

PedCath Epic Integration

PedCath does not currently have a direct interface with Epic EMR, but there are several ways to transfer the PedCath results over.

The main result out of PedCath is the cath report in PDF format, which contains a customized heart diagram showing the patient's unique anatomy, case summary measurements, and normally a narrative/procedure notes, among other things.

This is what is most valuable for the physician and what is recommended to store in any HIS system if possible.

Epic can accept a PedCath HL7 message, which can contain all the PedCath data elements, a text-based version of the report and a link to or embedded copy of the PDF report.

PedCath Export Protocols

PedCath can send the messages/exports over a number of protocols:

- PedCath can write an HL7 message to a file share on your network. (Epic 2010 and 2012 releases contain functionality to pick up files from a file share.)
- PedCath can also send the HL7 message (and other formats) over FTP.
- PedCath currently does **not** support sending HL7 over TCP/IP directly. To send the HL7 messages to Epic via TCP/IP it's recommended to use a third-party HL7 router such as EasyHL7 or an Interface Server that will watch the PedCath export directory and relay the files that are found.

Transferring the PDF Report

Manual PDF Import

Epic will allow you to import PDF files manually into the Media Manager Tool, or into a custom Cardiac tab.

On the PedCath side you can either save the report manually to a file when in the report setup, or have it sent to a share folder automatically at the end of the case, and pick it up out of that folder.

PDF + HL7

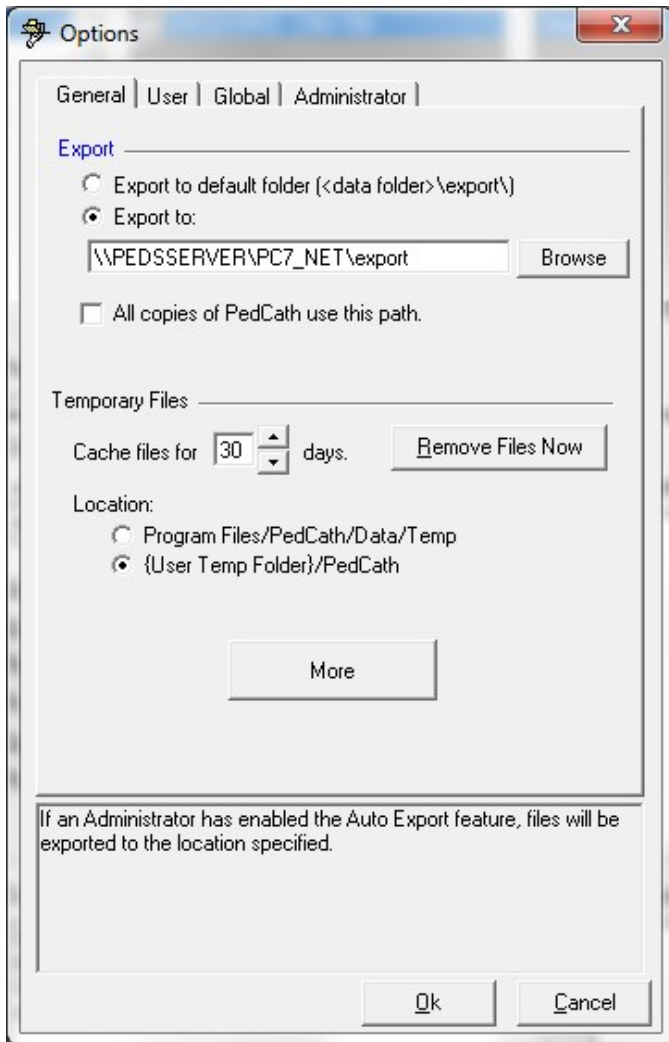
In addition to the PDF file PedCath can write an HL7 file at the same time to a share directory. When they are sent together, PedCath will include a file reference link to the PDF file in the final OBR segment of the HL7. (PedCath 8 will allow you to set the HL7 location independently of the PDF and other Exports.)

Ex:

```
OBR|8||10694^PedCath|10010^REPORT^^^^||20030522|||||200902241730||CTH|F|||||  
OBX|1|RP|10010-01^REPORTUNC||\PEDSSERVER\PC7_NET\export\03c-0123.pdf|||||F||20030522|||
```

Epic requires that only the top-level OBR segment exist in the message, so it is recommended to either use the option to remove all but the first OBR header (will keep all of the discrete data OBXs), or use the PDF-only message option.

If you want the PDF link to show up as a UNC path it is recommended to explicitly set the export location as a UNC path. If the export is mapped to the default location (PC7_NET\export), it will be based on the current user's connection to the PedCath database, which may be based on a mapped drive rather than UNC.



HL7 with embedded PDF

PedCath can also include the PDF embedded within the HL7 file in Base64 encoding, if you would like to store the report directly within Epic.

```
OBR|8|10702^PedCath|10010^REPORT^^^^||19950924|||||200902241736||CTH|F|||||
OBX|1|ED|10010-02^REPORTEMBED||PDF^TEXT^^Base64^JVBERi0xLjINCjEgMCDvYmoNCjw8DQ ...
```

There are some additional requirements on Epic's end to be able to store the reports directly within the system. Epic version 2008 or later is required as well as a blob server. Contact your Epic support associate for more information about storing binary data.

