# Access to knee arthroplasty among National Health Fund beneficiaries in Chile between 2004 and 2021

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## Abstract

### Introduction

Knee osteoarthritis affects the quality of life, with knee arthroplasty being a cost-effective treatment for the severe stage of this disease. Access to knee arthroplasty is a health indicator of the Organisation for Economic Co-operation and Development. The objectives of this study are to determine the incidence of knee arthroplasty between 2004 and 2021 in beneficiaries of the National Health Fund in Chile, the proportion of patients who underwent surgery in the private system, and to estimate the patient's out-of-pocket expenditure for surgery.

### Methods

Cross-sectional study. We used the Department of Statistics and Health Information database. Patients discharged from a Chilean health center who underwent knee arthroplasty surgery between 2004 and 2021 were investigated. We analyzed the proportion of patients by their National Health Fund category and whether their surgery was performed in public or private network facilities.

### Results

Of the 31 526 knee arthroplasty procedures, 21 248 (67.38%) were performed on National Health Fund patients and 16 238 in public institutions (51.49%). Patients from the National Health Fund showed a systematic increase in knee arthroplasty volume until 2019 but decreased in 2020 and 2021 by 68% and 51%. Of the total number of patients in the public system operated on for knee arthroplasty, 856 (9%) belonged to segment A1, 12 806 (60%) to segment B, 2044 (10%) to segment C, and 4421 (21%) to segment D. The expenditure incurred by these patients was estimated to vary between 24.4% and 27.2%. The historical proportions of access to this surgery in private institutions are 7% in segment A, 13% in segment B, 24% in segment C, and 52% in segment D.

### Conclusion

Fifty percent of knee arthroplasty surgeries are performed in public institutions, and two-thirds are performed on patients of the National Health Fund. Forty-six percent of the C and D segments were operated in the private system. The pandemic has increased the access gap, leading to a substantial increase in the proportion of patients from the National Health Fund of the B, C, and D segments who have migrated to the private system to access this surgery.

## Main messages

- Knee osteoarthritis is a major cause of disability worldwide, affecting different aspects of health.
- Knee arthroplasty is a cost-effective treatment for severe knee osteoarthritis, making a meaningful difference in patients' quality of life. Its accessibility is a health indicator used by the Organization for Economic Co-operation and Development.
- Although Chile has a younger population than other countries from the Organization for Economic Co-operation and Development, and therefore lower risk of disease, 18% of the population (beneficiaries of private health insurance) have 2.5 times more access to this procedure than patients belonging to public health insurance. Hence, it is relevant to investigate the differences in access to this surgery.
- The limitations of this study are those inherent to using a national registry, in addition to the fact that it is impossible to determine the actual out-of-pocket expenses incurred by National Health Fund patients because the value of care in the private sector is not homogeneous.

# Introduction

Knee osteoarthritis is a major cause of worldwide disability, affecting different aspects of health, including pain, decreased mobility and function, limitation of work and daily activities, impaired sleep quality, emotional stress, mood disorders, and social isolation [1]. The most frequent cause is primary or degenerative and affects people over 55 years of age, but it can also be secondary to infections, trauma, or systemic diseases [2]. This pathology's first line of treatment is a non-surgical treatment, including education, weight loss, and physical activity. However, a study conducted in Japan in patients with severe knee osteoarthritis shows that patient satisfaction with this treatment is mild to moderate and lower than the results in severe hip osteoarthritis with conservative treatment [3].

Knee arthroplasty is a cost-effective treatment for severe knee osteoarthritis [4], which has been increasing worldwide, surpassing the incidence of hip arthroplasty in several developed countries [5]. This increase in the number of knee joint replacement procedures is due to the greater technological development of implants, refinement of the technique, a growing number of surgeons trained in this procedure, the aging of the population, and the greater health expectancy of patients [4,6].

The impact of this surgery on the quality of life is high, being access to it a health indicator used by the Organization for Economic Co-operation and Development (OECD) [7]. According to the latest OECD report, Chile ranks second to last in access to this surgery [8]. Although Chile has a younger population than the other OECD countries and, therefore, fewer patients at risk, it is true that access plays an important role. In Chile, patients with private insurance (approximately 18% of the population) have access to this procedure 2.5 times more than patients with public insurance, called National Health Fund (FONASA) [9].

