



Development of a Global e-learning Curriculum in Pediatric Endocrinology and Diabetes for Front Line Health Care Providers in Resource-Limited Countries.

Final Report August 2019

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Introduction

This project aimed at the development of a freely and globally accessible e-learning module containing teaching and instruction material related to pediatric endocrinology and diabetes specifically intended at three levels of care in Resource Limited Countries (RLC):

1. *Primary level* (basic or rural); staffed by a clinical officer or assistant medical officer.
2. *Secondary level* (district and regional hospitals); staffed by pediatrician and/or pediatrician with interest in endocrine disorders.
3. *Tertiary level* (zonal referral hospitals and the main/national referral hospital); staffed by pediatricians and/or pediatric endocrinologists.

To facilitate this aim, a special RLC module has been installed within the espe-elearning.org portal (www.espe-elearning.org).

The project is under the patronage of International Consortium of Pediatric Endocrinology (ICPE) with representation in the editorial board of all participating Pediatric Endocrine Societies including ISPAD and GPED (see **Attachment 1**).

The RLC project has been financially supported by an unrestricted educational grant of Eli Lilly, USA (2017-2019).

Content

Authors from all over the world have produced content (in English). After a review process by members of the editorial board 16 chapters and 24 vignettes have been published on line (for a complete list see **Attachment 2**).

ISPAD has made available the content of a CDiC Manual “Diabetes in children and adolescents in Resource Limited Countries “, edited by Stuart J. Brink et al.

Dr Evelien Roos et al, representing the European Association Pediatric and Adolescent Gynaecology (EURAPAG) as well as the International Federation Pediatric and Adolescent Gynecology (FIGIJ) has contributed with brief chapters and vignettes on the subject of pediatric and adolescent gynecology in RLC.

Fellows attending recently various ESPE related schools (Summer school; ASPAE school, ASPED school, PETCA, Caucasus and Central Asia school) agreed to modify their clinical presentation to a RLC vignette (see **Attachment 2**).

Translation

The content translation process into French, Spanish, Swahili, Chinese has been facilitated by a commercial web-based translation tool (SDL Trados Studio; Maidenhead, UK). A translation memory and a terminology database in the 4 languages have been created beneficial to up to 31 native speaking junior/senior colleagues from various continents who agreed to assist in the translation process (see

Attachment 3).

Dissemination of information

A brief survey was held among the editorial board including ICPE society representatives, authors and translators providing positive and constructive comments (see **Attachment 4**).

As a first step representatives of the ICPE Societies have been asked to promote the use of the RLC module during their annual and regional meetings by facilitating presentations of vignettes by RLC module authors and/or translators during ‘Clinical Practice/ Meet the Expert’/’ Breakfast-Lunch Symposia’.



Elearning and e-consultation: linking the RLC module with Collegium Telemedicus

Visitors of the elearning RLC module will be made aware of the opportunity to discuss clinical cases in a confidential manner through an e-consultation platform, Collegium Telemedicus (<https://collegiumtelemedicus.org/>). The reverse, visitors of Collegium Telemedicus will be made aware of the RLC module in the espe-elearning.org portal.

The linking would offer colleagues in RLCs an option not only to learn (e-learning) but also to consult experts regarding patients (platform). Moreover, reference can be made to relevant background information in concise chapters and vignettes (clinical cases) in the RLC e-learning module.

Acknowledgements

We gratefully acknowledge the European Society for Paediatric Endocrinology (ESPE) and the International Society for Pediatric and Adolescent Diabetes (ISPAD) for support and Eli Lilly & Co, USA for providing an unrestricted educational grant.

We welcome any comment or suggestion.

