Case Study
SA Pathology, Adelaide, South Australia
ISSUING
QC check and issue to pathologist in Delphic AP.

EMBEDDING & MICROTOMY
Accurate, detailed Delphic AP worklists at stations. Slide printer interface with Delphic AP prints labeled slides on demand.

PATHOLOGIST REPORTING
Slide review & reporting SNOMED coding, image management, digital dictation, patient history lock-up, Final review & signoff.

SECRETARY OFFICE

GROSSING
Pathologist cut-up of specimen, dictate macro description of specimen, photograph and annotate sections.

SPECIMEN PREP
Delphic AP uses specimen type to determine correct number of cassettes slides & stains. Interface Auto-printing on demand of labeled cassettes.

LAB RECEPTION
Accessioning and registration in Delphic AP. Request forms scanned.

STAINING
Prepared slides are stained using defined procedures listed in Delphic AP.
This case study highlights an interview with Richard Davey, Senior Laboratory Scientist and Delphic Administrator at Flinder’s Medical Centre (FMC), SA Pathology. It presents an overview of Delphic AP as it is used at the SA Pathology FMC site.

- Flinders Medical Centre (FMC) site of SA Pathology
- Sysmex Delphic AP since 1997
- 4 registrars; 9 pathologists/consultants on site
- 5 secretarial support staff
- 19 scientific/management staff
- 24 hour on-call service
- 15,000 patient cases per year
- Mortuary; Surgical Pathology; Cytopathology
- Multidisciplinary Meetings

Mr Davey stepped through the laboratory workflow describing how Delphic AP is integral to the management of patient cases. The SA Pathology team use Delphic AP at each workflow step from receipt of the request to final report signoff.

FMC’s SA Pathology is a well-designed, spacious and modern laboratory. The lab has dedicated areas for each area of the pathology workflow. Two specimen preparation areas run in parallel – one for surgical pathology and the other for non-gynaecology cyto pathology.
Interacting with Delphic AP - from receipt to report

Reception - Order Entry

The lab reception receives the request and captures patient details (via PAS/LIS) and enters the specimen type.

Delphic AP automatically determines the lab work procedures, number of cassettes, slides and types of stains to be done based on specimen type.

Lab - Specimen Preparation

The specimen prep team check the data entry and lab work and make any necessary amendments.

Delphic AP is interfaced to the cassette printer. This means the details from the data captured in Delphic AP is used to automatically print the patient details and requisition numbers on the correct number of cassettes. Richard explained that the introduction of the cassette writer interface at SA Pathology has been so effective in eliminating errors and improving patient safety that a second cassette writer has been integrated into the process.

“The lab has two cut-up bays, so in a complex case where large numbers of cassettes are required, the second cassette printer provides immediate printing for urgent cases”.

Lab - Cut-up

Cut-up is performed by grossing specialists and registrars, supported by pathologist consultants in complex cases such as referred in specialist autopsy samples for the coroner.

The specimen is cut into sections and placed into the pre-printed cassettes ready for blocking. Standardised cut-up protocols are accessed in an external system.

Images are taken of the gross specimen and the orientation of the cut sections. A third party application is used to add detailed annotations to the images indicating the areas being processed. These images are added to the patient case in Delphic AP.

Winscribe digital dictation is interfaced to Delphic AP to record the gross description of the specimen. Office staff access their work-list of patient cases in Delphic AP to transcribe each patient cut-up file.

“Delphic AP is easy to use and learn; new staff pick it up quickly and are usually up and running with limited training in a short time frame.”
Blocking, Cutting, Staining and Issuing

Detailed work-lists are printed from Delphic AP and placed in a wet-proof flipbook at the workstation. The work-list displays each case individually.

Lab - Blocking (Embedding)

The scientist marks off each case on the work-list as blocking is complete, checking the patient details on the cassettes against the work-list.

Lab - Cutting (Microtomy)

The slide writer interface extracts accurate details from Delphic AP and prints the required text on the slides, including patient name, request ID, block number and date.

Richard describes the slide writer interface as a real advantage in the main lab. “Prior to the interface with Delphic AP, lab staff had to manually input text for each slide or group with variation in slide numbers or procedures which often required several hours preparing slides for the following day.”

