

## The Birth Of Endowiki, An Italian Online Platform For Continuous Medical Education In Endocrinology

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### Abstract

**Background.** Conventional tools for medical education are burdened by many drawbacks. Textbooks become rapidly outdated, meeting attendance is expensive, and results reported in journals are not easily suitable for clinical practice. Uptodate and Endotext are excellent online tools, but they have been developed for a clinical context far different from that of our country.

**Methodology.** Italian Association of Clinical Endocrinologists (AME) charged a task force aiming to develop an educational tool specifically tailored for Italian clinical endocrinologists. Required characteristics were clinical approach, modularity, continuous updating, full online availability (even by mobile devices), open sections and sections for registered members only, opportunity for individualization, indexing and search engine to facilitate browsing. Starting from an open-source platform, Joomla, several changes were implemented.

**Results.** Three editors, 2 central editorial secretaries, 30 section coordinators and over 350 authors have been involved in the writing of 21 different sections covering all fields of endocrine and metabolic diseases. The access to Endowiki is free for AME members and is fully open in sections for patients. All readers are requested to serve as referee, pointing to mistakes and need for revision. The system is attended daily by a mean of 250 individuals.

**Conclusions.** Endowiki stands alone as an opportunity for medical education in Italy. The big challenges will be the continuous updating and the link to the national certified system for CME.

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## Introduction

Continuous medical education (CME) represents both a right to affirm and a duty to comply with for all physicians. Many opportunities arose throughout the years in different countries for physicians searching suitable tools and many rules were issued by regulatory agencies to make CME compulsory. Nowadays in Italy there is the requirement to gain a yearly amount of certified scores.

Conventional tools for medical education are burdened by many drawbacks. Whereas print textbooks become rapidly outdated, the attendance of medical residential meeting is expensive and often difficult for busy professionals. In addition, results of trials reported in journals are often not easily suitable for daily clinical practice.

Uptodate<sup>1</sup> and Endotext<sup>2</sup> are excellent online tools (encompassing continuous updating and revisions), but they have been planned and developed for a clinical context far different from that of our country.

Italian Association of Clinical Endocrinologists (AME) aimed thus to develop an entirely novel educational tool for CME, specifically tailored for Italian clinical endocrinologists.

## Methods

AME charged a central task force setting a list of required characteristics for the tool (table 1).

The choice was for an open-source platform, Joomla. Starting from that basis, several changes were operated on in order to build a system fitting with required characteristics.

A cascade control system was implemented, enabling the online revision of paragraphs in progress by section coordinators and editors. Publication was unlocked only when articles complied requirements for clinical completeness as well as communicating clarity, concordance and lack of overlap with other articles.

An individualized page was also appointed, enabling each registered reader to insert personal notes and/or pictures linked to single topics, that could be easily retrieved and updated at each individual access.

## Results

Three editors, two central editorial secretaries and a web designer with the support of a skilled informatics staff were involved in the system development.

Editors identified physicians suitable to play as section coordinators, on the basis of well-known clinical expertise, leadership and willingness for team working.

Authors were finally identified: they were to comply with deadlines, to accept potential deep revisions, and to be available for programmed updating.

At last, 30 section coordinators and over 350 authors contributed without any fee in the project that developed over 4 years, with a step-by-step model

Table 1 Characteristics required for the system

Content: text, images, clips, and links
Clinical approach to problems
Modularity: sections and chapters had to be developed and updated step by step
Updating with pre-specified deadlines but also whenever seminal results had been issued
Full online availability, even by mobile devices (smartphone and tablets)
Sections fully open to public as well as sections for registered members only
Opportunity for individualization
Indexing and search engine to facilitate browsing
Tracing of updating

enabling publication of different sections throughout the years.

Beyond endocrinologists, other specialists served as authors, namely specialists in surgery, neurosurgery, radiology, radiotherapy, nuclear medicine, pathology, laboratory medicine, ophthalmology, oncology, gastroenterology, nephrology, cardiology, pediatrics, genetics, gynecology, internal medicine, nutrition, as well as nurses. A few articles for patients were written by patients themselves.

The project has now fulfilled the original plan, with 21 different sections covering all fields of endocrine and metabolic diseases (Table 2).

Endowiki is available at [www.endowiki.it](http://www.endowiki.it), where anybody can view the full outline. There is a section for patients that is fully open to public and a section for

professionals, where access is reserved freely to AME members. The system is ready to offer access on request to single articles, or single sections or the whole content, for different periods, ranging from one day to forever, after payment of a fee.

Over 1300 articles are now available, with hundreds of pictures, a few clips about procedures, over 70 cards about drug classes, over 50 cards with patient information, over 40 cards about lab procedures, and over 15 forms for daily clinical use (such as requests for drug delivery or post-market surveillance).

Each article is searchable by the internal engine search both by a word search and by tags.

In each article there are direct links to references and to other articles whenever necessary.

Each article shows the date of the most recent

Table 2 Outline of Endowiki

Pituitary
Thyroid
Parathyroids and bone
Adrenals
Gonads (including sexuality, contraception, infertility and pregnancy)
Diabetes mellitus
Other metabolic disorders (including obesity, hyperlipidemia, hypoglycemia and lipodystrophies)
Multiple endocrine pathologies (including multiple endocrine neoplasms and autoimmune polyendocrine syndromes)
Oncologic endocrinology
Pediatric endocrinology
Geriatric endocrinology
Endocrine disruptors and electrolyte disorders
Endocrine involvement in systemic disease
Imaging
Invasive procedures and interventional radiology
Drugs
Surgical treatments
Radiotherapy and therapies involving radionuclides
Methodology and laboratory

update and the first sections, originally published 4 years ago, have been already revised.

All pages can be printed both individually and with a little fee as an entire section, including tables and pictures.

All readers are kindly requested to serve as referee, pointing to mistakes and need for revision.

The system is attended daily by a mean of 250 individuals, with customer satisfaction ranking very high.

### **Discussion**

We have constructed an online platform for CME committed to clinical endocrinologists in Italy. The result fully complies with the rigorous requirements set by AME.

Endowiki stands alone as an opportunity for medical education in Italy. The continuous updating of the system requires a great effort.

A big challenge to cope with is the link to the national certified system for CME.

A further step in the future could be the use of Endowiki as a tool for clinical decision support.

### **Acknowledgements and disclosures**

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### **Conflicts of interest**

No author has any conflict of interest.

### **References**

1. <http://www.uptodate.com/home>
2. <http://www.endotext.org>