HL7 PDF-only Message

If you are only interested in the PDF report, there is no reason to transfer all of the measurements within the HL7 as well. PedCath will allow you to create an HL7 message

with only a link to the PDF file (or an embed). All of the discrete data elements will be suppressed. To use the PDF link option, the PDF report should be exported at the same time.

The message will look similar to the following.

```
MSH|^~\&|PedCath|||20120501162727||ORU^R01|PC720120501162727|D|2.3.1|||||
PID||1234567||Deere^John^R||19941231^17^years|M|||||32423424|||||
OBR|1||10010^REPORT^^^^||20120330|||||20120501162255||CTH|P|||||
OBX|1|RP|10010-01^REPORTUNC|\PEDSSERVER\PC7_NET\export\CN10002012-05-01-1627.pdf||||P||20120501162255|||
```

Sending Text/Discrete Data

Wrapping Text Output/Documents within HL7

If your HIS system is not able to accept PDFs you can also configure the HL7 to include the entire text-based report within the HL7. This will allow you to include the entire text of the report within your HIS without having to map individual fields.

Ex.

```
OBR|9||10012^TEXTREPORT^^^^||19950924|||||20120312184501||CTH|P|||||
OBX|1|ST|10012-01^TEXTREPORT||Deere, John R|TEXT||||P||19950924|||
OBX|2|ST|10012-01^TEXTREPORT||HRN: 1234567|TEXT||||P||19950924|||
```

You can also include the text from documents in the Document Manager within the HL7 as well:

```
OBR|8||10011^DOCUMENTS^^^^||19950924|||||20120312184501||CTH|P|||||
OBX|1|ST|10011-01^DOC_TITLE|1|PostCath Instructions|TEXT||||P||19950924|||
OBX|2|ST|10011-02^DOC_CONTENTS|1|Post-Catheterization Instructions|TEXT||||P||19950924|||
OBX|3|ST|10011-02^DOC_CONTENTS|1|...||||P||19950924|||
```

These features are available in PedCath 8 only.

Sending discrete data to Epic

The hemodynamic measurements in PedCath are generally regarded as summary measurements – which are seen as the most representative measurements by the attending physician, and may or may not correspond to particular measurements taken during the case. These do not have timestamp values associated with them, which are required by Epic to receive discrete data elements.

If it is desired to collect all measurements taken during the case it's recommended to send the discrete data elements directly from your hemodynamic monitoring system separately from the PedCath report.

Acknowledgement Handling

After sending an HL7 results message to your EMR/CVIS, PedCath supports processing HL7 acknowledgement messages (ACK/NACK) that are sent back that indicate the filing status. A log of the exported HL7 cases is stored along with the filing status, and PedCath will monitor a specified directory for *.hl7 files sent back from your EMR. The physician will be notified if there are any errors (and optionally for all cases that file correctly) and the cath reports will be automatically unlocked when there are errors.

After a user exports a case (normally by locking the cath report), PedCath will check for HL7 acknowledgment messages (ACKs) upon their return to the browse screen, and at regular intervals until either the message is acknowledged or a timeout occurs. If the user closes PedCath before receiving an acknowledgment, the messages will be processed upon startup the next time they log in. A menu command is also available on the browse screen that will check for and process acknowledgements at any time. The command can be run by any user, and PedCath will process all messages found when run.

The export log with filing status can be viewed from the browse screen at any time.

Acknowledgment handling is supported in PedCath version 8.6.2 and later. It must be turned on and configured in the HL7 options to be active. The options include the transfer folder location, file cleanup handling, the timeout period (if used) and how the status should be set on a timeout, if reports should be unlocked on an error, and the processing frequency after an export.

Other Considerations

Preliminary/Final Reports

If you are interested in tracking multiple revisions of the PedCath report, PedCath will allow you to do so. You can set the automatic exports trigger to send the reports every time the case is saved – to track every revision, or when the case is locked – to send the final report.

There is also a manual export trigger, which would give you more flexibility when sending a preliminary report. The manual export trigger may also be needed if it's necessary to resend the report to Epic (if it's initially rejected due to a demographic typo for instance).

Solicited vs. Unsolicited Messages

PedCath will send a solicited message (i.e. include the Placer Order Number in the HL7 header), if the order number is passed to PedCath during a hemodynamic import using

the Direct Data Import Utility. This will allow you to link the PedCath report to the order in your HIS system.

PedCath also gives you the option to use the cath number as the Placer Order Number in the HL7 options, or to leave it blank.

If the order number is not set, the PedCath results will be sent unsolicited.

Interfacing with Epic Cupid

As of version 8.4.3, PedCath can interface with Epic's Cupid module through the Direct Data Import Utility. Running the import will create a new patient and cath report if they don't exist (with any available cath-level fields), and generate a formatted, customizable procedure log. This can be used in conjunction with an import from your hemodynamic system. Contact Scientific Software for more information.