

# Single Visit Evaluation and Tympanostomy Tube Placement for the Treatment of Acute Otitis Media in Children

Kathleen R. Billings, MD, FACS, FAAP ; John Hajduk, BS; Dana M. Thompson, MD, MS, MBA

**Objective:** To review our experiences with development of a single visit surgery (SVS) program for children with recurrent acute otitis media (AOM) undergoing tympanostomy tube (TT) placement the same day as their otolaryngology surgical consultation.

**Study Design:** Retrospective cohort analysis.

**Methods:** Retrospective series of patients participating in SVS from inception March 1, 2014 to April 30, 2020 were analyzed, with attention to factors associated with increasing interest and participation in SVS and parent experiences/satisfaction.

**Results:** A total of 224 children had TT placed through SVS for AOM management. The average age of patients was 18.1 months (standard deviation 7.8 months), and 130 (58.0%) were male. The median interval between initial contact to schedule SVS, and the SVS date was 15 days (interquartile range 9–23 days). When analyzing year-over-year volumes from inception of SVS, notable increases were seen in 2016 and 2017 after a radio advertisement was played locally. A marked increase in volume was noted after implementation of a Decision Tree Scheduling (DTS) algorithm for children with recurrent AOM. Sixty-six (28.8%) procedures were performed after institution of DTS. A parent survey demonstrated high levels of satisfaction with the SVS experience. Estimations of savings to families in terms of time away from work demonstrated potential for indirect healthcare benefits.

**Conclusions:** SVS for TT placement was a successful, alternative model of care for management of children with AOM. Marketing strategies regarding SVS, and the inclusion of SVS pathway in DTS platforms increased rates of interest and choice of this option. Parents of children undergoing TT through SVS were satisfied with the overall experience.

**Key Words:** Recurrent acute otitis media, tympanostomy tubes, single visit surgery, Decision Tree, healthcare marketing.

**Level of Evidence:** 4

*Laryngoscope*, 131:2823–2829, 2021

## INTRODUCTION

Single visit surgery (SVS) or “one-stop surgery” is an example of an innovative healthcare delivery model that has been associated with excellent patient satisfaction ratings and cost-savings to caregivers.<sup>1–5</sup> In this approach, the patient sees their surgeon for preoperative consultation on the same day as their surgical procedure. The SVS model was first described by Tagge et al<sup>6</sup> in 1999, who reported their experiences performing a variety of uncomplicated pediatric surgical procedures on 51 patients. The authors felt that providing high-quality surgical and anesthetic care to their patients through a “one-stop surgery” approach could be meaningful adjunct to pediatric surgical practices.

From the Division of Pediatric Otolaryngology-Head and Neck Surgery (K.R.B., D.M.T.), Ann & Robert H. Lurie Children’s Hospital of Chicago, Chicago, Illinois, U.S.A.; Feinberg School of Medicine (K.R.B., D.M.T.), Northwestern University, Chicago, Illinois, U.S.A.; and the Department of Pediatric Anesthesiology (J.H.), Ann & Robert H. Lurie Children’s Hospital of Chicago, Chicago, Illinois, U.S.A.

Editor’s Note: This Manuscript was accepted for publication on June 22, 2021.

The authors have no other funding, financial relationships, or conflicts of interest to disclose.

Accepted as a Triological Society Thesis, February 2021.

Send correspondence to Kathleen R. Billings, MD, FACS, FAAP, Feinberg School of Medicine, Northwestern University, Chicago, IL. E-mail: kbillings@luriechildrens.org

DOI: 10.1002/lary.29714

Descriptions of SVS programs have centered on pediatric surgical procedures such as umbilical and inguinal hernia repair, in which diagnoses are often easily recognized by the referring provider and often translate to a surgical procedure.<sup>2–8</sup> Similarly, single visit programs have been successfully implemented and described in adults for procedures including laparoscopic hernia repair<sup>9</sup> and dermatologic surgery.<sup>10</sup> SVS for tympanostomy tube (TT) placement in children with recurrent acute otitis media (AOM) was developed at our institution. In our initial feasibility study,<sup>1</sup> patients were prescreened with questions based on clinical practice guideline (CPG)<sup>11,12</sup> recommendations to determine if they met criteria for TT placement and were subsequently seen for their initial, confirmatory consultation with the otolaryngologist on the day of their planned surgery. This initial proof-of-concept pilot study demonstrated that patients undergoing TT placement through the standard pathway waited twice as long for definitive operative intervention than SVS patients.<sup>1</sup> By streamlining scheduling, the goal was to shorten the time to definitive care for a child’s AOM, decrease the number of office visits, with resultant missed days of work, missed daycare, and decrease travel-related expenses with anticipation of an improved family experience.

