FRENCH NATIONAL HEALTHCARE NETWORK FRENDO FOR RARE ENDOCRINE DISEASES

The First Year of Activity to Monitor Patients with Rare Endocrine Diseases

Maria Givony^a, Fanny Minime^{a,d}, Euma Fortes Lopes^{a,e}, Yvonne Varillon^{a,k}, Delphine Le Verger^a, Sabine Ghenim^{a,g}, Marion Provost^{a,h}, Haïfa Rahabi-Layachi^{a,i}, Claire Bouvattier^{a,f}, Michel Polak^{a,j}, Thierry Brue^{a,i}, Marie-Laure Nunes^{a,h}, Brigitte Delemer^{a,g}, Irène Netchine^{a,c}, Pierre Mouriquand^{a,f}, Françoise Borson-Chazot^{a,k}, Hélène Bony-Trifunovic^{a,e}, Patrice Rodien^{a,d}, Leger Juliane^{a,c} & Jérôme Bertherat^{a,b}

Author affiliations a FIRENDO: Filière Santé Maladies Rares Endocrines, Paris, France; CRMERC: Centre de référence Maladies Rares de la Surrénale, Paris, France; CRMERC: Centre de référence Maladies Rares de la Croissance, Paris, France; ^dCR RH: Centre de Référence Pathologies de la Réceptivité hormonale, Angers, France; ^eCHU d'Amiens: Centre de compétence maladies rares endocriniennes, Amiens, France; ^fCNMR DSD: Centre de Référence Médico-chirurgical des anomalies du développement sexuel, Lyon, France; ⁹CHU de Reims: Centre de compétence maladies rares endocriniennes, Reims, France; ^hCHU de Bordeaux: Centre de compétence maladies rares endocriniennes, Bordeaux, France; ⁱCR DEFHY: Centre de référence Maladies rares d'origine hypophysaire, Marseille, France; ^jCR PGR: Pathologies gynécologiques rares, Paris, France; ^kHospices civils de Lyon: Centre de compétence maladies rares endocriniennes, Lyon, France Contact : contact@firendo.fr

Disclaimer : the authors declare hereby no potential conflict of interest.

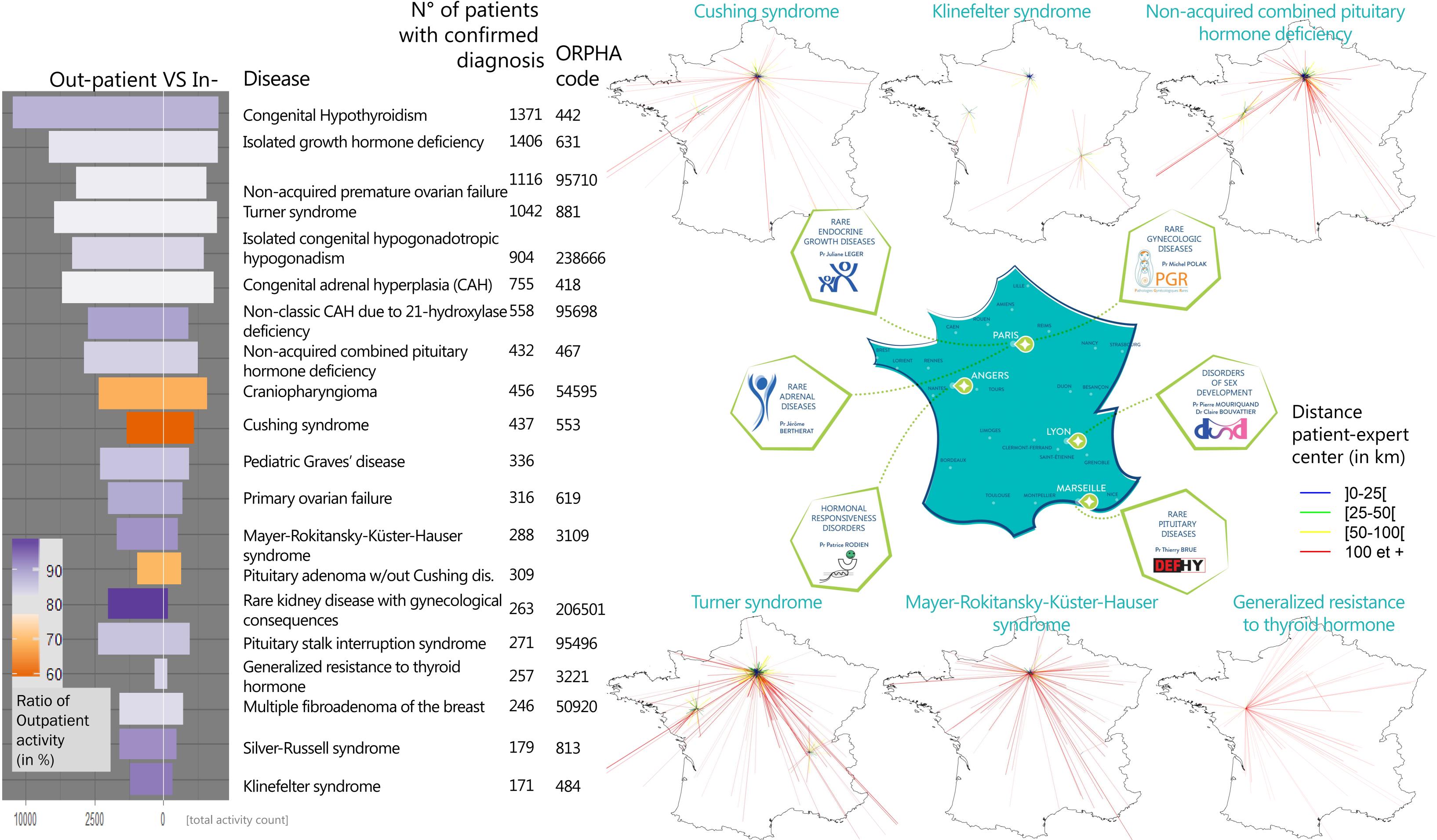
Introduction : Twenty-three national healthcare networks for rare diseases were

