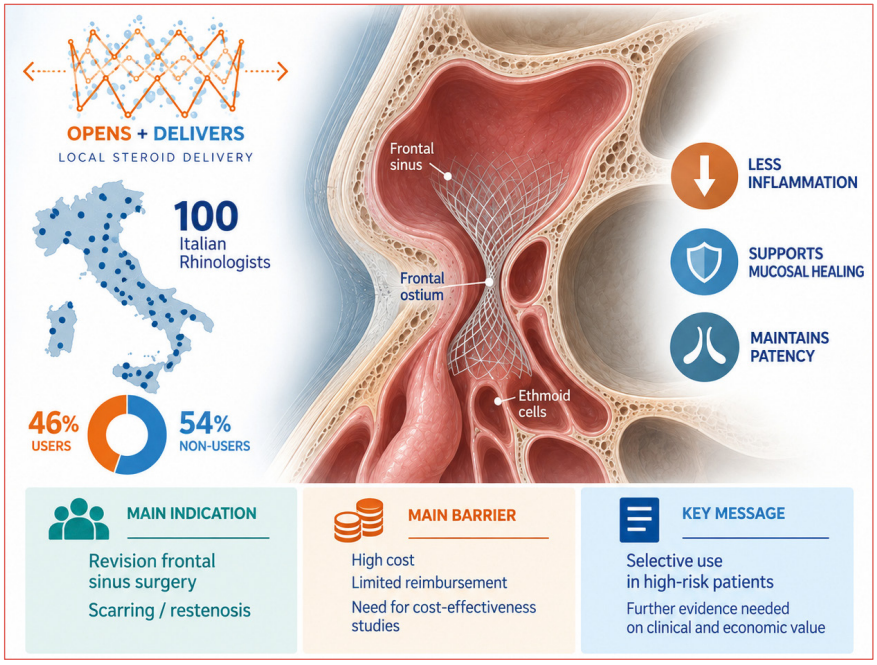
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Steroid-eluting sinus implants in endoscopic sinus surgery: results of an Italian Nationwide Survey

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Cover figure. Graphical summary of the Italian Nationwide Survey on steroid-eluting sinus implants: respondent distribution, main indications, barriers to adoption, and key findings.

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Summary

Objective. To investigate current clinical practice patterns and perceptions regarding steroid-eluting sinus implants (SESIs) among Italian rhinologists.
Methods. A nationwide survey on SESIs use in endoscopic sinus surgery (ESS) was developed by an advisory board of 5 Italian experts from tertiary referral centres and distributed to rhinology surgeons across Italy. Of 145 invited physicians, 103 responded (71%). Three respondents without experience or interest in SESIs were excluded, leaving 100 participants for analysis.
Results. Among respondents, 46% were SESI Users and 54% Non-Users. SESIs were mainly used in revision ESS, frontal sinus surgery, and in patients with contraindications to systemic corticosteroids. Users valued SESIs for reducing restenosis and promoting controlled healing. In frontal sinus surgery, SESIs were commonly recommended in revision cases, especially for scarring-related restenosis. In ethmoid surgery, middle turbinate preservation influenced recommendations. Non-users cited high costs, lack of reimbursement, and limited guideline clarity as the main barriers.
Conclusions. This survey shows marked variability in SESI adoption in Italy. While benefits are acknowledged in selected cases, economic and guideline-related issues limit wider use, highlighting the need for cost-effectiveness studies and national guidelines to better define the role of SESIs in ESS.