The primary goal of this study was to describe the establishment and lessons learned in the development of

SVS over a 6-year period. Second, in the era of consumerism in medicine, we aimed to determine the impact of information dissemination strategy through direct to consumer marketing and social media campaign on community awareness, and the growth of the program as a family friendly alternative care model. Third, we aimed to determine if implementation of CPG based Decision Tree Scheduling (DTS) for AOM influenced parent/caregiver choice of the SVS option for their child's care, and if

the overall streamlined SVS scheduling approach decreased duration of time to definitive surgical intervention. Finally, we aimed to evaluate patient/caregiver satisfaction and experience, and to understand potential indirect and direct healthcare cost benefits of SVS. The authors hypothesize that the SVS is a convenient, alternative healthcare delivery model associated with high levels of parent experience/satisfaction and potential cost savings for families.

**Radio Ad:** Target Audience: Women ages 25-49; paid Spots per Week: 100x; ran Feb 1-March 31, 2016

Two ads; both directed people to website and phone number

Female voice explaining how things sound with chronic ear infections; boy talking about ear tube surgery

Total impressions: 9,187,200

**Print Ad:** Full page ads; Journal A, 11,000 circulation, Journal B, 100,000 circulation; directing to website and phone number

Vanity link used in radio and print generated 40 web visits

**Search Engine Marketing:** Regional audience; ran from February 9-March 31, 2016; ads directed appropriately to mobile or desktop

Display ads: tightly targeted to webpages addressing ear infection treatment for children

Search ads: targeted searchers interested in children's chronic ear infection symptoms and ear tube surgery

Total impressions: 256,132; display ads received more impressions; lower click through rate; search ads were the most valuable in terms of click through rate; keywords with a strong surgery-focused intent performed best

**E-mail:** "What's New" E-mail; sent January 19, 2016; 11% open rate (on par for average open rate)

0.48% click rate; 63 total clicks

**Facebook:** Posted February 25, 2016; 28,000 people reached; 18,000 SVS video views; 31 link clicks; 670 likes, comments and shares

**Website:** Updated the Ear Tube Surgery webpage; created a mobile-friendly version of the page; created tracked vanity link

#### **Results of 2016 Marketing Campaign:**

**All Video Views:** More views than in 2015; largest referrer was YouTube search (not organic Google searches or hospital website)

YouTube views increased by 65%; Hospital website views increased by 59%

Number of cases increased by 137: 866 in 2016 versus 729 in 2015 for total TT placement (19% increase compared to 2015)

#### **Results of 2017 Marketing Campaign (similar Ad content as 2016):**

Number of SVS cases increased by 59%: 17 in 2016 versus 27 in 2017; peak in April

Fig. 1. Marketing tools used to increase awareness of SVS care pathway. Campaign elements ran from January 9–March 31, 2016 and 2017 to coincide with seasonal need for TT insertion (Marketing vehicles: Radio, Print, Search Engine Marketing, E-mail, Facebook, Website). [Color figure can be viewed in the online issue, which is available at [www.laryngoscope.com](http://www.laryngoscope.com).]

## METHODS

This study was approved by the Institutional Review Board (IRB #2020-3810) of Ann & Robert H. Lurie Children's Hospital of Chicago. This is a retrospective case series of consecutive patients undergoing TT placement through SVS. Patients could select for participation in this pathway if they were healthy children <5 years of age, with no comorbidities or syndromic conditions, and if they met criteria for TT placement based on CPG criteria.<sup>11</sup> Patients were excluded from choosing the SVS pathway option if they had undergone previous TT placement or had health issues requiring subspecialty clearances. These children were offered routine Otolaryngology clinical consultations to discuss TT candidacy.