Although patients benefiting from the National Health Fund have had increased access to knee arthroplasty between 2004 and 2019, there is still a gap [9]. A review of the national health system waiting list shows that until 2019 knee arthroplasty was second only to cholecystectomy, with a median wait of 2.2 years since the patient was seen in tertiary healthcare [9]. This probably did not change during the pandemic, given that the incidence of this surgery decreased by over 50% in 2020 [10].

The National Health Fund segments its beneficiaries according to their income and number of dependents, dividing them into four categories: "A" without resources; "B" taxable salary less than 400 thousand Chilean pesos (439 USD); "C" taxable salary less than 584 thousand Chilean pesos (641 USD) and less than three family dependents; "D" with taxable salary greater than 584 thousand Chilean pesos (641 USD) and less than three family dependents. Historically, segments C and D had a co-payment for hospital care of 10% and 20%, respectively, which was abolished in September 2022. However, the effect on access to knee arthroplasty with this measure is in doubt since it does not affect waiting lists and does not provide coverage for those patients who have needed to migrate to the private system to solve their knee osteoarthritis [11].

The objectives of this study were to describe the incidence of knee arthroplasty in patients who are beneficiaries of the National Health Fund, by category, between 2004 and 2021 and to establish the proportion of these patients who underwent surgery in the private system during the same period. Another objective was to estimate the "out-of-pocket expenditure" of National Health Fund patients, understood as the direct health expenses incurred by the patient even if they have health insurance [12].

# Methods

Descriptive cross-sectional study. We analyzed the open database of the Department of Statistics and Health Information available up to 2020. The 2021 database was requested via the transparency portal.

We identified all patients who received surgery between 2004 and 2021 and were labeled with knee arthroplasty codes 2104153 and 2140253. The following data were obtained from these patients: age at the time of surgery, the facility where the surgery was performed, type of health insurance , and gender. To compare by year, the incidence of surgery per 100 000 beneficiaries of the National Health Fund and each of its categories was calculated, as reported in the 2021 public account of this institution [13].

Qualitative variables were reported in absolute frequencies and percentages; quantitative variables were reported as mean and standard deviation (SD). A Spearman correlation was estimated to establish whether there was an association between the period studied, the incidence per 100 000 beneficiaries in each section, and the proportion of patients who had access to surgery in private institutions (continuous variable). The Rho statistic is reported and interpreted as a moderate association above 0.4 and high when greater than 0.7. A positive correlation was interpreted as an increase, and a negative correlation as a decrease during the study period. The magnitude of the Rho is interpreted as the association's magnitude but not the trend's magnitude.

Additionally, the mean proportion in which each National Health Fund segment had access to this surgery between 2004 and 2020 was calculated and compared with the proportion in 2021 to determine whether there was a significant increase during the latter year using a test of proportions.

To estimate the "out-of-pocket cost", the percentage of the cost of surgery that patients should have assumed was calculated. Those patients who underwent surgery in public institutions had zero co-payment since they belonged to segments A and B of the National Health Fund. In contrast, segments C and D paid 10% and 20% of the surgery cost, respectively. For estimating the out-of-pocket expenditure of patients who opted for surgery in private institutions, two scenarios were assumed:

1) Scenario "1.0": patients pay 100% of the value it costs a public institution to perform the procedure.
2) Scenario "1.2": patients pay 120%, assuming a 20% profit. This scenario is optimistic given that each private health institution determines the price and that if patients have complications during hospitalization, these out-of-pocket expenses increase.

Additionally, given the new Zero Copayment Law implemented in September 2022, we estimated the savings that would have occurred if this law had been in force in the period studied. In public institutions, the value of surgery estimated by the diagnosis-related group (DRG) was $4 300 845 Chilean pesos (4717 USD, dollar price 905 pesos) in 2020 [10], so we report the estimated amount in Chilean pesos of out-of-pocket spending of the total number of patients in the National Health Fund for the years 2019 and 2021, in scenarios 1.0 and 1.2 previously described. Again, a Spearman correlation was estimated to establish whether patients' out-of-pocket spending had an upward trend in the period studied. The data were processed in STATA v17.