Kind regards,

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RLC project steering committee

Margaret Zacharin, Melbourne, Australia
Edna Majaliwa, Dar es Salaam, Tanzania
Carine de Beaufort, Luxembourg, Luxembourg
Jean-Pierre Chanoine, Vancouver, Canada
Stenvert Drop, Rotterdam, the Netherlands

Espe-elearning.org committee

Annemieke Boot, Groningen, the Netherlands; chair
Evangelia Kalaitzoglou, Lexington, USA; RLC coordinator
May Ng, Liverpool, UK
Flora Bacopoulou, Athens, Greece
Conny van Wijngaard-de Vugt, Rotterdam, the Netherlands; freelance manager and illustrator

Attachment 1

Editorial Board

| | |
|----------------------|----------------------------|
| Margaret Zacharin | Melbourne, Australia |
| Jean-Pierre Chanoine | Vancouver, Canada |
| Edna Majaliwa | Dar es Salaam, Tanzania |
| Carine de Beaufort | Luxembourg, Luxembourg |
| Tri Nur Kristina | Semarang, Indonesia |
| Roberto Bogarin | San Jose, Costa Rica |
| Raul Calzada | Mexico City, Mexico |
| Julia von Oettingen | Montreal, , Canada |
| Hala Alshakh | Bahrein |
| Marc Maes | Brussels, Belgium |
| Stenvert Drop | Rotterdam, the Netherlands |

Society representatives

| | |
|-------------------------------|------------------------------------------------------------------|
| ASPAE (Africa) | Iroro Yarhere, Port Hartcourt, Nigeria |
| ASPED (Arab) | Asma Deeb, Abu Dhabi, UAE, Rasha Tarif, Egypt |
| APPES (Asia/Pacific) | Jun Fen Fu, Hangzhou, China; Pik To Cheung, Hongkong |
| APEG (Australia) | Danielle Longmore, Melbourne, Aus; Alexia S Pena, Adelaide, Aus |
| GPED | Jean-Pierre Chanoine, Vancouver, Canada |
| ISPAD (Diabetes) | Dorothy Becker, Pittsburgh, USA ; Carine de Beaufort, Luxembourg |
| ISPAE (India) | M Vijayakumar, Madourai, India; Bhanu K Bhakhri, Delhi, India |
| PES (USA) | Philip Zeitler, Denver, USA ; Selma Witchel, Pittsburgh, USA |
| SLEP (South- Central America) | Sonir Antonini, Sao Paulo, Brazil |

Attachment 2

| Code | # page | ICPE | authors | Country author(s) | Title ENGLISH |
|--------------------------|--------|------------------|---------------------------------|----------------------------------|-----------------------------------------------------|
| Growth | | | | | |
| RLC-GS-01-C-01 | 43 | ISPAE/ESPE | Chawda; Banerjee; Tan; Patel | India,UK,Singapore | Short Stature in a Limited Resource Setting |
| RLC-GS-01-V-01 | 17 | ASPAE | Umar Isa Umar | Nigeria | An 11 yr old girl with DM and short stature |
| RLC-GT-01-C-01 | 16 | ISPAE/ESPE | Chawda; Banerjee; Tan; Patel | India,UK,Singapore | Tall Stature in a Limited Resource Setting |
| Puberty | | | | | |
| RLC-PU-02-C-01 | 19 | APEG/PES/ESPE | Zacharin; Chanoine; Drop | Australia, Canada, Netherlands | Precocious and Delayed Puberty in a LRC Setting |
| RLC-PU-02-V-01 | 12 | ASPAE/PETCA | Asmahan Abdalla; Moh Abdullah | Sudan | Amna, a 6 yyr old girl with Down syndrome |
| RLC-PU-02-V-02 | 18 | ASPAE/PETCA/ESPE | Appollo, Drop | Tanzania, Netherlands | Puberty just early or too early? |
| RLC-PU-02-V-03 | 27 | ASPAE/ESPE | Katana, Drop | Tanzania, Netherlands | Puberty just late or too late? |
| Thyroid | | | | | |
| RLC-TH-03-C-01 | 31 | ISPAE | Simon | India | Thyroid Disorders in Resource Limited Setting |
| RLC-TH-03-V-01 | 31 | ASPAE/PETCA | Ugege | Nigeria | Chuckwudi... |
| RLC-TH-03-V-02 | 15 | APEG | McGee,Donaghue | Australia, | A newborn with tachycardia |
| RLC-TH-03-V-03 | 25 | PES/ASPAD | Riedlinger, Ladjouze,, Chanoine | Canada, Algeria | A 13 year-old girl with weight loss |
| Adrenal disorders | | | | | |
| RLC-AD-04-C-01 | 23 | ESPE | Ritzen, Drop | Sweden, Netherlands | Adrenal Disorders in a Limited Resource Setting |
| RLC-AD-04-V-01 | 16 | ASPAE/PETCA | Majaliwa,Muze,Appolo | Tanzania | Sikujua a 13 yr old girl with weight gain |
| RLC-AI-04-C-01 | 23 | APEG/ESPE/PES | Zacharin; Chanoine; Drop | Australia,Canada,Netherlands | Adrenal Insufficiency in a Limited Resource Setting |
| DSD | | | | | |
| RLC-DS-05-C-01 | 29 | ASPAE/ESPE | Yalhere; Raza, Ediati; Drop | Nigeria,Pakistan,Indonesia, Neth | DSD in a limited resource setting |
| RLC-DS-05-V-01 | 20 | ASPAE/PETCA | Hassan, Mukhwana | Sudan, Kenya | A baby in shock |
| RLC-DS-05-V-02 | 13 | ISPAE | Bhakhri | India | Raju, a 8 mo newborn with ambiguous genitalia |
| RLC-DS-05-V-03 | 23 | ASPAE/PETCA/PES | Amolo, Kalaitzoglou | Kenya,USA | A Kenian infant with ambiguous genitalia |
| Obesity | | | | | |
| RLC-OB-06-C-01 | 13 | ESPE | Pinhas-Hamiel | Israel | Obesity in a Resource Limited Setting |