The electronic health records (EHRs) of those with recurrent AOM participating in SVS between March 1, 2014 and April 30, 2020 (n = 224/229 total SVS patients) were reviewed for study group demographic and descriptive data, including gender, age, race/ethnicity, insurance product, day care attendance, family history of AOM or TT placement, number of AOM episodes in the past 6 months and 1 year, subjective hearing loss and/or speech delay concerns, and presence of middle ear effusions on operative evaluation.

To determine if streamlined scheduling through SVS shortened the duration to scheduling, a "time frame" analysis was completed including time between initial patient phone assessment for candidacy and SVS date. The average duration of time from scheduling a routine office visit to surgery date was analyzed for 224 age/gender/insurance/date-of-service product best-matched children undergoing TT through the standard approach for comparison to SVS. Comparisons between SVS and non-SVS groups were completed.

### Information Dissemination

To determine if community awareness tactics (Fig. 1) impacted the growth of the program, volume trends were analyzed for rates of patient participation following direct to consumer marketing campaign strategy, which included a radio advertisement played on local stations between February–March 2016 and again in 2017.

### Decision Tree Scheduling

A pre-/postimplementation analysis was done to determine the impact of CPG-based DTS scheduling on parental choice of SVS after the SVS DTS option was implemented. Institutional centralized DTS processes began November 12, 2019, and the AOM DTS maintained the same scheduling inclusion and exclusion criteria set forth at the initiation of SVS and allowed for a scheduler, without clinical background, to streamline access for evaluation and SVS candidacy consideration.

### Parent Satisfaction Survey

Survey methodology was utilized to determine the impact of SVS model on parent satisfaction and experience. All eligible parents were identified through the EHRs for participation in the survey. Parents were sent an introductory email, followed by a link to a Red Cap survey for those with listed/collected email addresses. Surveys were resent (via email or mail) two more times to nonrespondents a week apart. The survey collected information on how parents learned about the program, perceived advantages and disadvantages, and satisfaction.

### Cost/Reimbursement Analysis

To explore potential direct costs associated with SVS, the charges and reimbursement rates for the components of SVS

(office visit and surgery) were analyzed for 220 patients. The incidence of bundled billing, patient/parent responsibility billing, and surgery/office components of SVS billed separately were recorded. An analysis of potential direct healthcare benefits stemming from seeing an additional 229 patients in open clinic slots was performed to estimate the unrealized gains by shifting patients to SVS model.

To test the hypothesis that the SVS model led to cost savings to families, an indirect cost analysis was done by calculating median household incomes by zip code in the past 12 months from data extracted from the 2014 to 2018 American Community Survey (ACS) in 2018 inflation-adjusted dollars.<sup>13</sup> Potential savings to families not having to miss an additional day of work for a separate office visit were then estimated.

### Statistical Analysis

Normally distributed interval data were reported as mean (standard deviation [SD]) with comparisons made using an independent Student's *t* test. Non-normally distributed data were reported as median (range or interquartile range [IQR]) and analyzed using the Mann-Whitney *U* test. Categorical data were presented as counts (n) and were analyzed using Fisher's exact test using SPSS (IBM SPSS Statistics for Windows, IBM Corp. 2017. Version 25.0. Armonk, NY). Figures were created in Microsoft Excel (Microsoft Corporation. 2018. *Microsoft Excel*). A *P* value <.05 was considered significant.

## RESULTS

A total of 224 patients who underwent TT for a diagnosis of recurrent AOM through SVS were analyzed. The average age for participants was 18.1 months (SD 7.9 months, median 16 months) and ranged from 7 to 58 months. Only eight patients (3.6%) were ≥36 months of age. Patient features are shown in Table I.

The duration between initial contact with parents and the SVS date averaged 16.5 days (median 15 days; IQR 9–23 days). There were no differences in baseline characteristics between the study and age, gender, and insurance-product matched cohorts (*P* = .14, .92, and .15, respectively). When comparing outcome measures, the

TABLE I.  
SVS Patient Characteristics.