**Table 1.** Shows the mean age (SD) in FONASA patients who underwent knee arthroplasty.

| FONASA category | Age |
|---|---|
| A | 61,5 (SD, ±14,0) |
| B | 68,0 (SD, ±10,0) |
| C | 65,5 (SD, ±11,6) |
| D | 66,0 (SD, ±11,1) |
| **FONASA** | 66,8 (SD, ±11,0) |

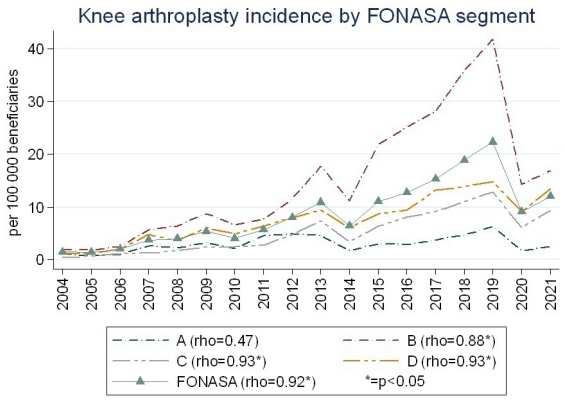
FONASA: National Health Fund.SD: standard deviation.
Source: Prepared by the authors based on the study's results.

## RESULTS

Between 2004 and 2021, 31 526 knee arthroplasty procedures were performed, of which 16 238 were performed in institutions belonging to the public network (51.49%) and 21 248 (67.38%) were performed in patients belonging to the National Health Fund. The mean age of the beneficiaries of this fund was 66.8 years (SD ±10.98) (Table 1). Of the total number of National Health Fund patients operated on for knee arthroplasty, 1856 (9%) belonged to segment A, 12 806 (60%) to segment B, 2044 (10%) to segment C, and 4421 (21%) to segment D.

National Health Fund patients show a rise in the incidence of knee arthroplasty between 2004 and 2019. In 2014, 1.43 surgeries were performed per 100 000 state insurance beneficiaries, rising to 22.32 in 2019. However, they decreased in 2020 and 2021 by 60% and 51%, respectively, compared to the number of surgeries performed in 2019 (Figure 1). The arthroplasty incidence strongly correlates with the period studied (Rho = 0.92, $p < 0.0000$).

**Figure 1.** Knee arthroplasty incidence in FONASA patients between 2004 and 2021.




Source: Prepared by the authors based on the study's results
FONASA: National Health Fund.

**Table 2.** Number of arthroplasties per 100 000 beneficiaries (IR) in each FONASA category and number of FONASA patients operated on in the private system (IRpriv) between 2004 and 2021.

| | A | | B | | C | | D | |
|---|---|---|---|---|---|---|---|---|
| **Year/FONASA** | **IR** | **IRpriv** | **B** | **IRpriv** | **IR** | **IRpriv** | **IR** | **IRpriv** |
| 2004 | 1.06 | 0.05 (5%) | 1.81 | 0.06 (3%) | 0.43 | 0 | 1.13 | 0.59 (52%) |
| 2005 | 0.73 | 0.10 (14%) | 1.77 | 0.03 (2%) | 0.64 | 0.05 (8%) | 1.11 | 0.51 (45%) |
| 2006 | 0.96 | 0.03 (3%) | 2.46 | 0.11 (5%) | 1.07 | 0.10 (10%) | 1.94 | 0.94 (49%) |
| 2007 | 2.57 | 0.15 (6%) | 5.6 | 0.24 (4%) | 1.22 | 0.24 (20%) | 4.7 | 2.60 (55%) |
| 2008 | 2.2 | 0.16 (7%) | 6.34 | 0.27 (4%) | 1.65 | 0.09 (6%) | 3.55 | 1.44 (41%) |
| 2009 | 3.17 | 0.10 (3%) | 8.72 | 0.37 (4%) | 2.32 | 0.47 (20%) | 5.98 | 3.25 (54%) |
| 2010 | 2.09 | 0.02 (1%) | 6.54 | 0.58 (9%) | 2.4 | 0.59 (24%) | 4.84 | 2.49 (51%) |
| 2011 | 4.48 | 0.21 (5%) | 7.59 | 0.32 (4%) | 2.71 | 0.89 (33%) | 6.31 | 3.48 (55%) |
| 2012 | 4.86 | 0.34 (7%) | 11.6 | 0.47 (4%) | 4.73 | 1.12 (24%) | 7.91 | 3.54 (45%) |
| 2013 | 4.51 | 0.56 (13%) | 17.74 | 2.16 (12%) | 7.32 | 2.17 (30%) | 9.47 | 3.79 (40%) |
| 2014 | 1.71 | 0.24 (14%) | 11.23 | 1.97 (18%) | 3.37 | 1.08 (32%) | 6 | 3.66 (61%) |
| 2015 | 3 | 0.24 (8%) | 21.87 | 3.35 (15%) | 6.28 | 1.84 (29%) | 8.73 | 5.03 (58%) |
| 2016 | 2.86 | 0.09 (3%) | 25.16 | 4.35 (17%) | 8.04 | 2.77 (35%) | 9.44 | 4.56 (48%) |
| 2017 | 3.69 | 0.12 (3%) | 28.13 | 3.7 (13%) | 9.19 | 2.39 (26%) | 13.21 | 7.17 (54%) |
| 2018 | 4.65 | 0.56 (12%) | 35.84 | 9.23 (26%) | 11.06 | 3.03 (27%) | 13.93 | 7.1 (51%) |
| 2019 | 6.22 | 0.74 (12%) | 41.74 | 8.16 (20%) | 12.89 | 3.12 (24%) | 14.85 | 5.75 (39%) |
| 2020 | 1.67 | 0.03 (2%) | 14.38 | 3.42 (24%) | 6.03 | 2.11 (35%) | 9.11 | 5.26 (58%) |
| 2021 | 2.53 | 0.27 (11%) | 16.93 | 7.6 (45%) | 9.36 | 5.15 (55%) | 13.54 | 10.64 (79%) |
| **Mean** | **2.94** | **0.22 (7%)** | **14.75** | **2.58 (13%)** | **5.04** | **1.51 (24%)** | **7.54** | **3.99 (52%)** |