| Code | # pages (ppt) |
|------|---------------|
|------|---------------|

Growth

| | | |
|----------------|----|------------|
| RLC-GS-01-C-01 | 43 | ISPAE/ESPE |
| RLC-GS-01-V-01 | 17 | ASPAE |
| RLC-GT-01-C-01 | 16 | ISPAE/ESPE |

Puberty

| | | |
|----------------|----|------------------|
| RLC-PU-02-C-01 | 19 | APEG/PES/ESPE |
| RLC-PU-02-V-01 | 12 | ASPAE/PETCA |
| RLC-PU-02-V-02 | 18 | ASPAE/PETCA/ESPE |
| RLC-PU-02-V-03 | 27 | ASPAE/ESPE |

Thyroid

| | | |
|----------------|----|-------------|
| RLC-TH-03-C-01 | 31 | ISPAE |
| RLC-TH-03-V-01 | 31 | ASPAE/PETCA |
| RLC-TH-03-V-02 | 15 | APEG |
| RLC-TH-03-V-03 | 25 | PES/ASPAD |

Adrenal disorders

| | | |
|----------------|----|-------------|
| RLC-AD-04-C-01 | 23 | ESPE |
| RLC-AD-04-V-01 | 16 | ASPAE/PETCA |

RLC-AI-04-C-01

23 APE

DSD

RLC-DS-05-C-01

29 ASPA

RLC-DS-05-V-01

20 ASPA

RLC-DS-05-V-02

13 ISPA

RLC-DS-05-V-03

23 ASPA

Obesity

RLC-OB-06-C-01

13 ESPE

Bone disorders

RLC-BM-07-C-01

41 ESPE

RLC-BM-07-V-01

19 ASPA

RLC-BM-07-V-02

21 ISPA

Sodium and water

RLC-SW-08-C-01

23 ESPE

RLC-SW-08-V-01

18 ASPA

RLC-SW-08-V-02

18 ASPA

RLC-SW-08-V-03

17 ASPA

Gynecology

RLC-GY-09-C-01

15 FIGI

RLC-GY-09-C-02

12 APE

RLC-GY-09-C-03

19 PES/

RLC-GY-09-C-04

10 EUR

RLC-GY-09-V-01

13 EUR

Hypoglycemia

RLC-HG-10-C-01

16 ESPE

RLC-HG-10-V-01

15 ESPE

RLC-HG-10-V-02

15 ISPA

RLC-HG-10-V-03

18 Kauk

Diabetes ISPAD

RLC-DB-11-C-01

129 ISPA

RLC-DB-11-V-02

15 ISPA

RLC-DB-11-V-03

20 ASPA

RLC-DB-11-V-04

11 ISPA

RLC-DB-11-V-05

24 ISPA

| Bone disorders | | | | |
|-------------------------|----------------------|------------------------------------|--------------------------------------|-----------------------------------------------------------------|
| RLC-BM-07-C-01 | 41 ESPE/ASPAAE/PETCA | Boot, Abdalla, | Netherlands, Sudan | Calcium and bone health |
| RLC-BM-07-V-01 | 19 ASPAAE/PETCA | Asmahan Abdalla, Moh Abdullah | Sudan | Fatima, Rickets in a sunny land |
| RLC-BM-07-V-02 | 21 ISPAE | Sharma | India | Ram, a 4 year old boy with knock knees |
| Sodium and water | | | | |