Characteristic	Analyzed	Total (n = 224)	Percentage of Patients
Gender	Male	130	58.0
	Female	94	42.0
Ethnicity	Non-Hispanic/Latino	205	91.5
	Hispanic/Latino	19	8.5
Race	White	193	86.2
	Other	24	10.7
	African American	5	2.2
	Asian	2	0.9
Insurance product	Blue Cross/Blue Shield	124	55.4
	Managed Care	62	27.7
	Medicaid	36	16.1
	Not available	2	0.9

duration between scheduling an initial office visit to definitive surgical intervention was significantly longer (median 23 days, IQR 14–34 days,  $P < .01$ ) in the matched cohort than the SVS patients. Eighteen (8.0%) SVS

patients were seen within 5 days or less of their initial contact, and 18 (8.0%) a month (>30 days) outside of their initial contact. Due to illness and subsequent rescheduling, four patients were outliers for duration between scheduling and SVS date. These patients were rescheduled an average 28 days (range 28–29 days) after their initial cancelation.

Many participants ( $n = 173$ , 77.2%) attended daycare. A total 106 (47.3%) patients had a family history of AOM, with 52 (23.2%) reporting a family member who had TT placement. Middle ear fluid was present in one or both ears in 192 (85.6%) patients at the time of surgery (Table II). Patients had an average of 4.5 and 5.5 bouts of AOM in the 6 and 12 months prior to their TT placement, respectively (Table III). There were zero “no-shows,” one fasting violation (delaying the procedure by 1 hour), and several late arrivals who were able to be accommodated with no delays in the operating room start time by adjusting the order of scheduled patients.

An analysis of year-over-year patient volumes for all SVS patients ( $n = 229$ ) from the inception of the SVS program in March 2014–April 2020 is shown in Figure 2. An increase in the number of patients participating in SVS was seen in April/May 2016 and 2017 following radio advertisement in February–March of these years. A marked increase in patients was seen after DTS was implemented November 12, 2019. Sixty-six (28.8%) TT-eligible patients underwent placement through SVS after this “go-live” date for DTS.

A parent survey was performed with 45 (19.7%) parents completing responses (Table IV). Twenty-eight (62.2%) indicated they would typically pull their child out of daycare or miss a day of work (68.9%) for a doctor visit. All parents were very satisfied or satisfied with the experience and would recommend it to a friend.

A cost/reimbursement analysis was performed for 220 patients. The median office visit charge for SVS patients was \$428 (IQR \$407–\$584), with a median

TABLE II.  
SVS Patient Clinical Features.

Patient	Characteristic	Total (n = 224)	Percentage of Patients
Daycare attendance	Yes	173	77.2
	No	51	22.8
Family history of otitis media	Yes	106	47.3
	No	118	52.7
Family history of TT placement	Yes	52	23.2
	No	172	76.8
Speech concerns	Yes	55	24.6
	No	169	75.4
Hearing concerns	Yes	28	12.5
	No	196	87.5
Middle ear fluid at TT surgery	Bilateral	152	67.9
	Unilateral-right	27	12.1
	Unilateral-left	13	5.8
	None present	32	14.3

TABLE III.  
AOM Frequency.

Variable	# of AOM Episodes in 6 Months	# of AOM Episodes in 1 Year
Median (IQR)	4 (4–5)	5 (4–6)
Average (SD)	4.5 (1.3)	5.5 (1.7)