IR: number of knee arthroplasty per 100 000 beneficiaries of a FONASA category. IRpriv: number of knee arthroplasty per 100 000 beneficiaries of a FONASA category performed in a private institution.
FONASA, National Health Fund.
Source: Prepared by the authors based on the study's results.

When analyzing by categories, we observed that segments B, C, and D also present a high correlation: Rho = 0.88 ($p < 0.0000$), Rho = 0.93 ($p < 0.0000$), and Rho = 0.93 ($p < 0.0000$). However, segment A shows a slight and non-significant correlation (Rho = 0.47; $p = 0.77$).

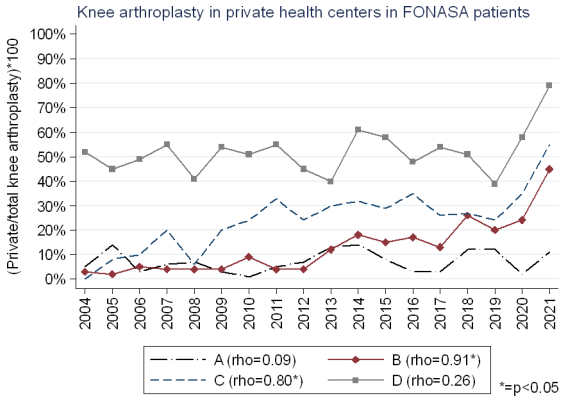
When analyzing the affiliation of the health center in which the knee arthroplasty surgery was performed in the National Health Fund patients, we observed that 7% of the patients in segment A opted for surgery in private centers, 13% in segment B, 24% in segment C and 52% in segment D (Table 2).

Segment D of the National Health Fund shows a variation between 40 and 60% of surgical resolution in the private system, surpassing the 60% barrier in 2021. Segment C remained below 20% of resolution in the private system until 2009; the proportion fluctuated between 24 and 35%, rising to over 50% in 2021. Segment B remained below 10% between 2004 and 2012, then increased, peaking in 2021. Segment A has consistently fluctuated below 20% (Figure 2). A strong association was observed between the period studied and the proportion of patients who accessed this surgery in the private system in segments B (Rho = 0.91, $p < 0.0000$) and C (Rho = 0.80, $p = 0.0006$). No significant association was observed in segments A (Rho = 0.09, $p = 0.99$) and D (Rho = 0.26, $p = 0.99$).

When comparing the year 2021 with the historical proportion from 2004 to 2020, a significant increase was observed in segments B, C, and D, reaching 45% ($p = 0.0000$), 55% ($p = 0.0000$), and 79% ($p = 0.0000$), respectively. In contrast, segment A did not show a significant increase (11% proportion; $p = 0.25$).