| RLC-SW-08-C-01 | 23 ESPE | Kuhnle-Kral | Germany | Disturbances of sodium and water |
| RLC-SW-08-V-01 | 18 ASPAAE/PETCA | Ugo Chikani | Nigeria | Julie a 10 yr old girl with polyuria and excessive fluid intake |
| RLC-SW-08-V-02 | 18 ASPED | Mireille El Bejani | Dubai, UAE | Noor a girl with recurrent vomiting |
| RLC-SW-08-V-03 | 17 ASPED | Sarah Elshall | Egypt | Fatema, a 10 yr old girl with excessive drinking |
| Gynecology | | | | |
| RLC-GY-09-C-01 | 15 FIGUJ | Grover, Sivapatham | Australia, Malaysia | The management of Amenorrhoea in RLC |
| RLC-GY-09-C-02 | 12 APEG | Zacharin | Australia, | Menstrual Management in girls in RLC who have a disability |
| RLC-GY-09-C-03 | 19 PES/APEG/SLEP | Witchel, Pena Vargas, Codner | USA, Australia, Chili | Diagnosis of PCOS Adolescent Girls in RLC |
| RLC-GY-09-C-04 | 10 EURAPAG/FIGUJ | Roos, Goverde | Netherlands | Adolescent pregnancy in Resource Limited Countries |
| RLC-GY-09-V-01 | 13 EURAPAG/FIGUJ | Roos, Goverde | Netherlands | A girl with no visible vagina |
| Hypoglycemia | | | | |
| RLC-HG-10-C-01 | 16 ESPE/ASPAAE/PETCA | Gregory, Laigong | UK, Kenya | Hypoglycemia in a Resource Limited Setting |
| RLC-HG-10-V-01 | 15 ESPE | Tobi Candler, John Gregory | UK | A lethargic baby |
| RLC-HG-10-V-02 | 15 ISPAE | Sharma, Gupta, K Bhakhri | India | Sonu, a 5 mo old boy with recurrent convulsions |
| RLC-HG-10-V-03 | 18 Kaukasus&CA | Samvelyan | Russia | Mira a baby girl with dysmorphic features |
| Diabetes ISPAD | | | | |
| RLC-DB-11-C-01 | 129 ISPAD | Brink, Lee, Pilay, Kleinebreil, de | USA, Singapore, S.Africa, France, Lu | Diabetes in children and adolescents in RLC |
| RLC-DB-11-V-02 | 15 ISPAD/ISPAE | Virmani | India | Isha, a 2 yr old girl just diagnosed with type 1 DM |
| RLC-DB-11-V-03 | 20 ASPAAE/PETCA/PES | Amolo, Kalaitzoglou | Kenya, USA | An almost 5 yo girl with diabetes mellitus for 2 y |
| RLC-DB-11-V-04 | 11 ISPAD | Annang, Utari | Indonesia | Sabrina, a 12 yr old girl with DM and hyperglycemia |
| RLC-DB-11-V-05 | 24 ISPAD/ISPAE | Mangla, Bhatia | India | A 16 yr old boy with Type 1 DM and recurrent hypoglycemia |

