Surgeon Reimbursements in Maxillofacial Trauma Surgery: Effect of the Affordable Care Act in Ohio

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Background: Surgical treatment of maxillofacial injuries has historically been associated with low reimbursements, mainly because of the high proportion of uninsured patients. The Affordable Care Act, implemented in January of 2014, aimed to reduce the number of uninsured. If the Affordable Care Act achieves this goal, surgeons may benefit from improved reimbursement rates. The authors’ purpose was to evaluate the effects of the Affordable Care Act on payor distribution and surgeon reimbursements for maxillofacial trauma surgery at their institution.

Methods: A review of all patients undergoing surgery for maxillofacial trauma between January of 2012 and December of 2014 was conducted. Insurance status, and amounts billed and collected by the surgeon, were recorded. Patients treated before implementation of the Affordable Care Act were compared to those treated after.

Results: Five hundred twenty-three patients were analyzed. Three hundred thirty-four underwent surgery before implementation of the Affordable Care Act, and 189 patients underwent surgery after. After implementation of the Affordable Care Act, the proportion of uninsured decreased (27.2 percent to 11.1 percent; \( p < 0.001 \)) and the proportion of patients on Medicaid increased (7.8 percent to 25.4 percent; \( p < 0.001 \)). Overall, surgeon reimbursement rate increased from 14.3 percent to 19.8 percent \((p < 0.001)\).

Conclusions: After implementation of the Affordable Care Act, we observed a significant reduction in the proportion of maxillofacial trauma patients who were uninsured. Surgeons’ overall reimbursement rate increased. These trends should be followed over a longer term to determine the full effect of the Affordable Care Act. (Plast. Reconstr. Surg. 137: 613, 2016.)

The number of uninsured individuals in the United States has risen steadily in recent years, from 43.5 million in 2007 to 47.3 million in 2012.1 This increase was driven partially by the economic downturn, the increase in unemployment, and the decrease in the share of adults with employersponsored coverage.2 A recent estimate of the percentage of uninsured adults in the United States was 18 to 20 percent.1,3 Young adults are at particularly high risk of being uninsured.1

In the United States, 3 million maxillofacial injuries are treated every year.4 Treatment of maxillofacial injuries has historically been associated with low reimbursement rates.5 This is mostly because patients sustaining maxillofacial injuries have a high likelihood of being uninsured or covered by Medicaid. In an analysis of emergency department visits for maxillofacial injuries in the United States in 2007, Allareddy et al. found that only 37.5 percent of patients with maxillofacial injuries were covered by private insurance, whereas 12.9 percent were covered by Medicaid, and 26.4 percent were uninsured.6 The uninsured and underinsured are thus greatly overrepresented in maxillofacial trauma.7,8

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This results in a much lower reimbursement rate for maxillofacial trauma surgery than for other areas of plastic surgery. Erdmann et al. found a 24 percent reimbursement rate for maxillofacial injuries at their institution, compared with a 31.8 percent reimbursement rate for other plastic surgical specialties. Maxillofacial trauma surgery has even been found to result in an overall financial loss to some medical centers.

The Affordable Care Act of 2010 was designed with three main goals: to reduce the number of uninsured individuals, to increase the quality and affordability of health insurance, and to reduce overall health care costs. The reduction of uninsured individuals was designed to take place through a multiprong approach: an individual health insurance mandate, the expansion of Medicaid to all individuals earning less than 138 percent of the federal poverty level, the provision of premium subsidies to those earning between 139 percent and 400 percent of the federal poverty level, and the dependent mandate, which allows young adults to remain on their parents’ insurance plans until age 26. The dependent mandate was implemented in September of 2010, and the other provisions were subsequently implemented on January 1, 2014. The Kaiser Foundation and the Congressional Budget Office both estimated that the Affordable Care Act would decrease the number of uninsured people by 50 percent by 2016.

Halfway through 2014, the Affordable Care Act had already achieved some progress, lowering the nationwide rate of uninsured from 20 percent to 15 percent. If the Affordable Care Act achieves its goal, maxillofacial trauma surgeons may benefit from an improved reimbursement rate as the proportion of their patients who are uninsured decreases. Our goal was to determine the effects of the Affordable Care Act, most notably, the Medicaid expansion, the federal subsidies, and the individual mandate, on the payor mix and surgeon reimbursement rate for patients undergoing surgery for maxillofacial trauma at our institution.

**RESULTS**

A total of 523 patients satisfied the inclusion criteria and were analyzed. Three hundred thirty-four patients underwent maxillofacial trauma surgery in the 2 years preceding implementation of the Affordable Care Act, and 189 patients underwent surgery after.

