

Cost Reduction for Families and Healthcare System with the Implementation of a Paediatric Comprehensive Epilepsy Clinic

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Rationale

- Epilepsy is considered by the World Health Organization as the most common serious neurological condition affecting children [1.]
- Thirty percent will develop drug resistant epilepsy (DRE) who require comprehensive care and represents a significant financial burden not only for the health care system but for the families as well [1].
- Comprehensive care from an inter-professional team is vital to this population and recent data shows only 45% of children receive this type of care [2,3].
- In the US, the associated cost with epilepsy care is \$15.5 billion USD annually [4].
- In London, Ontario, the Comprehensive Epilepsy Clinic (CEC) is a specialized multi-disciplinary and inter-professional clinic model within the epilepsy program that provides advanced therapies as well as facilitates access to health disciplines and resources for each family [5].

Purpose

- As part of a program evaluation, a focused cost-benefit analysis was conducted to determine if this clinic model impacts the economic burden for the healthcare system and families.

Methods

- We collected data from Children's Hospital, London Health Sciences Centre analytics department identifying 70 new consults to the CEC in the year 2020.
- We looked at epilepsy related hospital utilization 365 days +/- the CEC consult date for each patient.
- This included emergency room visits, inpatient admissions, critical care admissions and telephone encounters with the epilepsy nurse.
- Hospital associated costs did not include human resources or advanced diagnostics.
- We ran a secondary analysis to account for family expenses while in the hospital which include loss of income for one parent, daycare, parking, and food expense.

Table 1: Impact on hospital expenses pre and post CEC

Hospital Expenses: cost of hospital stays (not including human resources or extensive diagnostic testing)

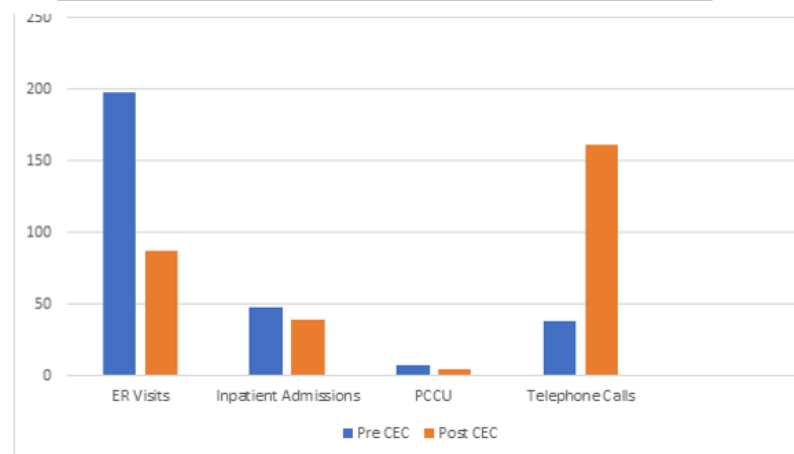
	1-year Pre CEC	1-year Post CEC	% of Cost Decrease
Paediatric ER Visits	\$64,201.50	\$28,209.75	56%
Paediatric Inpatient Admissions	\$234,617.09	\$190,625.54	19%
Paediatric Critical Care Admissions	\$67,510.73	\$38,577.56	43%

Table 2: Impact of family expenses pre and post CEC

Family Expenses: 1 parent loss of income, daycare, meals and parking (cost of travel was not included)

	1-year Pre CEC	1-year Post CEC	% of Cost Decrease
Paediatric ER Visits	\$76,824	\$33,756	56%
Paediatric Inpatient Admissions	\$76,358.40	\$62,041.20	19%
Paediatric Critical Care Admissions	\$7,061.60	\$4,035.20	43%

Fig 1: Number of Hospital Visits and Phone Calls Pre and Post CEC Consult for 70 Identified Patients in 2020



Results

- Emergency room (ER) visits pre-CEC consult for the 70 families were 198 and post consult 87 with an average cost calculated at \$325 CAD for the system and \$388 CAD for the family.
- Inpatient admissions went from 48 to 39 with an average length of stay of 4.1 days costing \$4888 CAD for the system and \$1552 CAD for families per visit.
- Critical care admissions went from 7 to 4, with an average length of stay of 2.6 days costing \$9644 CAD to the system and \$1009 CAD for families per visit.
- Telephone calls with an epilepsy nurse for advice and education for families went from 38 to 161, with no associated cost to the system or to families.
- In total, there was a 56% cost reduction for ER visits, 19% for inpatient admissions, and 43% reduction for critical care admissions in cost to the system and families post CEC consult.

Conclusion

- In conclusion, A comprehensive epilepsy clinic model appears to reduce the financial burden to both the healthcare system and families of children living with DRE.
- This model could be replicated and beneficial in underserved and low-income countries to provide epilepsy resources and care in an efficient way including access to an epilepsy nurse to provide extensive education and support to families.

References

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