Association Between South Carolina Medicaid’s Change in Payment for Immediate Postpartum Long-Acting Reversible Contraception and Birth Intervals

Short interpregnancy intervals (defined variously as 6, 12, 18, or 24 months between pregnancies) are associated with adverse newborn outcomes. Immediate postpartum long-acting reversible contraception (IPP-LARC)—ie, receipt of an intrauterine device or contraceptive implant before hospital discharge following a birth—is recommended to reduce short interpregnancy intervals, but IPP-LARC use remains limited in the United States. Payers’ common practice of providing one global payment for all services during a delivery hospitalization may disincentivize IPP-LARC provision. In March 2012, South Carolina’s Medicaid program (covering 60% of the state’s births) began reimbursing hospitals for IPP-LARC separately from the global payment. We evaluated whether this change was associated with changes in IPP-LARC use and short-interval births.

This figure shows the percentage of women whose childbirth was paid for by Medicaid in a given month who received immediate postpartum long-acting reversible contraception (IPP-LARC) (panels A and B) and who had a short-interval birth (panels C and D). Short-interval birth is an indicator equal to 1 if there was less than a 21-month interval between delivery and subsequent birth. Each plot shows a trend line based on predicted values from 2 linear regression models (one line before the start of the Medicaid policy, from January 2010 through February 2012, and a second line starting the month after the policy change, from March 2012 through the end of the study period). The study period was January 2010 to December 2017 for IPP-LARC and from January 2010 to March 2016 for short-interval births. Vertical dotted lines at March 2012 represent the start of Medicaid’s IPP-LARC reimbursement policy change. Horizontal dotted lines represent a counterfactual postpolicy trend line that extends the linear prepolicy trend through the end of the study period. Percentage-point changes represent differences between the observed trend and the counterfactual trend during the last month of the study period. The percentage-point change in short-interval births is omitted for adults because no statistically significant change in trend in short-interval births was found for adults in regression analysis.
Methods | We used inpatient Medicaid claims data for all childbirth hospitalizations for women and adolescent girls aged 12 to 50 years between January 2010 and December 2017 in South Carolina. We identified IPP-LARC placement by an insertion and/or device code for a LARC device during hospitalization. We defined short-interval births as subsequent childbirths within 21 months (12-month interpregnancy interval plus 9-month gestation); only births through March 2016 were included to allow 21 months of observation for subsequent births.

We graphed trends in use of IPP-LARC and short-interval births before vs after the reimbursement policy change. An interrupted time series linear regression model included a linear time trend, a postpolicy indicator, and an interaction term to test the change in trend in outcomes after the policy change. Analyses adjusted for seasonality and autocorrelation and were stratified by age group (adolescents [<20 years] and adults [20-50 years]). Data were analyzed using Stata version 15 (Stata Corp). A 2-sided P < .05 defined statistical significance. The study was deemed exempt by the Harvard T. H. Chan School of Public Health Institutional Review Board.

Results | There were 242,825 childbirth hospitalizations, 5,795 IPP-LARCs, and 21,372 short-interval births during the study. In January 2010, 0.07% of women received an IPP-LARC (Figure). Following the policy change, the trend in IPP-LARC increased relative to the prepolicy trend (difference in trends before vs after policy change, 0.07 [95% CI, 0.05-0.08; P < .001] percentage points each month among adults and 0.10 [95% CI, 0.07-0.13; P < .001] percentage points each month among adolescents) (Table). In December 2017, 5.65% of adults and 10.48% of adolescents received an IPP-LARC, which corresponds to increases of 5.00 (95% CI, 3.85-6.14; P < .001) percentage points in adults and 8.32 (95% CI, 6.45-10.18; P < .001) percentage points in adolescents relative to that expected without the policy change (Figure).

In January 2010, 10.61% of births by adults and 13.10% of births by adolescents were followed by a short-interval birth (Figure). Adolescent short-interval births were increasing before the policy change and flattened afterward (difference in trends, −0.09 [95% CI, −0.14 to −0.03; P = .002] percentage points each month) (Table). In March 2016, 16.60% of adolescent births were followed by a short-interval birth, corresponding to a decrease of 5.28 (95% CI, −8.34 to −2.22; P = .001) percentage points relative to that expected without the policy change (Figure). In March 2016, 11.59% of births by adults were followed by a short-interval birth; there was no statistically significant change in trend in short-interval births for adults following the policy change (Table).

Discussion | South Carolina Medicaid’s shift to separate reimbursement for IPP-LARC was associated with increases in IPP-LARC initiation among adolescents and adults and flattening of the previously increasing trend in short-interval births among adolescents.

Limitations include that interrupted time series cannot exclude confounding due to other events occurring at the same time as the policy change. Data included Medicaid-funded services, and births paid by commercial payers could have been missed. Before the policy change, some IPP-LARC provision (ie, through training programs) could have occurred without claims. However, national survey data and reports from South Carolina support the finding of near-zero IPP-LARC use prior to the policy change.²

As of February 2018, 36 other states’ Medicaid programs have begun separately reimbursing for IPP-LARC,³ with calls for similar reforms from commercial payers.³ These findings suggest that IPP-LARC reimbursement could increase immediate postpartum contraceptive options and help adolescents avoid short-interval births.

