

Patient Outcomes – using Lantis™ to improve the use of outcome data derived from follow up.

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Lantis™ Follow Up

SUMMARY

- Follow up data is usually collected on paper
- Follow up data is usually stored separate to the clinical record
- Automated reporting is presently not possible
- Entry of follow up data into the Lantis™ Commander module makes it available for automated reporting
- Lantis™ entry requirements are:
 - ✓ Brief
 - ✓ Controlled
 - ✓ Rapid
- Lantis™ *Reporter* enables extraction of outcome data

Lantis™ Follow Up

Follow-Up Status - SMITH, REBECCA

Date: [] Type: []

Status: New Manifestations

Expired: [] Cause of Death: []

F/U Status: [] ECOG: []

Local: [] Regional: [] Distant: []

Comment: []

Toxicity

Type 1: [] Severity: []

Type 2: [] Severity: []

Type 3: [] Severity: []

Next Contact: []

Follow-Up Status Will Be Added

- Cancer
 - Cancer - Pa
 - Not Cancer
 - Not Cancer
 - Not Cancer
 - Unknown
 - Operation Report
 - Phone call
 - Xray
- Active
 - Discharg
 - Lost to F
 - <None>
 - Other
- NED
 - Rec
 - <No
 - SD
 - <None>

These options give a broad the follow up status.

This set of options give more specific descriptors of follow up status.

■ These options describe the source of follow up information

IMPLEMENTATION

- Implementation steps to complete before entering follow up data in Lantis™.
 - Format the pull down menus to your own selections.
 - Define when follow up data will be entered (only when seen, or with each contact).
 - Stipulate who has responsibility for completion of the data. It is easier and less error prone if the oncologist enters this
 - Ensure staff understanding by quality assurance of data entered.
 - Decide whether you want to record Toxicity here (gray area) or in Clinical Assessments where it is more accurate.

Lantis™ Follow Up

Follow-Up Status - SMITH, REBECCA

Date: 25/8/2002 Type: Consultation

Status: New Manifestations

Expired: Cause of Death:

F/U Status: Active ECOG:

Local: NED Regional: NED Distant: NED

Comment:

Toxicity

Type 1: Severity:

Type 2: Severity:

Type 3: Severity:

Next Contact:

Follow-Up Status Will Be Changed

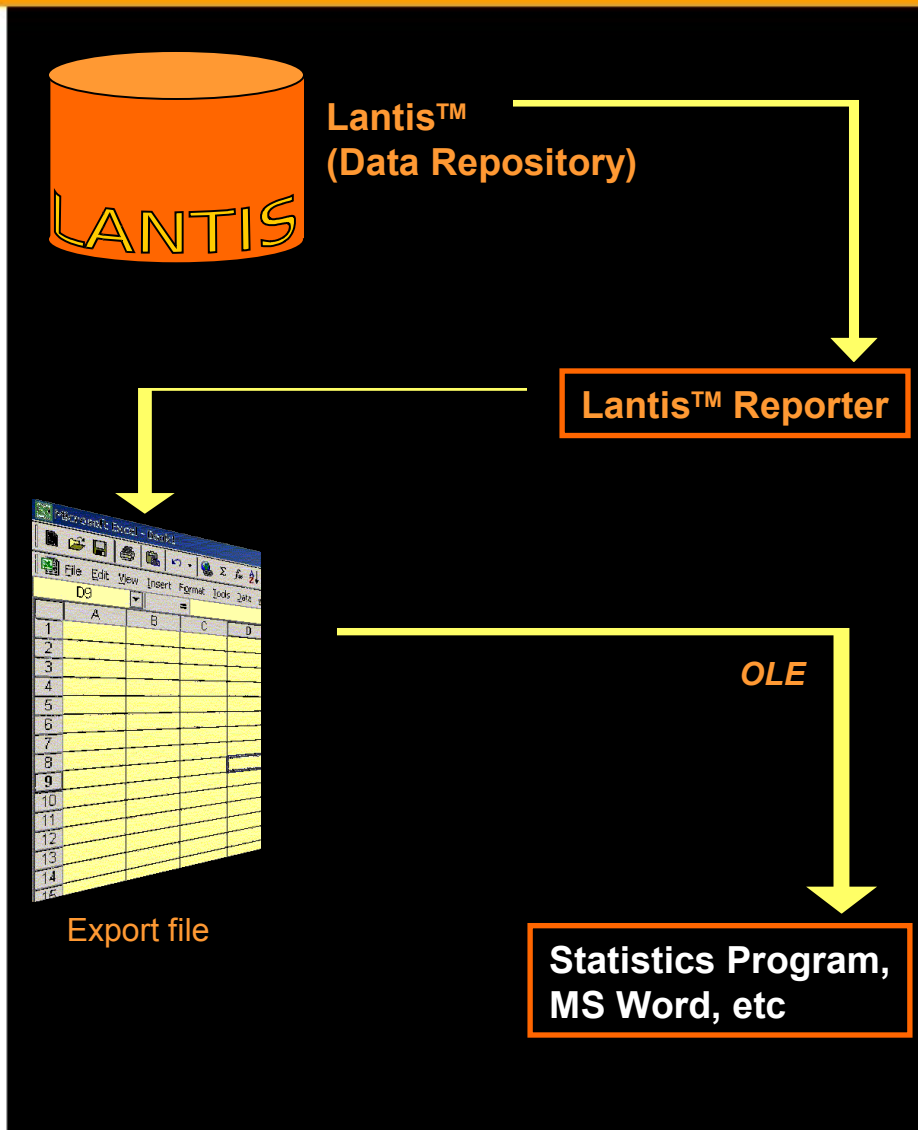
UTILIZATION

- When the patient has been seen, the doctor enters follow up data in Lantis™.
 - This entry takes
 - 5 selections with the mouse, or
 - 11 key strokes
 - The doctor should enter this because
 - no more work than entering it on paper
 - more likely to be accurate
 - immediately available for report generation

