  
  <ActualClinicPopulation>13000</ActualClinicPopulation>  
  <DiagnosticBias>true</DiagnosticBias>  
  <DiabetesTypeBias>true</DiabetesTypeBias>  
  <SeverityBias>true</SeverityBias>  
</SiteProfile>
```



B.I.R.O. XML Data - FieldExportProfiles

```
<FieldExportProfiles>
  <FieldName>patient_ID_5</FieldName>
  <Mandatory>>true</Mandatory>
  <Recorded>>true</Recorded>
  <Routine>>true</Routine>
</FieldExportProfiles>
<FieldExportProfiles>
  <FieldName>sex_9</FieldName>
  <Mandatory>>false</Mandatory>
  <Recorded>>true</Recorded>
  <Routine>>true</Routine>
</FieldExportProfiles>
<FieldExportProfiles>
  <FieldName>HbA1c_50</FieldName>
  <Mandatory>>false</Mandatory>
  <Recorded>>true</Recorded>
  <Routine>>true</Routine>
</FieldExportProfiles>
<!-- BIRO Field 'proteinu_53' has no value in RRDM -->
<FieldExportProfiles>
  <FieldName>proteinu_53</FieldName>
  <Mandatory>>false</Mandatory>
  <Recorded>>false</Recorded>
  <Routine>>false</Routine>
</FieldExportProfiles>_
<!-- BIRO Field 'r_visbl_r_81' has no value in RRDM -->
<FieldExportProfiles>
  <FieldName>r_visbl_r_81</FieldName>
  <Mandatory>>false</Mandatory>
  <Recorded>>false</Recorded>
  <Routine>>false</Routine>
</FieldExportProfiles>_
```



B.I.R.O. XML Data - PatientProfile

```
<Data>
  <Patient>
    <patient_ID_5>58477826B7B0A2FE4D0109BF9B717A5E</patient_ID_5>
    <Profile>
      <FieldName>dm_type_8</FieldName>
      <Value>Diabete tipo 2</Value>
    </Profile>
    <Profile>
      <FieldName>sex_9</FieldName>
      <Value>M</Value>
    </Profile>
    <Profile>
      <FieldName>DOB_10</FieldName>
      <Value>19XX-02-24</Value>
    </Profile>
    <Profile>
      <FieldName>dm_year_11</FieldName>
      <Value>19XX-01-01</Value>
    </Profile>
  </Patient>
</Data>
```



B.I.R.O. XML Data - EpisodeData

```
<EpisodeData>
  <EpisodeDate>2001-04-12</EpisodeDate>
  <Data>
    <FieldName>weight_44</FieldName>
    <Value>82</Value>
  </Data>
</EpisodeData>
<EpisodeData>
  <EpisodeDate>2001-04-12</EpisodeDate>
  <Data>
    <FieldName>height_45</FieldName>
    <Value>174</Value>
  </Data>
</EpisodeData>
<EpisodeData>
  <EpisodeDate>2001-04-12</EpisodeDate>
  <Data>
    <FieldName>bp_sys_46</FieldName>
    <Value>null</Value>
  </Data>
</EpisodeData>
<EpisodeData>
  <EpisodeDate>2001-04-12</EpisodeDate>
  <Data>
    <FieldName>bp_dia_47</FieldName>
    <Value>null</Value>
  </Data>
</EpisodeData>
```



Future work

- Some of the B.I.R.O. data have not been found in R.R.D.M. dataset
- Not all the required B.I.R.O. data in the SiteProfile have a value in the RRDM2BIRO converter
- Update Xml generator according to the updated Schema