### SVS Surgical Volumes

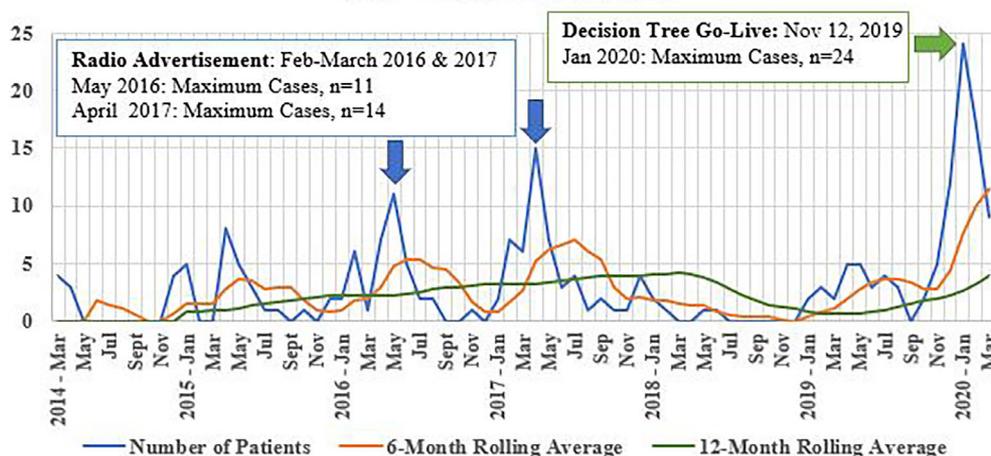


Fig. 2. A year to year analysis of SVS cases showed the impact of radio advertisement (blue arrows) and Decision Tree Scheduling (green arrow) on SVS volumes (higher volumes noted in late winter season as might be expected with the cold/flu seasonal variations).

TABLE IV.  
Results of the Parent Survey.

Survey Question	Possible Responses	Responses n (%)
How did you hear about the Single Visit Ear Tube surgery program? (pick all that apply)	1. Primary care physician (pediatrician) referral	24 (53.3)
	2. Hospital website	10 (22.2)
	3. Notification by otolaryngology APN	3 (6.7)
	4. Radio advertisement	5 (11.1)
	5. Told of option when calling for appointment	4 (8.9)
	6. Other (please describe)*	6 (13.3)
Did you have any particular concerns about the Single Visit Surgery option?	1. No major concerns	32 (71.1)
	2. Some concern	13 (27.3)
	2.1. Concerns about anesthesia	10/13 (76.7)
	2.2. Never having met the physician prior to the day of surgery	9/13 (69.2)
	2.3. Not knowing what to expect with the day/procedure	4/13 (30.1)
What do you perceive as the biggest advantage of the Single Visit surgery program?	2.4. Other (please describe)†	2/13 (15.4)
	1. Not having to miss as much work	8 (18.2)
	2. Not having to pull my child out of school/daycare	1 (2.3)
	3. Scheduling a procedure to resolve my child's problem more quickly	34 (77.3)
Did you perceive any disadvantages of the Single Visit program?	4. Other (please describe)‡	2 (4.5)
	1. Yes (please describe)§	1 (2.2)
	2. No	44 (97.8)
	How satisfied were you with the clinic visit prior to the surgery?	1. Very satisfied
2. Satisfied		6 (13.3)
3. Neither satisfied or dissatisfied		—
4. Dissatisfied		—
5. Very dissatisfied		—
Were all your questions answered about the procedure during the clinic visit?	1. Yes	45 (100)
	2. No	—
How satisfied were your experiences in the preoperative area and the postanesthesia care unit?	1. Very satisfied	39 (86.7)
	2. Satisfied	6 (13.3)
	3. Neither satisfied or dissatisfied	—
	4. Dissatisfied	—
	5. Very dissatisfied	—
Overall, how satisfied were you with the overall efficiency of the Single Visit Surgery process?	1. Very satisfied	40 (88.9)
	2. Satisfied	5 (11.1)
	3. Neither satisfied or dissatisfied	—
	4. Dissatisfied	—
	5. Very dissatisfied	—
Would you recommend the same day surgery process to your friends?	1. Yes	45 (100)
	2. No	—

\*Hospital employee (2), Family/friend (2), Facebook group (1), Urgent care (1), Surgeon referral (1).

†Worried specialist would decide child did not need surgery.

‡Convenient and easy, less travel time (lives 2 hours away).

§Time slots not available.

surgery charge of \$1548 (IQR \$1502–\$1548). Detailed reimbursement rates are not shown, as there was significant variability in rates based on the insurers, deductibles, co-pays, and out-of-pocket expenses. Most cases (n = 157, 71.4%) were billed in typical fee-for-service model with separate office visit and surgical components (Fig. 3).