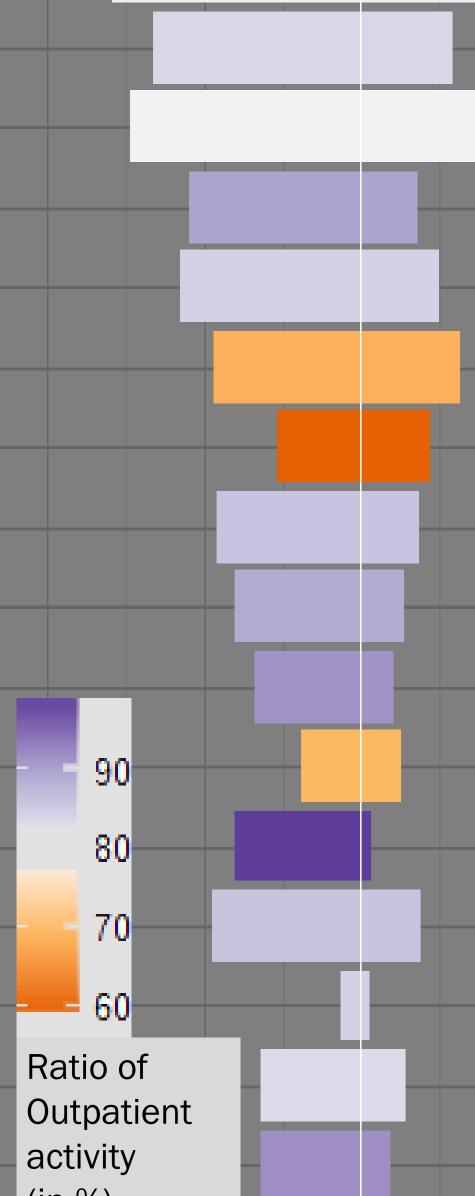
Main goals of FIRENDO network :

identified in 2014 as part of the national plan on rare diseases and funded by the French Ministry of Health. The rare endocrine diseases national healthcare network FIRENDO (www.firendo.fr) includes 6 reference centers with complementary fields of expertise certified between 2005 and 2006, 30 centers of competence covering all French regions, 18 research and 37 diagnostic laboratories, 5 national learned societies and 14 patient advocacy groups. FIRENDO aims at promoting care and research in rare endocrine diseases and also provides epidemiological data on patients with rare endocrine diseases.



Methodology : Activity monitoring was instituted by FIRENDO through a network of 7 clinical research associates operating with a unified data collection procedure since January 2015. Data are collected using the CEMARA national database developed for rare diseases (https://cemara.org) for the expert reference centers and competence centers. In this first analysis, the data about out- and in-patients with rare endocrine diseases seen in the 6 reference centers has been analyzed. This analysis was focused on the 20 most frequent diagnosis in a total record of 16 000 patients registered in these 6 centers.





_	Isolated congenital hypogonadotropic hypogonadism	904	238666
ļ	Congenital adrenal hyperplasia (CAH)	755	418
_	Non-classic CAH due to 21-hydroxylase deficiency	2558	95698
	Non-acquired combined pituitary hormone deficiency	432	467
ł	Craniopharyngioma	456	54595
	Cushing syndrome	437	553
ł	Pediatric Graves' disease	336	
i	Primary ovarian failure	316	619
İ	Mayer-Rokitansky-Küster-Hauser syndrome	288	3109
I	Pituitary adenoma w/out Cushing dis.	309	
	Rare kidney disease with gynecological consequences	263	206501
i	Pituitary stalk interruption syndrome	271	95496
	Generalized resistance to thyroid hormone	257	3221
	Multiple fibroadenoma of the breast	246	50920
	Silver-Russell syndrome	179	813

Outpatient VS inpatient activity breakdown and patient number for the top 20 most frequent rare endocrine diseases. CEMARA database provides the information about the disease prevalence and allows the follow-up of the activity type required for the care management. Some of the groups of phenomes can be further broken down to more specific diseases with ORPHA codes. Comparisons of out-/in-patient activity between regions or centers for the same disease can contribute to better informed public decisions.

Example of traveling distances to the expert centers for patients with one of the six frequent rare endocrine diseases. The minimal data set in CEMARA database allows the calculation of the average distances (shown here) or time required for the patient to reach the expert centers in France. Once again, this analysis can help a better retribution across the country of public funds dedicated to the care management of a particular rare disease. These infographics also pinpoint the portion of patients outside of continental France.

Conclusion : In 2 years since the inauguration of the national healthcare networks for rare diseases, FIRENDO has united nation-wide all the rare endocrine disease stakeholders. By placing the exploitation of the national database in the heart of its operations, FIRENDO should be able to build up a solid epidemiological tool to help monitoring rare endocrine diseases. This first draft allows a glimpse into the care management within 6 member reference centers. FIRENDO will provide more accurate data in years to come, therefore ensuring a more consistent healthcare and medical research scheme across all French regions.



www.firendo.fr