After implementation of the Affordable Care Act, the proportion of uninsured patients decreased significantly, from 27.2 percent to 11.1 percent ($p < 0.001$). In contrast, the proportion of patients on Medicaid increased significantly, from 7.8 percent to 25.4 percent ($p < 0.001$). The proportions of patients on workers’ compensation (from 3.6 percent to 3.2 percent), private insurance (from 52.7 percent to 55.0 percent), Medicare (from 7.8 percent to 4.8 percent), and Tricare (from 0.9 percent to 0.5 percent) did not change significantly after implementation of the Affordable Care Act.

Throughout the two periods, the payor with the highest reimbursement rate was workers’ compensation (34.1 percent), followed by private insurance (20.6 percent), Tricare (12.5 percent), Medicare (18.2 percent), Medicaid (9.8 percent), and uninsured patients (0.2 percent). After implementation of the Affordable Care Act, the reimbursement rate increased significantly in patients covered by workers’ compensation (from 31.8 percent to 38.7 percent; $p < 0.001$), private insurance (from 19.5 percent to 22.8 percent; $p < 0.001$), Medicaid (from 8.3 percent to 12.9 percent; $p < 0.001$), and Tricare (from 11.0 percent to 15.0 percent; $p < 0.001$). The reimbursement rate for patients on Medicare did not change significantly (from 18.4 percent to 17.9 percent; $p = 0.5$).

The average dollar amount billed by surgeons per procedure did not change significantly, but the average dollar amount collected increased 40 percent. As a result, the overall reimbursement

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**PATIENTS AND METHODS**

After approval by the institutional review board, a review of all consecutive patients undergoing surgery for maxillofacial trauma at our institution over a 3-year period (January of 2012 to December of 2014) was conducted. Prisoners were excluded, as they are covered by a special insurance plan that is not affected by the Affordable Care Act. Insurance status, amount billed by the surgeon, and amount collected by the surgeon were recorded by procedure, payor, and time period. Only surgical billing was analyzed. Reimbursement rate, defined as the amount collected divided by the amount billed, was calculated. Reimbursement rate was chosen as our primary measure, as it would not be expected to change as a function of time or inflation. Patients treated before implementation of the Affordable Care Act were compared to patients treated after implementation of the Affordable Care Act, using chi-square analysis, with a value of $p < 0.05$ constituting a threshold for statistical significance.
rate for all patients increased significantly after implementation of the Affordable Care Act, from 14.3 percent to 19.8 percent ($p < 0.001$). Nineteen percent of this increase in reimbursement rate was attributable to the drop in the number of uninsured patients and the concurrent increase in the number of patients on Medicaid. The remaining 81 percent was attributable to improved reimbursement rates in patients on workers’ compensation, private insurance, and Tricare (Fig. 1).

After implementation of the Affordable Care Act, there was a significant increase in the reimbursement rate across all types of procedures: laceration repairs (from 13.9 percent to 20.2 percent; $p < 0.001$), frontal sinus repairs (from 9.0 percent to 28.8 percent; $p < 0.001$), nasal fracture repairs (from 8.3 percent to 23.9 percent; $p < 0.001$), naso-orbitoethmoid fracture repairs (from 8.2 percent to 11.4 percent; $p < 0.001$), midfacial fracture repairs (from 15.9 percent to 20.4 percent; $p < 0.001$), and mandible fracture repairs (from 13.9 percent to 18.5 percent; $p < 0.001$) (Fig. 2).

**DISCUSSION**

Tremendous uncertainty regarding the effects of the Affordable Care Act on plastic surgery remains: in a recent survey of 507 members of the American Society of Plastic Surgeons, 66 percent of responders gave the Affordable Care Act a grade of D or F. Our aim was to determine the short- to intermediate-term effects of the Affordable Care Act on physician reimbursemens and payor mix in the area of plastic surgery that has been historically fraught with the lowest reimbursement rates and the highest rates of uninsured and underinsured, namely, maxillofacial trauma.

The payor distribution for our patient population changed significantly after implementation of the Affordable Care Act. There was a significant reduction in the proportion of uninsured. It is impossible to determine how much of this reduction was attributable to the dependent mandate, the individual health insurance mandate, the provision of premium subsidies by the federal government, or the expansion of Medicaid. However, given the almost equal increase in the proportion of patients on Medicaid, it seems plausible that most of the reduction in the number of uninsured at our institution was attributable to the expansion of Medicaid in our state, which is one of 25 states, in addition to the District of Columbia, that have expanded their Medicaid programs to all those earning less than 138 percent of the federal poverty level.