Lab - Staining

Prepared slides are stained using the defined procedures listed in Delphic AP for each specimen.

<table>
<thead>
<tr>
<th>Request ID</th>
<th>Specimen Name</th>
<th>Block</th>
<th>Piece</th>
<th>Procedures</th>
<th>Pathologist</th>
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<tbody>
<tr>
<td>14/002005</td>
<td>Skin Punches</td>
<td>1A</td>
<td>1</td>
<td>L1’2”3</td>
<td>Tuesday Reporting</td>
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<td>HE</td>
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<td>Gland biopsy</td>
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<td>2</td>
<td>HE</td>
<td>Tuesday Reporting</td>
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<tr>
<td></td>
<td>Gland biopsy</td>
<td>1A</td>
<td>2</td>
<td>CD-1</td>
<td>Tuesday Reporting</td>
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<tr>
<td></td>
<td>Gland biopsy</td>
<td>1B</td>
<td>2</td>
<td>HE</td>
<td>Tuesday Reporting</td>
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<td></td>
<td>Gland biopsy</td>
<td>1B</td>
<td>2</td>
<td>CD-1</td>
<td>Tuesday Reporting</td>
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<th>Pathologist</th>
</tr>
</thead>
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<td>14/002011</td>
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<td>1”2”3</td>
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<td>14/002012</td>
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<td>HE</td>
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<tr>
<td></td>
<td>Skin</td>
<td>2A</td>
<td>4</td>
<td>L1’2”3</td>
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<tr>
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<td>Skin</td>
<td>4A</td>
<td>4</td>
<td>HE</td>
<td>Tuesday Reporting</td>
</tr>
</tbody>
</table>

Lab - Issuing (QC)

The final step in the laboratory workflow is to check the Delphic AP work-lists against the slides to ensure quality of staining and visually check specimen source. Each slide is marked as issued in Delphic AP and the complete set of slides are then available to the pathologist for reporting.
Pathologist Reporting

The pathologists use digital dictation (Winscribe and Dragon), free text formatting, and stored text to create the report in Delphic AP. Images are also be embedded in the report. Delphic AP’s ability to “store text” provides a method to enable pre-formed text to be used in reports. The pathologists find the use of stored text invaluable when reporting cytology screening samples. It provides accurate, high quality and consistent reporting.

If a patient presents from interstate or has differentiation of the original disease, the pathologists find it useful to insert previous patient reports when reporting a patient case. Delphic AP provides this functionality enabling greater accuracy in reporting and is essential when pathologists are consulting with other providers.

Office

The secretarial team access their work through the Office area in Delphic AP. Patient cases awaiting cut-up description and pathology report transcription are listed by patient case. Transcribed reports are then submitted to the sign-out pathologist.

Pathologist Sign-out

Completed reports are checked signed and sent to external systems via HL7 or printed and faxed as required.
Key attributes of the pathology laboratory workflow

Single Patient Case

Managing one case at a time is important to the SA Pathology team. The laboratory operate a well-organised, methodical process to ensure quality at each step and counter any potential specimen errors. This provides dual benefits for both quality and reporting completeness. SA Pathology often receives highly complex cases, for example bowel, breast and head & neck investigations. These patient cases have a number pieces from which several slides are created for pathologist review and it is imperative that all assets are accurately matched to the source specimen. The processes that SA Pathology has implemented in Delphic AP aim to ensure full traceability.

Interfacing

The cassette and slide writer interfaces between the instruments and Delphic AP are essential to streamlining the work through the laboratory. All information is written on the cassettes and slides without any manual work required. This has been instrumental to the accuracy and efficiency of the lab workflow.

Complete Patient Reports

Frozen sections taken intra-operatively and analysed in the lab using cryostat and/or tissue imprints are used to provide an immediate indication of patient prognosis based on the margin levels of the section taken. When additional tissue or biopsies are later received on that patient, the lab process can become disjointed. The lab workflow in Delphic AP allows a case to be held, so that analysis of all tissue can be included in the same case, enabling a complete pathology report.

Accurate Work-Lists

SA Pathology use Delphic AP to support their workflow, both electronically and through printed work-lists. The work-lists in Delphic AP capture all information details, e.g. specimen type, number of blocks, number of slides per block and procedures and stains and the associated requisition numbers, providing accurate details for each lab work-area.