Keywords: drug-eluting implants, PROPEL™, endoscopic sinus surgery, chronic rhinosinusitis, mometasone furoate

Introduction

Chronic rhinosinusitis (CRS) remains a prevalent and challenging condition, often requiring endoscopic sinus surgery (ESS) when medical therapy fails [1]. Postoperative complications such as inflammation, synechiae, and restenosis can compromise outcomes, even when appropriate surgical techniques and postoperative medical therapies are employed [2,3]. To address these issues, bioabsorbable steroid-eluting sinus implants (SESIs) have been developed to provide localised and sustained corticosteroid release at the surgical site. At present, PROPEL™ are the only CE-marked localised drug-delivery implants available for use following ESS. The PROPEL™ family of implants introduces an innovative design that mechanically maintains patency of the sinus opening after ESS, while delivering mometasone furoate (MF), a potent corticosteroid, directly to the sinonasal mucosa, as recommended by some international guidelines [4,5]. Each implant consists of a synthetic bioabsorbable copolymer (poly-lactide-co-glycolide, PLG) coated with 370 µg of MF, designed to gradually resorb over 30-45 days.

Despite advances in surgical standardisation and clearer indications for ESS, well-defined guidelines for the use of localised drug-delivery implants remain lacking. Over the past decade, randomised controlled trials and meta-analyses have shown that SESIs can reduce postoperative inflammation, synechiae, and revision rates, while decreasing the need for systemic steroids [6-8]. Consensus documents, such as the international Delphi panel [9], have discussed the potential use of SESIs in revision ESS, frontal sinus surgery, and in patients with contraindications to systemic steroids. However, important uncertainties persist, particularly regarding which patient populations derive the greatest benefit, and in which scenarios SESIs use may represent overtreatment or provide limited clinical value.

Another critical issue concerns the economic and healthcare context. While SESIs are increasingly adopted in the United States [10], their integration into European practice remains limited, primarily due to costs, reimbursement policies, and resource allocation. In Italy, where healthcare resources are publicly managed, it is essential to understand how SESIs may be rationally implemented.

This study therefore aimed to conduct a nationwide survey of Italian otorhinolaryngologists with varying levels of experience in using PROPEL™ implants in ESS. The objectives were 2-fold: (1) to capture current clinical practice patterns and perceptions regarding PROPEL™ use, identifying areas of consensus and uncertainty; and (2) to contextualise these findings within the Italian economic and healthcare landscape. Such insights may help define appropriate indications, minimise overtreatment, and support the development of future national guidelines.

Materials and methods

Study design

An advisory board (AB) of 5 otorhinolaryngologists from tertiary referral centres in Italy, all specialised in sinus surgery, was convened. The AB had 3 main responsibilities: (1) to formulate specific questions on the use of PROPEL™ implants in patients undergoing ESS in Italy, with a focus on patient selection; (2) to design and distribute an anonymous survey to physicians currently using, or familiar with and interested in, PROPEL™ technology; and (3) to review and interpret the survey results. A 4-step approach was applied: 1) Literature review. A comprehensive review was conducted to identify recent evidence regarding the use of PROPEL™ implants post-ESS. Searches in MEDLINE and EMBASE up to January 2024 yielded 106 publications. Following abstract and reference screening, 28 studies were selected for detailed evaluation by all AB members before the first meeting. Inclusion criteria comprised study design (excluding non-systematic reviews, books, comments, abstracts, letters, and editorials) and intervention (excluding studies in which PROPEL™ was neither intervention nor comparator). Non-human studies and non-English publications were excluded. 2) Survey development. A hybrid meeting in October 2024 enabled AB members to review the evidence alongside their clinical experience. This informed the development of the survey (full questionnaire available in Supplementary Material). The survey included 5 introductory questions to stratify respondents, including a key item distinguishing current PROPEL™ Users from Non-Users. Additionally, 29 specific questions addressed use of PROPEL™ in clinical practice and patient selection criteria, with particular focus on frontal and ethmoid sinus surgery. All the survey questions used in this study are available as Supplementary Material 1. 3) Survey distribution. Online surveys were distributed to Italian physicians with expertise in sinus surgery and either regular use of, or interest in, PROPEL™ implants. The AB aimed to collect at least 100 responses across Italian regions. The mailing list, based on personal and institutional contacts, included 145 physicians. In total, 103 physicians completed the survey anonymously via the Checkmate Medallia electronic platform (response rate: 71%). A consent statement was included at the beginning of the survey, and consent was implied upon completion. 4) Results analysis and concluding

meeting. A final hybrid AB meeting in May 2025 was held to present and discuss the survey results based on external physicians' responses.

