

TRACKING CLINICAL EXPOSURE THROUGH THE CUSTOMIZED ZOOMENDO SOFTWARE

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Introduction

Working with electronic patient records is becoming more widespread, although most current applications are not tailored to meet the needs of training programs, particularly with regards to the various CanMEDS Roles.

For example, tracking clinical exposure by diagnosis (Medical Expert Role) has been limited to trainee journals, which are often not validated by supervising physicians. Trainee letters to referring physicians are often corrected weeks after the initial contact, eliminating this modality for assessment and feedback of written communication skills (Communicator Role). In addition, as part of the Scholar Role, trainees should be exposed to the opportunity to do a clinical audit or a research project. Patient cohorts, however, are notoriously difficult to identify for patients seen only in an outpatient setting since these patients are not ICD10-coded by medical archives.

Our aim was therefore to develop a web-based, secure, user-friendly program for tracking outpatients that could also serve as a tool for trainees.

Our Solution

In collaboration with members of the CHU-Ste-Justine Endocrinology Service and Ahmed Ouqfi (software engineer), Dr. Cheri Deal (program director) designed and developed the ZoomENDO software. MS-SQL, a Relational Database Management System (RDBMS) was used to implement and to manage patient visit history.

A web-based server application (ZoomEndo) was added in Java to provide for a rapid data entry and query interface. User passwords provide security and enable tracking of physician-patient contact, and the program is accessible at all terminals connected to the hospital intranet.

In addition to nominal data fields, endocrine diagnostic codes were defined using a linear branching model; diagnostic codes were presented with drop-down menus to ensure consistency of data entry between physicians. Additional text fields contain referral information and non-endocrine diagnoses. A user-friendly module for clinical research includes clinical report form design, study descriptions and adverse events reporting. A

user interface allows insertion of additional visits and provides clinicians with online consultation of previous diagnoses of their patients by visit, as well as pre-formatted consultation reports and chart transfer letters. The browser-based web interface supports basic search facilities and permits the generation of dynamic reports and data export in several formats (Excel, PDF and XML).

What are the implications?

Since specialty requirements B.5 states within the Communicator Role: *Consultation letters and clinical notes are revised and countersigned by the supervisor on a daily basis with the aide of the ZoomENDO software*, the use of the ZoomENDO software is now mandatory for all trainees pursuing their sub-specialty training as well as those who rotate through our Service. Training time required to use the system has been observed to be minimal (less than 20 minutes). Acceptance of the software by the students has been unanimous, and many have commented that it would be nice to have this in other sectors. In addition, at the end of each rotation, the training director can provide the trainees with a printout of all the diagnoses for both in-patient and outpatient consultations. The use of the pull-down menus for diagnostic coding has helped to reinforce mastery of differential diagnoses for endocrine problems encountered, and the quick query module now permits identification of cohorts of patients with particular diagnoses for use in clinical audits as exemplified in the trainee publications below¹⁻⁴.

Future Directions

Cross-validation of our diagnostic codes with the recently-published classification system of European Society of Pediatric Endocrinology is underway, and ZoomEndo codes are being linked to their corresponding ICD10-CM codes. The clinical report form design module is being tested and will be available for our fellows to use this fall for their research projects. Evaluation of the system by users is in progress, through an open questionnaire. Our goal is to encourage other services to design their sub-specialty diagnostic trees which could be easily incorporated into the Zoom platform. The limitations to wider use seem to be primarily financial (see acknowledgements).

Conclusion: Use of a computer tool for physician recording of diagnostic information increases speed and reliability of data. Its acceptance by all members of the Endocrine Service is a testimony to its usefulness for patient care and clinical research. In addition, it provides a pedagogical tool by which to assess trainee exposure to specific diagnoses, as well as to provide more immediate feedback on written communication skills.

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Examples of Clinical Audits Facilitated with ZoomEndo (indicates trainee)*

1. *Khatchadourian K, Huot C, Alos N, Van Vliet G, Deal C. Impact of Patient Characteristics and Clinical Factors on Decision to Initiate Growth Hormone Treatment in Turner Syndrome. *Hormone Research*, 2008; 70:300-308.

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2. *Fillion M, Deal C, Van Vliet G. An Audit of the Potential Benefits and Risks of Growth Hormone Treatment in Prader-Willi Syndrome. *J Pediatrics*, 2009; 154:230-3.
3. *Girardin CM, Lemyre E, Alos N, Deal C, Huot C, Van Vliet G. Comparison of Adolescents with Klinefelter Syndrome According to the Circumstances of Diagnosis: Amniocentesis vs Clinical Signs. *In press, Hormone Research*, 2009.
4. *Leblicq C, *Rottembourg D, Deladoey J, Van Vliet G, Deal C. Are Guidelines for Glucocorticoid Coverage Being Followed in Patients with Adrenal Insufficiency During Periods of Stress? In submission to *J Pediatrics*.



CanMEDS Best Practice Submission Form

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CATEGORY

- Curriculum** — a design for education around the CanMEDS competencies.
- Teaching Tool** — a submission that will assist the teaching the specific CanMEDS competencies.
- Assessment Tool** — a submission that will assist in the assessment/evaluation of the CanMEDS competencies.
- Faculty Development Tool** — a submission that will assist in teaching faculty to teach/evaluate of the CanMEDS competencies.

TYPE OF TEACHING TOOL

- Journal Club
- Pathology Lab
- PBL
- Seminar
- Simulation
- Workshop
- Clinical
- Course
- Lecture
- Teaching Round
- Mentoring
- Role Modeling
- Web-based
- Committee Work
- Conference
- Self-Directed
- Research Project
- Resident as Teacher
- Administrative Duties
- Other Electronic recording tool

TYPE OF ASSESSMENT TOOL

- ITER
- Chart Stimulation Recall
- OSCE
- Evaluation of Research
- MSF
- Simulation
- FITER
- CEX/Mini-CEX
- Encounter Card
- Portfolios & Logbooks
- Oral Exam
- Written
- Other _____

CanMEDS ROLES

- Medical Expert
- Communicator
- Collaborator
- Manager
- Health Advocate
- Scholar
- Professional
- Applicable to All Roles

TITLE Limit to 50 words or less

Tracking clinical exposure through the customized ZoomEndo software

KEYWORDS

1) ZoomEndo	4)
2) clinical exposure	5)
3) Communicator	

AUTHOR(S)

1) C Deal	4)	7)
2) A Ouqfi	5)	8)
3)	6)	9)

REFERENCES

1) N/A
2)
3)