An offset analysis of direct healthcare benefits by seeing an additional 229 patients in open clinic slots not utilized by SVS patients (assuming a typical 4:1 conversion rate to surgery for patients seen in the office) showed

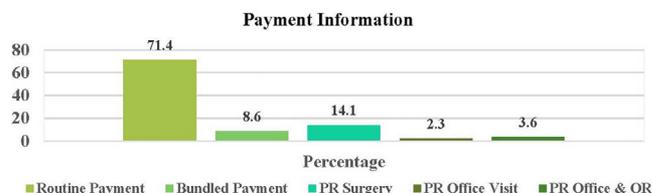


Fig. 3. Percentage of patients with typical fee-for-service insurer payments, bundled payments, or patient responsibility (PR) payments for SVS (data not available for nine patients billed through a prior service). [Color figure can be viewed in the online issue, which is available at [www.laryngoscope.com](http://www.laryngoscope.com).]

an estimated increased gain of \$393,880. Based on insurance products, indirect healthcare expenditure savings to families were estimated, at a median rate of \$337.91 (IQR \$282.47–370.81) of a weekly income, assuming the family member did not have to take a second day off work for a separate preoperative consultation by participating in SVS.

## DISCUSSION

The SVS program was established as an alternative model of care for the management of children with recurrent AOM who met criteria for TT placement. This study expands beyond the initial feasibility study<sup>1</sup> to represent one of the largest series of children undergoing a surgical intervention via a “one-stop” approach, and, to our knowledge, the only otolaryngology procedure being performed via this care pathway. Our experiences show this model of care to be a successful and streamlined alternative approach in the care of children with AOM, with potential indirect benefits to the child and family. Additionally, the process does not sacrifice parent satisfaction with the overall experience. Program growth was realized through two tactics: direct to consumer facilitated community awareness, and DTS facilitated ease of scheduling for the patient/family. This model has the potential to be adapted by other children’s hospitals aiming to improve access, create patient-centric value, and demonstrate innovation as a market differentiator in the era of consumerism in medicine, where families have choices.

TT placement is ideally suited for SVS as the diagnostic criteria for AOM, and the guidelines for consideration for TT are well established.<sup>11,12,14</sup> TT placement is the most common surgical procedure performed in the United States with 667,000 children younger than 15 years of age undergoing the procedure annually.<sup>11,15</sup> It has been reported that almost 1 of every 15 children <3 years of age will have TT placed, and this risk doubles with daycare attendance.<sup>11,16</sup> Given these statistics, there is potential for large numbers of patients who might be referred for SVS benefitting from a streamlined patient centric model. TT procedures were readily preauthorized with no denials. These factors increased the ease of scheduling SVS procedures for families in a timely fashion and potentially decreased the time a child spent with AOM while awaiting their TT placement. SVS programs provide opportunities for patients to pair with the right physician for their problem, with the idea that streamlined care leads to happier and healthier patients overall.

One of the lessons learned with evolution of the SVS program was focusing patient selection to those children with recurrent AOM. Inclusion of patients with a diagnosis of OME was considered, with 5/229 patients with a history of otitis media with effusion (OME) undergoing TT placement via SVS. However, given that OME is a diagnosis where observation for resolution of effusion is a viable treatment alternative, it was felt that this diagnosis was not as well suited for SVS as recurrent AOM. All patients with OME had either speech or hearing concerns, and all had effusions present for >3 months duration. Although these patients were good candidates for

TT placement based on guidelines,<sup>14</sup> our preference was to suggest our traditional access model and consultation for this subset of patients to allow for audiometric testing and observation of the child’s middle ear fluid. Perhaps future modification of the DTS could incorporate on-site or other innovative remote audiometric screening.<sup>17</sup>

By combining the care episode, office visit, and surgery, into a one-stop approach, patient/family convenience, healthcare burden, and cost-saving opportunities are accrued. Indirect healthcare benefits with our SVS program included opportunities for the parent (not having to miss an additional day of work), and the child (not having to miss as much school/daycare). Cost savings advantage to SVS programs relate to subtracting the cost of travel and missing work or school for a standard, separate preoperative consultation from the overall healthcare expense. Based on our analysis, the median revenue lost to the family ranged from \$282.47 to \$379.81 (20% of a weekly income) should a parent take an extra unpaid day off work for a separate preoperative consultation. Time/expense savings related to transportation and parking in a large urban location were an additional benefit. These benefits are not insignificant to families when multiplying this expense by the total number of SVS-potential-children having TT placed annually.