Statistical analysis

Descriptive statistics were used to summarise respondents' characteristics and survey findings. Means and standard deviations were calculated for continuous variables, while counts and percentages were reported for categorical variables. No imputation was performed. Rankings for individual items were compared between groups using the Mann-Whitney U test. Differences in rankings across items within the same group were assessed with the Friedman test. A 2-sided p value < 0.05 was considered statistically significant. Statistical analyses were performed using Microsoft Excel Office 365 (Redmond, Washington, USA).

Results

Physicians surveyed

A total of 103 otorhinolaryngologists completed the survey. Responses from 3 physicians were excluded from the main analysis, as they reported no prior experience with PROPEL™ technology and no interest in its use, according to the prespecified exclusion criteria. The final analysis therefore included 100 respondents, stratified into 2 groups: Users (n = 46), with direct experience using PROPEL™ implants, and Non-Users (n = 54), who had not yet adopted the technology in clinical practice but expressed interest in doing so. The regional distribution of respondents across Italy is shown in Figure 1. More than half of the participants had > 10 years of experience in managing CRS patients undergoing ESS (17% with 11-15 years; 38% with > 15 years). Among Users, 35% (16/46) worked in centres performing > 300 ESS procedures annually, while 63% (29/46) personally performed > 50 procedures per year. Among Non-Users, 54% (29/54) worked in centres with 100-300 annual ESS procedures, and 59% (32/54) personally performed between 26 and 100 procedures per year.

Overall opinion on PROPEL™

The main reported benefits of PROPEL™ implants were reduced risk of restenosis (89% of Users; 91% of Non-Users) and controlled healing through localised corticosteroid release (83% and 59%, respectively). Limitations differed between groups: Users most frequently cited the short-term nature of proven efficacy (59%), whereas Non-Users emphasised the lack of clear guideline recommendations (50%). Nearly all Users (98%) and the majority of Non-

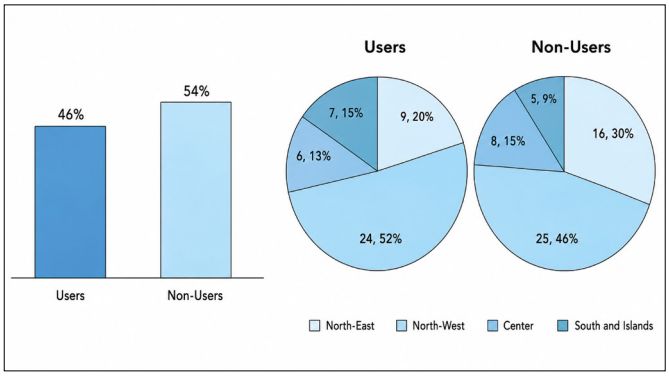


Figure 1. Summary of respondents by group and region.

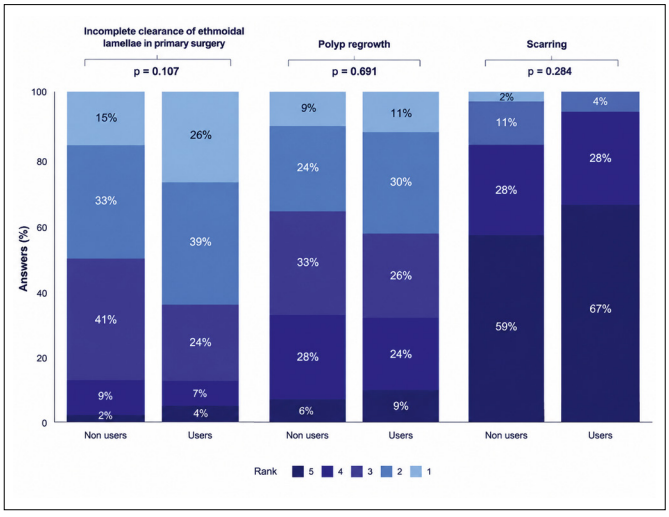


Figure 2. Indications for PROPEL™ use in revision frontal sinus surgery. p: p-values comparing Users and Non-Users; Intra-group comparisons: all p values < 0.001.