The estimated out-of-pocket expenditure of the National Health Fund patients operated on in private and public institutions between 2004 and 2021 were between 24 and 27% of the value of the surgery (Table 3). The correlation with the period was strong, obtaining a Rho of 0.91 ($p = 0.000$), i.e., there has

**Figure 2.** Proportion of arthroplasties performed in private institutions in National Health Fund patients.




FONASA: National Health Fund.
Source: Prepared by the authors based on the study's results

**Table 3.** Percentage of estimated out-of-pocket spending for FONASA patients in two estimated scenarios.

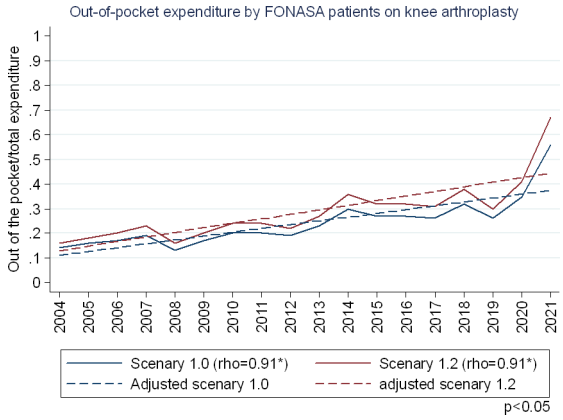
| Year | Gb 1.0 | Gb 1.2 | Zero co-payment 1.0 | Zero co-payment 1.2 |
|---|---|---|---|---|
| 2004 | 13.70% | 16.00% | -15.70% | -13.50% |
| 2005 | 15.90% | 18.50% | -17.90% | -15.40% |
| 2006 | 17.20% | 19.90% | -18.50% | -15.90% |
| 2007 | 19.20% | 22.50% | -12.60% | -10.70% |
| 2008 | 13.40% | 15.60% | -19.90% | -17.20% |
| 2009 | 17.10% | 20.10% | -13.70% | -11.60% |
| 2010 | 20.40% | 23.90% | -13.40% | -11.40% |
| 2011 | 20.40% | 24.00% | -12.40% | -10.50% |
| 2012 | 18.60% | 21.70% | -17.20% | -14.80% |
| 2013 | 22.90% | 26.90% | -13.90% | -11.90% |
| 2014 | 30.40% | 36.10% | -7.60% | -6.40% |
| 2015 | 27.20% | 32.10% | -8.90% | -7.50% |
| 2016 | 27.20% | 32.10% | -10.00% | -8.50% |
| 2017 | 26.30% | 31.00% | -10.80% | -9.20% |
| 2018 | 32.20% | 38.20% | -7.70% | -6.50% |
| 2019 | 25.60% | 30.20% | -11.00% | -9.30% |
| 2020 | 35.00% | 41.40% | -7.80% | -6.60% |
| 2021 | 56.00% | 66.90% | -3.10% | -2.60% |
| **Historic** | **24.40%** | **27.20%** | **-11.20%** | **-10.10%** |

Gb 1.0: FONASA patient pays 100% of the diagnosis-related group cost.Gb 1.2: the patient pays 120% of the diagnosis-related group cost.FONASA: National Health Fund. GB: out-of-pocket expense.
Notes: In addition, the impact on the estimated out-of-pocket expenditure in both scenarios when applying the new Zero Copayment Law is shown.
Source: Prepared by the authors based on the study's results.

been a consistent increase in the percentage of direct out-of-pocket expenses to access this surgery (Figure 3). When using the estimated value per diagnosis-related group in 2019, the estimated out-of-pocket expenditure was $4 214 509 837 and $4 980 172 069 Chilean pesos (4 623 099 US dollars), while in 2021, it was estimated at $4 441 852 504 and $5 165 297 642 (4 872 482 US dollars). The zero-co-payment policy would have reduced this expenditure by 9.3% to 11.2% and 2.6% to 3.1% in 2019 and 2021, respectively (Table 3).

**Figure 3.** Evolution of out-of-pocket spending of FONASA patients concerning the cost of the procedure to access knee arthroplasty between 2004 and 2022.

Two scenarios are assumed: "1.0" patients paid to private institutions the same cost calculated by the diagnosis-related group, and "1.2" patients paid 120% of the cost calculated by the diagnosis-related group.