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Attachment 3

Translators

| French | |
|------------------------|------------------------|
| Marc Maes | Bruxelles, Belgium |
| Julia Von Oettingen | Montreal, Canada |
| Diane Rottembourg | Sherbrooke, Canada |
| Marie-Edelyne Stjaques | Haiti |
| Marie-Eve Robinson | Montreal, Canada |
| Laetitia Martinerie | Paris, France |
| Raja Brauner | Paris, France |
| Pierre Sizonenko | Geneve, Switzerland |
| Nathalie Bale | Rotterdam, Netherlands |
| Wesley Duboile | Rotterdam, Netherlands |
| Sandra Kamga | Rotterdam, Netherlands |
| Spanish | |
| Raul Calzada | Mexico City, Mexico |

| | |
|--------------------|-------------------------|
| Alexia Pena Vargas | Adelaide, Australia |
| Roberto Bogarin | Costa Rica |
| Patricia Vuguin | New York, USA |
| Geraldine da Silva | Rotterdam, Netherlands |
| Daniel Mersha | Rotterdam, Netherlands |
| Swahili | |
| Edna Majaliwa | Dar es Salaam, Tanzania |
| Kandi Muze | Dar es Salaam, Tanzania |
| Monica Apollo | Dar es Salaam, Tanzania |
| Janeth Katana | Morogoro, Tanzania |
| Khamis Abeid | Zanzibar, Tanzania |
| Falco de Graaff | Nijmegen, Netherlands |
| Chinese | |
| Pik To Cheung | Hongkong, China |
| Junfen Fu | Hangzhou, China |
| Zhe Su | Shenzhen, China |
| Di Wu | Beijing, China |
| Quili Chen | Guangzhou, China |
| Wei Wu | Hangzhou, China |
| Elim Man | Hongkong, China |
| Louis Flothuis | Leiden, Netherlands |

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Attachment 4

Summary Survey 9-2018

General comments:

- "My most sincere congratulations for the great job on this valuable initiative".
 - "The chapters are most adequate for the aims, the site is very well addressed for the primary and secondary healthcare providers and translation is very good".
 - " The RLC program will be very useful not only in countries with limited resources, but also for specialists who, once trained, have little opportunity to maintain teaching programs and attend congresses".
 - "Promulgating information and access for e learning would be of extreme interest and importance in rural Australia which is both physically and technically isolated".
 - "I will be happy to help disseminate information". Let me know how can I help".
- a. *Suggestions how to promote the use of the module during (supra-)national or regional meetings of endocrinologists, diabetologists, general paediatricians, nurses, etc.*
- Presentations of vignettes by RLC module authors and/or translators during 'Clinical Practice/ Meet the Expert'/' Breakfast-Lunch Symposia' during Annual meetings of the various ICPE Societies will be well accepted.

- Similarly, presentations at national or regional meetings of endocrinologists, paediatricians and nurses will have important impact.
 - Note: names and email addresses of contact persons and secretariats are required.
- b. Suggestions how to inform and instruct medical schools to use the RLC module for education of medical students and residents*
- The likelihood of usage may increase if the content is parallelly introduced in mobile apps, as most of the net- based information is accessed by students through hand held devices these days.
 - If credit points are provided and/or an online certificate confirming having passed the module, it could be used by the student/ resident for formative or summative evaluation/portfolio.
 - Note: national/regional contact person/secretariat will be required to inform medical schools
- c. Suggestions how to inform training institutions of primary/secondary health care workers*
- This is not an easy issue and may require additional professional advice.
 - National bodies such as Academies of Pediatrics, in collaboration with state and regional level offices such as National Health Human Resource Department Offices with a network for all training institutes / continue medical education programs can provide a channel of information to the pool of teacher-pediatricians.
- d. Suggestions how to inform target users such as health care workers in primary/secondary health care centres*
- This is not an easy issue and may require additional professional advice
 - Application of open access websites, national health emails
 - Application of social media, facebook, smart easy phone apps

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- The link shared and be readily available 3 months before any of the gathering as an active part of the home page, and references to the link for details information and examples
- e. Linking e-learning and e-consultation*
- E-learning content helps build trust for e-consultation while e-consultation may attract more users towards e-learning.
 - The informal use of e-consultation is widespread. The availability in major languages such as French, Spanish and Swahili would certainly represent a formal possibility to replace informal communications occurring nowadays.
 - Suggest to create a task force from RLC (global) in different locations to spread the information about e-learning and e- consultation.
 - Would be happy to join the group of consultants.