Users (83%) agreed that PROPEL™ insertion is straightforward and does not require advanced technical expertise. Economic issues, primarily device cost and reimbursement policies, were identified by both groups as the main barriers to broader adoption.

Frontal sinus surgery

Users were more inclined to use PROPEL™ implants following frontal sinus surgery compared with Non-Users. While 43% of Non-Users would use the implant in only 0-25% of patients, the same was true for 37% of Users. Both groups agreed on its use in CRS patients regardless of nasal polyp status (80% *vs* 78%), and neither group considered diabetes or contraindications to systemic corticosteroids as contraindications to PROPEL™ use (0% in both groups).

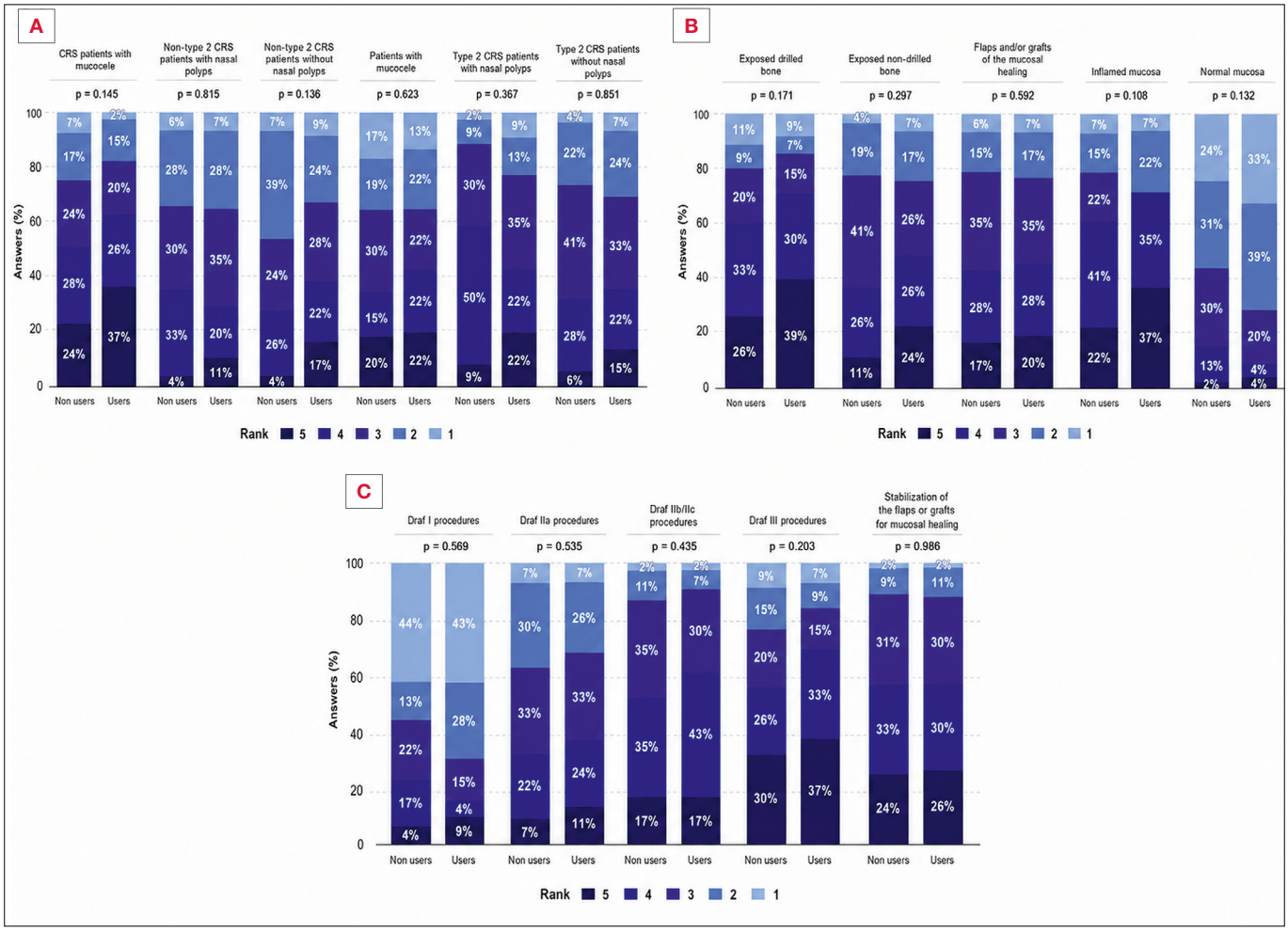


Figure 3. Factors potentially influencing recommendations for PROPEL™ use in frontal sinus surgery: inflammatory pathology (**A**), tissue characteristics (**B**), and surgical extent (**C**). p: p values comparing Users and Non-Users groups; Intra-group comparisons: all p values < 0.001.

For primary frontal sinus surgery, most respondents considered PROPEL™ use advisable only in very selected cases (50% of both groups) or feasible (30% of Users; 33% of Non-Users). For revision surgeries, however, the majority recommended its use in most cases (57% of Users; 59% of Non-Users), emphasising that benefits may increase with appropriate patient selection, particularly in revision settings. "Patients with restenosis due to scarring" was the top indication in both groups ($p < 0.001$, Friedman test for within-group comparison of rankings across indications; Fig. 2). Almost all respondents (98%) reported using, or willing to use, PROPEL™ intraoperatively. Postoperative office use, however, differed: 57% of Users versus 13% of Non-Users considered its application in this setting to be feasible. When ranking factors influencing PROPEL™ recommendations, both groups identified CRS with mucocele as the leading indication based on inflammation (Fig. 3A). "Exposed drilled bone" and "Draf type III procedures" were the highest-ranked criteria for tissue characteristics and surgical extent, respectively (Figs. 3B-C). However, no statistically significant intergroup differences were observed, suggesting that these were not decisive drivers for PROPEL™ adoption.