FONASA: National Health Fund.
Source: Prepared by the authors based on the study's results.

## DISCUSSION

The incidence of knee arthroplasty has been increasing since 2004 in National Health Fund patients, only slowed by the COVID-19 pandemic. There has been a significant and strong upward trend in access to knee arthroplasty between 2004 and 2021 in segments B, C, and D.

Regarding access to this surgery in private institutions, it can be seen that segments B and C have had a significant increase in the proportion of surgeries in private institutions. Segment D has not shown an upward trend, but the proportion has remained constant at over 40%. This is explained by the increase in surgical waiting lists, which reached 290 000 procedures by March 2021, with an average waiting time of 1.5 years [14]. Within this list, arthroplasty is the second surgery with the most patients on the waiting list and longer waiting times, exceeding two years [15]. In the waiting list for knee arthroplasty in 2019, there were 15 000 patients, and in the same year, 2963 were performed in public institutions, i.e., there are five times more prostheses waiting than those performed in a year [9]. The COVID-19 pandemic had a negative impact on the incidence of this surgery [10], and according to data obtained by the

Transparency Law, as of June 2022, the waiting list for knee arthroplasty is 20 316 patients.

Concerning out-of-pocket spending, it is estimated that approximately a quarter of the cost has been assumed by National Health Fund patients in this period, with a strong and significant upward trend in the studied period, especially in 2021. Three factors probably influenced the peak of access to this surgery in the private system in 2021: a high number of patients requesting this surgery, a significant decrease in the performance of this surgery in public centers between 2020 and 2021, and the policy of 10% withdrawals from pension funds that generated liquidity for access to the private system [16].

Even though Chile consistently presents a progressive increase in public spending on health, even above the average of the Organisation for Economic Co-operation and Development OECD. The current Chilean healthcare system is based on 30% out-of-pocket spending and subsidies provided by the State to protect certain beneficiaries or pathologies [8]. A recent measure was the Zero Copayment Law, implemented in September 2022, which determines that segments C and D of the National Health Fund will not have a co-payment for services provided in public institutions, as segments A and B have historically done. With this new law, the effect in the period studied produces only a drop of up to 11% in out-of-pocket spending by National Health Fund patients. On the other hand, it does not directly affect the resolution of this pathology or the reduction of the waiting list.

The Explicit Health Guarantees (GES) have been the most significant reform of the century in Chile, which protects by law the access to specific health pathologies by prioritization criteria, currently reaching 85 pathologies. Recently, Lenz-Alcayaga conducted a study demonstrating that including this pathology in the Explicit Health Guarantees is cost-effective [17]. Now, this law only protects patients over 65 years of age with severe hip osteoarthritis to access hip arthroplasty [18] and conservative treatment (no arthroplasty) in hip and knee osteoarthritis in patients over 55 years of age [2]. Although there is a waiting list for those services included in the Explicit Health Guarantees, the time is significantly shorter and homogeneous compared to pathologies not covered by the law [19]. This study shows that the mean age of the patients varies between 62 and 68 years, which is critical to consider in the case of incorporating this pathology in the Explicit Health Guarantees, especially if an age criterion is to be included, as in the case of hip, where patients under 65 (of working age) were not considered.

Another strategy implemented to improve access in our country is the Payment Associated with Diagnosis (PAD) program of the National Health Fund. This program started in 2014 and covered 73 pathologies, 11 related to orthopedics and traumatology [11]. The National Health Fund estimates a single cost of a medical benefit, which interested private institutions must accept, and 50% of the cost is assumed by the National Health Fund and the other 50% by the patient (co-payment). Of the total co-payment, the patient is eligible for a loan through the National Health Fund of up to 85% (https://www.fonasa.cl/sites/fonasa/beneficiarios/bonos-pad). Increasing the coverage of the Payment Associated with Diagnosis program for knee arthroplasty, despite maintaining a high out-of-pocket cost (50% of the value assigned to the procedure), allows for reducing the current out-of-pocket expense of patients of the National Health Fund and would allow them to access this pathology at a fixed price and without waiting lists. Consequently, this would decompress the current waiting lists for this pathology in the public health system.