Our patients were scheduled a median of 15 days after their initial request for consultation. Our comparison group of 224 children undergoing routine (separate office visit and surgery date) TT placement showed a significantly longer duration of time (median 23 days) between initial contact for an appointment and a definitive surgical intervention. Seeing a child sooner for the management of recurrent AOM, and the incumbent impact on the child’s overall health and well-being, is a potential advantage of SVS. Means of reducing episodes of AOM could substantially decrease incremental healthcare costs related to this diagnosis. In their analysis of costs related to AOM episodes in children across the nation, Ahmed et al<sup>18</sup> reported an additional +2.0 office visit, +0.2 emergency department visits, and +1.6 prescription fills per year in children with AOM versus those without. Substantial healthcare saving could be accrued when considering the reduction in AOM reported in children undergoing expedited TT placement, with estimated decreases from 0.20 to 2.5 AOM episodes per child year.<sup>19</sup>

### *Information Dissemination*

In the age of consumerism in medicine, there has been a notable increase in direct-to-consumer marketing tactics and advertisement. To enhance community awareness of this differentiated care mode in our primary service area, our institutional marketing team proposed similar tactics used by others.<sup>20,21</sup> McNeely et al<sup>22</sup> suggested that surgeons using social media in the professional domain as a modality for rapid communication about unique services, professional development, advocacy, and innovation. Although TT placement is not an innovative approach to caring for children with AOM, the novelty of a rapid-care pathway may potentially appeal to families of acutely affected children. Marketing appeared

to increase the overall total rate of TT procedures at the institution even outside SVS, emphasizing the impact of direct to consumer appeal and marketing on promoting innovative programs that differentiate care.

### Decision Tree Scheduling

The development of DTS, with the option to be evaluated for SVS candidacy in those with recurrent AOM, resulted in a significant increase in volumes of patients choosing the pathway. Predictive scheduling models (such as DTS) support institutional access models and philosophy with the goal of pairing the patient with the right provider, at the right location, with the right diagnosis for streamlined access to definitive medical or surgical care. With DTS appropriate candidates were readily identified, and in a 6-month period 66 (28.8%) of the total patients, who met CPG criteria for TT placement, chose SVS for access and treatment. Future expansion of the DTS model to include online scheduling access could enhance patient convenience with the process by utilizing the decision tree to set criteria for level of urgency, amount of complexity, and anticipated length of appointments.<sup>23</sup>

### Parent Experience/Satisfaction

Parent experience and satisfaction with SVS were assessed with a survey. Most parents reported that they learned about SVS through their primary care provider (54.5%), and others through the hospital website, the radio ad, and the DTS option when calling for their appointment. Because of the low survey response rate, the full impact of SVS direct to consumer marketing and social media outlets were not able to be fully elucidated. Most parents (n = 34, 75.6%) cited the ability to schedule a procedure to resolve the child's problem promptly as the biggest advantage of SVS. All parents were very satisfied or satisfied with the preoperative care, the perioperative care, and the overall efficiency of the process.

Limitations of this study are related to its retrospective nature, although significant value was gained in reviewing and learning how best to establish SVS and selection criteria for patient participation. Not all SVS patients had middle ear effusions when their TTs placed. Clinical judgment of potential for quality of life improvements framed the discussion and eventual decision to move ahead with the surgery. The option to observe for resolution of AOM issues versus proceeding with TT was reviewed with all patients. Any family who had questions or reservations about SVS was scheduled for routine clinical consultations to avoid undo pressure on their decision-making process. Another limitation stems from reliance of AOM diagnoses on the clinical acumen of the referring provider. Incorrect diagnosis and misrepresentation of number of AOM episodes leading to patient referral could be a variable in over-selecting patients for TT placement. The history of frequent AOM episodes, daycare attendance, family history of AOM, presence of middle ear effusions in most patients, and positive patient/family experience responses did support TT as an effective management option for our patients.

## CONCLUSION

SVS for TT placement was an alternative healthcare delivery model developed to provide a streamlined, convenient method for the treatment of children with recurrent AOM. Marketing promoting SVS and DTS to direct caregivers to the option for SVS were both successful in increasing overall interest, parental interest, and referrals from primary care providers to SVS. SVS pathways offer potential cost-saving opportunities to family members, who miss fewer workdays caring for their child and attending appointments related to AOM. Parent experiences and satisfaction with SVS were high with this approach to their child's care.

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