Ethmoid sinus surgery

Similar trends were observed for ethmoid sinus surgery, although percentages were lower compared with frontal procedures: 74% of Non-Users versus 63% of Users reported they would use PROPEL™ in only 0-25% of patients. Indications and contraindications mirrored those identified for frontal surgery. Regarding primary *vs* revision ethmoid surgery, most respondents considered PROPEL™ use ad-

visable only in very selected cases or feasible (26-37% across groups). Users more frequently considered middle turbinate (MT) preservation as a relevant factor (78%), with over half of Non-Users agreeing (54%). In contrast, 41% of Non-Users did not view MT treatment as relevant to decision-making. Notably, 54% of Users reported using PROPEL™ to prevent MT lateralisation, compared with 43% of Non-Users, while a substantial proportion of Non-Users expressed uncertainty (24%).

Follow-up

Seventy percent of Users (32/46) reported that PROPEL™ does not reduce the frequency of follow-up visits, at least until complete resorption. Non-Users were more divided: 26% believed it could reduce visits, while 28% were uncertain. During the 2-month follow-up period, both groups commonly prescribed high-volume nasal irrigations (91% of Users; 81% of Non-Users) and topical steroids (54% and 44%, respectively). Almost none considered intensified antibiotic therapy necessary due to the PROPEL™ implant (9% *vs* 4%).

Discussion

This survey provides one of the first nationwide insights into Italian clinical practice regarding the use of SESIs. Approximately half of respondents reported direct clinical experience with SESIs, most frequently in revision ESS, frontal sinus procedures, and in patients with contraindications to systemic corticosteroids. These findings are consistent with the international Delphi consensus reported by Lee et al., which identified these scenarios as the priority indications for SESIs use [9].