It is necessary for the public health system to quickly return to its pre-pandemic trend to resolve the situation of more patients progressively. The COVID-19 pandemic halted the steady rise of this surgery in public health services until 2019 [10]. However, this is not enough since even before the pandemic, more and more patients migrated to the private system. Efficiency in the operating room , implementing a system for recording clinical outcomes, and implementing ambulatory or early discharge systems are vital to improving healthcare in the public sector [20–22].

The limitations of this study are those inherent to using a national registry. In addition, it is impossible to determine the out-of-pocket expenses incurred by patients of the National Health Fund since each institution determines the value of care in private health institutions and is not homogeneous. However, an "optimistic" estimate was made using the cost of the intervention defined by the public system in 2020 by the diagnosis-related group, thus at least estimating the floor of the expenditure incurred by patients benefiting from public insurance.

## Conclusions

Knee arthroplasty is a surgery that presents a high demand in Chile, particularly by patients of the National Health Fund, which leads to a high out-of-pocket expense and an upward trend of migration to the private system by patients who are beneficiaries of this fund.

## Notes

### Contributor roles

MB: conceptualization, methodology planning, data management, original manuscript writing, and project management. MC: methodology planning, critical revision of the manuscript. MaB: critical revision of the manuscript, editing, and project management. CB: validation, research, and critical review of the manuscript. CI: validation, research, critical review of the manuscript, and project supervision. AM: validation, research, critical revision of the manuscript, and project supervision.

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**Competing interests**

None of the authors declares conflicts of interest.

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This study did not receive funding from any institution.

**Protocol registry**

Not applicable.

**Ethics**

The ethics committee of our institution determined that its approval was unnecessary since the work only uses open-access data.

**Provenance and peer review**

Not commissioned. Externally peer-reviewed by two peer reviewers, double-blind.

**Language of submission**

Spanish.

**Data availability statement**

The databases used in this study are open-access and can be downloaded from https://www.fonasa.cl/sites/fonasa/documentos.

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# Radiografía al acceso en artroplastia de rodilla entre los beneficiarios del Fondo Nacional de Salud entre 2004 y 2021


## Resumen

**Introducción**

La artrosis de rodilla es una patología que afecta la calidad de vida, siendo la artroplastía de rodilla un tratamiento costo-efectivo para la etapa severa de esta enfermedad. El acceso a artroplastia de rodilla es un indicador de salud de la Organización de Cooperación y Desarrollo Económico. Los objetivos de este estudio son determinar la incidencia de artroplastia de rodilla entre 2004 y 2021 en los beneficiarios del Fondo Nacional de Salud en Chile, la proporción que se operaron en el sistema privado y estimar el gasto del bolsillo del paciente para operarse.

**Método**

Estudio transversal. Se utilizó la base de datos del Departamento de Estadística e Información de Salud. Se pesquisaron pacientes que egresaron de un centro de salud chileno que fueron intervenidos por artroplastia rodilla entre 2004 y 2021. Se analizó la proporción de pacientes por tramo del Fondo Nacional de Salud y si se realizó su cirugía en establecimiento de la red pública o privada.

**Resultados**

De las 31 526 intervenciones de artroplastia de rodilla, 21 248 (67,38%) fueron realizadas en pacientes del Fondo Nacional de Salud y 16 238 en instituciones públicas (51,49%). Los pacientes de dicho fondo presentan un alza sistemática en el volumen de artroplastías de rodilla hasta 2019, pero disminuyeron en 2020 y 2021 un 68% y un 51%. Del total de pacientes del sistema público operados de artroplastia de rodilla, 856 (9%) pertenecían al tramo A1, al tramo B 12 806 (60%), al tramo C 2044 (10%) y al tramo D 4421 (21%). Se estimó que el gasto incurrido por estos pacientes varía entre el 24,4 y 27,2%. Las proporciones históricas de acceso en instituciones privadas a esta cirugía son en el tramo A 7%, tramo B 13%, tramo C 24% y tramo D 52%.

**Conclusión**

El 50% de las cirugías de artroplastía de rodilla se realizan en instituciones públicas y dos tercios se realizan en pacientes del Fondo Nacional de Salud. El 46% de los tramos C y D se operaron en el sistema privado. La pandemia ha aumentado la brecha de acceso, lo que ha provocado un alza significativa en la proporción de pacientes del Fondo Nacional de Salud de los tramos B, C y D que han migrado al sistema privado para acceder a esta cirugía.