Lantis™ Follow Up

OVERVIEW OF EXTRACTING DATA

- Once data is entered into Lantis™ it is available for use in the *Reporter* option.
- *Reporter* consists of software designed to extract data from the Lantis™ database
- The process described requires a high level of computer expertise for all component steps
 - Building reports in *Reporter*
 - Exporting data in the correct form and format
 - Import data into statistical software
 - Analyzing data in statistical software



Lantis™ Follow Up

EXTRACTING DATA 1: REPORTER USE

- Once data is entered into Lantis™ it is available for use in the *Reporter* option.
- *Reporter* consists of software designed to extract data from the Lantis™ database
 - Records are selected according to any recorded parameter
 - Age, Gender
 - Disease Category, Histology
 - Parameters are determined for each outcome variable by
 - logical statement
 - such as Status
 - mathematical manipulation
 - such as Duration of Survival, or Age at Diagnosis



Lantis™
(Data Repository)



Lantis™ Reporter

Select the required records:

Disease Category = "Esophagus"

For each record selected determine variables-

Follow up Status:

If Cause of Death = "Cancer Death"

Then Status = 1 (ie, dead)

Else Status = 0 (ie, alive)

Duration of Survival:

Duration = {Date of Death} - {Date of Diagnosis}



Output variables as spreadsheet file

Lantis™ Follow Up

EXTRACTING DATA 2: DATA EXPORT

- Data compiled by *Reporter* is exported into a spreadsheet
- The form required by the statistical program will determine the form of the spreadsheet, and so the form of the Reporter output.
- OLE linking of the statistical program and spreadsheet means that an up to date report can be generated at any time.

Lantis™ Reporter



Spreadsheet file

<i>DURATION (years)</i>	<i>OVERALL SURVIVAL (dead=1, alive=0)</i>
0.0109514	1
0.2847365	1
0.1314168	1
0.1040383	1
0.3531828	1
0.5311431	1
7.0965092	0
0.0082136	1
0.0793977	1
2.6694045	0
3.340178	0
1.744011	1
0.7200548	1
6.7132101	0
0.0109514	1
0.0629706	1
8.5995893	0
0.164271	1
0.2217659	1
6.0314853	0
0.054757	1
1.7878166	1
4.6954141	0

Lantis™ Follow Up

EXTRACTING DATA 3: PRODUCING OUTCOME ANALYSIS

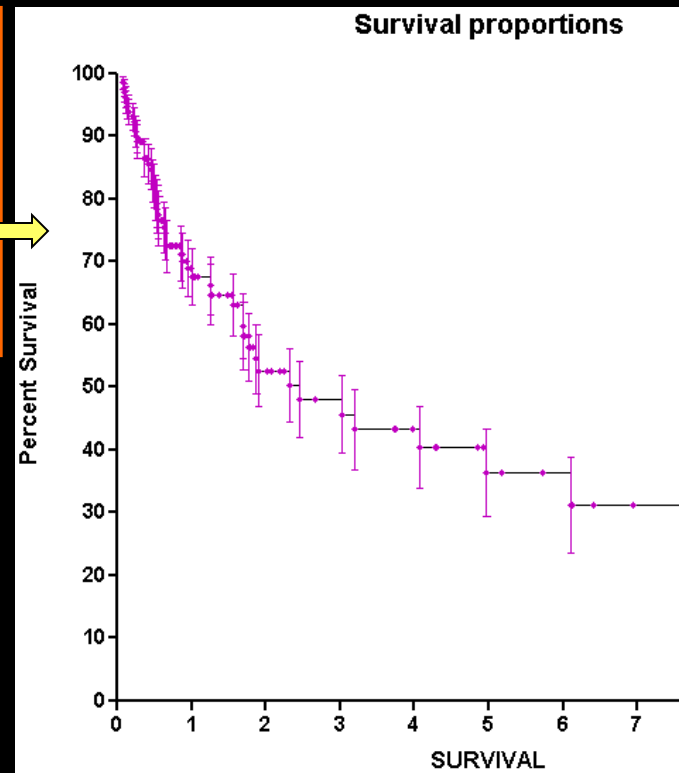
- The statistical software can produce Kaplan-Meier survival curves and other analyses as required. Many permit their outputs (graphs, tables) to link by OLE to other software such as word-processors for report production.
- A high level of computer expertise is required to build reports, perform analyses and ensure that all formatting is correct.
- The process takes time to learn.

MS Excel file

OLE

Statistics Program

Kaplan-Meier analysis and survival graph



Lantis™ Follow Up

CONCLUSION

- Customization of Lantis™ follow up is required but simple.
- Regular entry of Follow up data in Lantis™ is easy, and provides the clinician with outcome data for automated analysis.
- Production of disease outcome and departmental reports can be automated, and therefore produced at any time the report is required.
- The process takes medical expertise and computer expertise and time.