Table. Changes in IPP-LARC and Short-Interval Births After South Carolina Medicaid’s Reimbursement Policy Change

<table>
<thead>
<tr>
<th></th>
<th>Baseline %a</th>
<th>Monthly Trend Before Policy, % (95% CI)b</th>
<th>Monthly Trend After Policy, % (95% CI)b</th>
<th>Difference in Trends, % (95% CI)b</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPP-LARC</td>
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<tr>
<td>Adults</td>
<td>0.09</td>
<td>0.00 (−0.01 to 0.02)</td>
<td>0.07 (0.06 to 0.07)</td>
<td>&lt;.001</td>
<td>0.07 (0.05 to 0.08)</td>
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<tr>
<td>Adolescents</td>
<td>0.00</td>
<td>−0.00 (−0.02 to 0.02)</td>
<td>0.10 (0.08 to 0.12)</td>
<td>&lt;.001</td>
<td>0.10 (0.07 to 0.13)</td>
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<tr>
<td>Short-Interval Births (&lt;21 mo Apart)</td>
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</tr>
<tr>
<td>Adults</td>
<td>10.61</td>
<td>−0.03 (−0.07 to 0.01)</td>
<td>&lt;.001</td>
<td>0.01 (−0.03 to 0.04)</td>
<td>.78</td>
</tr>
<tr>
<td>Adolescents</td>
<td>13.10</td>
<td>0.09 (0.05 to 0.14)</td>
<td>&lt;.001</td>
<td>0.01 (−0.03 to 0.04)</td>
<td>.78</td>
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Abbreviation: IPP-LARC, immediate postpartum long-acting reversible contraception.

a The baseline mean represents the mean from January 2010.
b The baseline mean represents the mean from January 2010.

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Survival of Patients With Liver Transplants Donated After Euthanasia, Circulatory Death, or Brain Death at a Single Center in Belgium

Transplantation of organs donated after euthanasia may help alleviate the critical organ shortage. However, aside from preliminary data on lung transplantation, data on graft and patient survival following transplantation of organs donated after euthanasia are unavailable. Because donation after euthanasia entails a period of detrimental warm ischemia that hampers graft survival, similar to donation after circulatory death, results after transplantation of this type of graft need to be carefully evaluated.

The 2002 Belgian Euthanasia Act legalized euthanasia in Belgium for patients who experience unbearable physical or mental suffering because of an irremediable illness and who are able to deliberately, voluntarily, and repeatedly express their euthanasia request. In 2009, the liver transplant unit at the University Hospitals Leuven started including donor livers from individuals who had voluntarily requested to donate their organs after euthanasia. We report on the clinical outcome of the initial series of liver transplants donated after euthanasia.

Methods | We retrospectively reviewed data for all adult solitary liver transplants at the University Hospitals Leuven between January 1, 2009, and December 31, 2015, and compared donor and recipient characteristics, ischemia time, and 3-year graft and patient survival after transplantation of livers obtained after donor euthanasia, circulatory death, or brain death. Graft loss was defined as retransplantation or graft failure leading to a recipient’s death. The final date of follow-up was April 25, 2019.

Continuous variables were analyzed using Kruskal-Wallis 1-way analysis of variance or Mann-Whitney U test, categorical variables were analyzed using χ2 or Fisher exact test, and graft and patient survival were analyzed using Kaplan-Meier curves and log-rank test. A 2-sided P < .05 was considered statistically significant. Analyses were performed using SPSS version 20 (IBM) and Prism version 8 (GraphPad Software). All transplant recipients provided written informed consent for data collection, and the study was approved by the University Hospitals Leuven’s ethical committee.

Results | Among 409 transplantations performed, 320 livers (78%) were donated after brain death, 78 (19%) after circulatory death, and 11 (2.7%) after euthanasia (Table), with donor median ages of 56 years (interquartile range [IQR], 46-68 years), 53 years (IQR, 44-61 years), and 44 years (IQR, 33-58 years), respectively (P = .09). All donor-related characteristics except for peak aspartate aminotransferase were similar among groups. Compared with livers donated after euthanasia, livers donated after circulatory death had longer median total donor warm ischemia time (20 minutes [IQR, 15-25 minutes] vs 13 minutes [IQR, 12-15 minutes]; P = .001) and longer median agonal warm ischemia time (10 minutes [IQR, 7-16 minutes] vs 3 minutes [IQR, 1-9 minutes]; P = .001), while median asystolic warm ischemia time was comparable. The median cold ischemia time during liver transplantation from euthanasia donors (4.84 hours [IQR, 4.10-6.20 hours]) was similar to that of circulatory death donors (5.30 hours [IQR, 4.58-6.25 hours]; P = .99) but was shorter than that of brain death donors (7.75 hours [IQR, 6.05-9.08 hours]; P = .002).

The median ages of recipients undergoing transplantation with livers donated after brain death, circulatory death, and euthanasia were 58 years (IQR, 48-65 years), 61 years (IQR, 52-66 years), and 64 years (IQR, 51-68 years), respectively (P = .33). The Model for End-stage Liver Disease score was similar between groups.

Liver transplantation after donor brain death, circulatory death, or euthanasia resulted in 3-year graft survival of 80.2% (95% CI, 75.4%-84.2%), 82% (95% CI, 71.6%-89%), and 90.9% (95% CI, 50.8%-98.7%) (P = .67) and 3-year patient survival of 86.1% (95% CI, 81.9%-89.5%), 84.6% (95% CI, 74.5%-91%), and 90.9% (95% CI, 50.8%-98.7%) (P = .84), respectively (Figure).