In addition to the changes in payor distribution, there were significant increases in reimbursement rates across several payor types, namely, workers’ compensation, private insurance, Medicaid, and Tricare. It is easy to understand why the Medicaid reimbursement rate increased, because the Affordable Care Act mandated temporary increases in Medicaid reimbursement, paid for by the federal government. The increase in reimbursement by the other insurance providers were likely attributable to the 80/20 rule, which was implemented as
part of the Affordable Care Act. This rule requires all insurance companies to spend at least 80 percent of the money they earn from premiums on health care–related activities, such as reimbursing providers, rather than on administrative costs, overhead, and advertising. The ratio of dollars spent on benefits divided by total premium dollars, known as the “medical loss ratio,” has increased for several health insurance companies since implementation of the Affordable Care Act.\(^\text{15,16}\)

Overall, the reimbursement rates for maxillofacial trauma surgery increased significantly after implementation of the Affordable Care Act, and this increase was evident across all types of maxillofacial trauma procedures. We found that over 80 percent of this improved reimbursement was attributable to higher reimbursement rates by the highest paying insurance types, namely, workers’ compensation and private insurance. The reduction in the number of uninsured patients had a minor role in the overall improved financial performance of maxillofacial trauma surgery, contributing less than 20 percent of the improved reimbursement rate.

Critics of the Affordable Care Act argue that the expansion of Medicaid simply replaced the uninsured with underinsured. It is known that Medicaid reimbursements are very low. As a result, patients with Medicaid often have less access to health care and more complications than patients covered by higher paying insurance plans, as many health care providers tend to be reluctant to accept patients on Medicaid. Waits et al. have previously shown that Medicaid patients underwent significantly more emergent operations, and experienced significantly more complications, than patients with private insurance plans.\(^\text{17}\) Similarly, Binsaier and Rhodes found that patients on Medicaid had significantly worse access to health care, and much longer wait times, than patients with private health insurance.\(^\text{18}\) Medicaid patients often present later, and with more advanced disease, than patients with private insurance.\(^\text{19}\) In contrast, Baicker et al. compared adults who benefited from Oregon’s lottery-based Medicaid expansion in 2008, to adults who did not.\(^\text{20}\) Patients in the Medicaid expansion had improved preventive screening and decreased catastrophic out-of-pocket medical expenses compared with uninsured patients who did not benefit from the Medicaid expansion. Having Medicaid therefore is better than not having insurance at all, but it certainly does not provide its beneficiaries with access and outcomes equal to those of patients with private insurance.

Hospitals that care for large numbers of uninsured and Medicaid patients, known as safety net hospitals, have historically been compensated by the government for caring for the indigent with additional payments termed “disproportionate share” payments. As part of the Affordable Care Act, disproportionate share payments will be decreased significantly between 2014 and 2020.\(^\text{21}\) Although most areas of plastic surgery

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**Fig. 2.** Reimbursement rate for maxillofacial trauma surgery before and after implementation of the Affordable Care Act (ACA), by procedure type. NOE, nasoorbitoethmoid.
may not be greatly affected by this reduction in disproportionate share payments, maxillofacial trauma surgery, which treats large numbers of uninsured patients, may incur financial losses. This raises major concerns regarding equality in health care access over the next few years: will patients with Medicaid have even less access to care, as more providers refuse to care for them? It should be noted that disproportionate share payments are made to hospitals, not physicians, but the decreasing disproportionate share payments will likely affect hospital-employed physicians in the future. In particular, in the face of rising numbers of patients on Medicaid and decreasing disproportionate share payments, safety net hospitals may encounter greater financial challenges.

Our study has multiple limitations. Our analysis does not reveal the individual impacts of the dependent provision, individual mandate, Medicaid expansion, and premium subsidies on the rate of uninsured. The dependent provision is one of the measures instituted in 2010 rather than 2014, and its effects have previously been studied: Scott et al. found that, after institution of the dependent coverage provision, the rate of uninsurance in young trauma patients decreased by 3.4 percent, but their outcomes did not improve. Our study also may not be generalizable to other institutions, especially those located in states that did not institute a Medicaid expansion. In addition, our results apply to maxillofacial trauma patients, and may not apply to other trauma patients. There was a relative overrepresentation of patients on Tricare and workers’ compensation in our study compared with other institutions, reflecting the proximity to our institution of several manufacturing plants and military bases. We studied the effect of the Affordable Care Act on physician reimbursements, but not hospital reimbursements, which are handled by a different entity at our institution. As a result, hospital reimbursements may not have followed the same pattern after implementation of the Affordable Care Act. Another limitation of our study is its relatively short duration, as it reveals the effects of the Affordable Care Act after 1 year. We will plan to perform longer term studies to fully elucidate the effects of the Affordable Care Act on maxillofacial trauma surgery.

CONCLUSIONS

At the conclusion of the first year after full implementation of the Affordable Care Act, we have observed a reduction in the proportion of uninsured and an increase in the proportion of patients on Medicaid. Improved reimbursements by most insurance providers have resulted in a significant increase in our surgeons’ overall reimbursement rate for maxillofacial trauma surgery. The payor mix and reimbursement rates for maxillofacial trauma and other plastic surgical subspecialties should be followed over the next few years to fully delineate the effects of the Affordable Care Act.

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