This works effectively, however Richard explains, “the lab hopes to move to a paperless lab end-to-end, by placing workstation PCs within the individual lab work-areas.”
Advantages of Delphic AP at SA Pathology, FMC

Delphic AP underpins the entire workflow at SA Pathology. In particular the staff commented on specific areas which they see as advantages of the system.

“The cassette writer interface is a brilliant innovation. It has changed the way we work and improved our workflow significantly.”

“The slider writer interface saves staff time which improves production rates. There is better accuracy of data on the slide which reduces issues with patient safety during the reporting process.”

“Delphic AP is easy to use and learn; new staff pick it up quickly and are usually up and running with limited training in a short time frame.”

“Delphic AP is extremely stable, while there are continually glitches in the other systems used across the hospital including labs, Delphic is always available and responsive.”

“The use of stored text in Delphic AP is invaluable particularly for the screening and reporting of cytology samples. It provides textual quality and accuracy for greater consistency across reporting.”

Lab Management

Richard creates custom searches to extract the data required from Delphic AP for management reporting. Reports include statistics on numbers of patient cases, turnaround times and specialities. The workload is increasing at around 10% per year over the last five years. He looks forward to implementing the Delphic AP Management Reporting Database, which uses a SQL server or Oracle database, at some stage in the future.

Working with Sysmex and Delphic AP

Richard describes the relationship with Sysmex as an excellent working partnership. “Sysmex support is responsive and issues are able to resolved or discussed with SA Pathology in a practical time-frame. The fact that the Sysmex team is located in Auckland has no disadvantages.” Richard commented that he actually sees the Sysmex Delphic AP team and account manager more than ‘local’ vendors. “We have regular interaction with Sysmex and communication is really effective and both teams work together to find solutions and discuss new ideas”.

Delphic AP was first implemented at SA Pathology 17 years ago and the team at SA Pathology are very satisfied with the way the system works for them. Many of the team have worked in other labs, and regard the pathology workflow and reporting system at Flinder’s Medical Centre as unparalleled.

Future Initiatives

With an increase in more complex surgical procedures, the improvement in detection rates for cancer patients and an ageing population, the workload in the histology lab continues to increase. The laboratory services must continually improve throughput and quality under pressure.

The SA Pathology team of histo-tech scientists and pathology staff contribute valuable ideas for the Delphic AP user interface and functionality. Sysmex value their open feedback and expert input which builds a great platform for mutually beneficial improvement.

Delphic AP product development initiatives include additional instrument interfaces and touch screen capabilities, plus single piece workflow capabilities. SA Pathology sees the alignment of these developments to their workflow and the potential to further improve the process in the lab. Richard Davey foresees that touch screen devices and barcode scanners or perhaps one day RFID’s could enhance take their lab to the next level of paperless environment and a highly accurate, auditable laboratory process.

Other Delphic AP innovations such as electronic order receipt and PDF reporting are future possibilities however these are interdependent on the readiness of external sending and receiving clinical systems.

“SA Pathology have an excellent working partnership with Sysmex. Support is responsive, there is regular interaction and we work together to find solutions and discuss new ideas.”
Interacting with Delphic AP - from receipt to report overview

**RECEPTION OFFICE**
- Accessioning ➔ Request form scanning to Image Profile
- Delphic Office data Entry ➔ Registration export to UltraLIS

**LABORATORY**
- Specimen Prep + Interface to Lamb Micro and PrintMate Cassette Writers + Macro Description (Winscribe)
- Embedding
- Microtomy + Interface to Leica IPS Slide Printer
- Staining
- Issuing

**SECRETARY OFFICE**
- Transcription
- Printing
- Distribution

**PATHOLOGIST REPORTING**
- Reporting
- Digital Dictation (Winscribe)
- Signing

**PATHWAY**
- Ultra LIS
- OASIS and ePAS
- Vic Cancer Reg
- Medical Director GP Clinics

*Delphic AP workflow overview*
We Believe the Possibilities.

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**Delphi AP is not a medical device as it does not have a therapeutic purpose.**

Ref. 40023JDAP01