

## Original article

# Cost analysis of integrated renal replacement therapy program in the province of Toledo (2012–2013)<sup>☆</sup>

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## ABSTRACT

**Background:** Renal replacement therapy (RRT) is the object of constant analysis in the search for efficiency and sustainability.

**Objective:** To calculate the direct cost of healthcare for the prevalent RRT population in the province of Toledo (2012/2013).

**Method:** (a) Population: All prevalent patients at some point in RRT in 2012 (669) and in 2013 (682). (b) Costs included (€): (1) dialysis procedure; (2) inpatient, outpatient and emergency care, dialysis and non-dialysis related; (3) drug consumption; (4) medical transport. (c) Calculation and analysis: The aggregate localized or reconstructed cost of each item was calculated from the individual cost of each patient. Annual cost and cost per patient/year was calculated for the whole RRT and for its subprograms (€).

**Results:** (a) Aggregate costs: The total cost of RRT amounted to 15.84 and 15.77 million euros (2012/2013). Dialysis procedures account for 40.2% of the total while the sum of hospital care and drug consumption represents 41.5%. Healthcare for patients on hospital haemodialysis (HHD) and concerted haemodialysis (CHD), peritoneal dialysis (PD) and transplant (Tx) accounts for 70.0, 5.0 and 25.0% of the total respectively.

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(b) Patient/year cost: From the number of patients/year provided by each subprogramme, the following values were obtained in 2012/2013: All RRT 26,130/25,379; HHD 49,167/53,289; CHD 44,657/44,971; PD 45,538/51,869 and Tx 10,909/10,984.

Conclusions: Our results are consistent with others published, although our patient/year values are slightly higher, probably because they include elements such as outpatient pharmacy, hospital and medical transport cargo. The growing contribution of Tx to the survival of the whole RRT population contains the overall costs and reduces the patient/year cost, making RRT sustainable.

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## Análisis de costes del programa integrado de tratamiento renal sustitutivo en la provincia de Toledo (2012-2013)

### R E S U M E N

#### Palabras clave:

Tratamiento renal sustitutivo  
Análisis de costes  
Coste-efectividad  
Evaluación económica  
Economía de la salud  
Hemodiálisis  
Diálisis peritoneal  
Trasplante renal

*Introducción:* El coste ocasionado por los programas de tratamiento renal sustitutivo (TRS) es objeto de análisis permanente en busca de su eficiencia y sostenibilidad.

*Objetivo:* Calcular el coste directo de la atención a la población prevalente en TRS en Toledo en los años 2012 y 2013.

*Método:* a) Población: Todos los pacientes prevalentes en algún momento en TRS en 2012 (669) y en 2013 (682). b) Componentes del coste (€): 1) procedimiento de diálisis; 2) atención hospitalaria: ingresos, consultas, procedimientos ambulatorios y urgencias; 3) consumo de fármacos; 4) transporte. c) Cálculo y análisis: para cada uno de esos componentes se calculó el coste agregado localizado o reconstruido a partir del coste individual de cada paciente. Se calculó el coste anual y el coste paciente/año del TRS y de cada uno de sus subprogramas (€).

*Resultados:* a) Costes agregados: el coste anual fue de 15,84 (2012) y de 15,77 millones de euros (2013). Los procedimientos de diálisis representan el 40,2% y la atención hospitalaria más el consumo de fármacos, el 41,5%. La atención a los pacientes en hemodiálisis hospitalaria (HDH) y concertada (HDC), diálisis peritoneal (DP) y trasplantados (Tx) representan, respectivamente, el 70,0; el 5,0 y el 25,0% del total.

b) Coste paciente/año: considerando el número de pacientes/año proporcionado por cada subprograma, se obtuvieron los siguientes valores en 2012/2013: para todo TRS 26.130/25.379; HDH 49.167/53.289; HDC 44.657/44.971; DP 45.538/51.869 y Tx 10.909/10.984.

*Conclusiones:* Nuestros resultados son consistentes con otros publicados, aunque arrojan valores paciente/año ligeramente superiores, debido a que incluyen elementos como farmacia extrahospitalaria, carga hospitalaria y transporte sanitario. La contribución creciente del Tx a la sobrevida del conjunto de la población en TRS contiene los costes globales y reduce el coste paciente/año, lo que hace sostenible el TRS.

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## Introduction

Renal replacement therapy (RRT) for patients with advanced chronic kidney disease is probably the most scrutinized therapeutic intervention from economical point of view worldwide. Since it became technically possible to replace renal function in the long term by means of dialysis or transplantation, health systems were aware of the enormous economic impact that such an achievement entailed and the ethical dilemmas in terms of equity and opportunity cost that it poses on a permanent basis.<sup>1-3</sup> It supposes a sustained use over time (years)

of a type of health intervention (dialysis and transplantation) of high technical complexity and high consumption of human and material resources. This issue has been aggravated during the last decades by the growth of the population that require RRT in all the countries with advanced systems of health care. In our country, between 1996 and 2013, it has been 2.6% per year on average, which has resulted in a final growth of 37%.<sup>4</sup>

It is not a surprise to find a considerable amount of literature in this respect. In a systematic review (pending publication) made to guide the present study and including the 1998-2013 period,<sup>5</sup> there were 20 papers selected that met the established search criteria. Although they provide

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