Our results confirm that many Italian rhinologists perceive tangible clinical benefits from SESIs, including improved mucosal healing, reduced synechiae formation, and decreased postoperative need for systemic corticosteroids. These perceptions align with the evidence from randomised controlled trials and meta-analyses, which have demonstrated reductions in inflammation, restenosis, and revision rates [6, 11,12].

A systematic review further reinforced these findings, documenting improved endoscopic scores and fewer postoperative interventions across several randomised controlled trials [8].

Despite these encouraging data, 2 major unresolved challenges remain. First, the lack of clarity regarding precise indications and patient selection. Avoiding overtreatment is as important as identifying the patients most likely to benefit. Both Users and Non-Users in this survey expressed higher willingness to use SESIs in frontal sinus surgery compared with ethmoid procedures, reflecting the greater risk of restenosis in the frontal sinus and the potential value of local drug delivery in this challenging anatomical region. In ethmoid surgery, SESIs adoption was lower, although potential roles include steroid delivery and prevention of MT lateralisation. What clearly emerges from this study is the centrality of careful patient selection: the true benefits of PROPEL™ can only be demonstrated when tested in well-defined high-risk cohorts, such as patients undergoing revision procedures with a known propensity for restenosis. Future studies should therefore prioritise prospective enrollment of these populations, to provide robust evidence of efficacy in the setting where the device is most likely to be game-changing. Importantly, SESIs should not be viewed as substitutes for meticulous surgical technique or appropriate postoperative medical therapy. Inadequate surgery or suboptimal postoperative care will inevitably lead to failure, regardless of device use. Instead, SESIs should be considered an adjunctive tool for high-risk patients who remain vulnerable despite optimal surgery and adequate medical management [13].

Second, the economic and organisational context is a critical determinant of the clinical adoption. While studies in the US have suggested SESIs may be cost-effective by reducing revision procedures and postoperative interventions[14,15], these findings cannot be directly extrapolated to European publicly-funded healthcare systems. In Italy, the high device cost, absence of reimbursement, and competing healthcare priorities severely limit widespread use. Our survey highlights that, even when clinical benefits are perceived, economic barriers remain a main obstacle. It is therefore essential to conduct cost-effectiveness analyses tailored to the Italian context, accounting for hospital budgets, reimbursement policies, and resource allocation, before broad recommendations can be formulated. Integration into national guidelines will also be necessary to support rational, equitable adoption.

Another important observation that emerges from this survey is the divergence in attitudes between Users and Non-Users. Users, drawing from direct clinical experience, expressed greater confidence in the utility of SESIs in complex or revision scenarios. In contrast, Non-Users were more skeptical, citing uncertainty in the evidence base and insufficient guideline support. This gap underscores the urgent need for large, multicentre European trials specifically designed to assess the efficacy of SESIs in well-selected patient groups who have undergone standard surgery with adequate postoperative care, including high-volume steroid

nasal irrigations. The study by Fieux et al. in the US provides valuable preliminary evidence [16]; however, to yield clinically meaningful results, such trials should be conducted in larger cohorts with rigorous selection of high-risk patients (e.g., revision frontal sinus surgery), where the potential impact of SESIs might be most relevant.

Limitations of the present study must be acknowledged. These include its survey-based design, reliance on self-reported practices, which may be subject to recall bias, and the potential for selection bias, as respondents may represent clinicians with greater interest or knowledge of SESIs. Although the response rate was relatively high (71%), non-respondents may hold different views, and the results may not be generalisable to all Italian rhinologists. Furthermore, the survey did not capture patient perspectives, which are critical for assessing real-world postoperative outcomes and quality of life.

Future directions should focus on prospective, multicentre trials specifically enrolling well-defined high-risk populations (e.g., revision frontal surgery in patients with high scarring tendency), as this represents the subgroup in which SESIs are most likely to demonstrate significant clinical benefit. Additional research should address cost-effectiveness in the Italian healthcare system and integrate patient-reported outcome measures. Ultimately, the incorporation of SESIs into European and national guidelines will be necessary to standardise indications, optimise patient care, and ensure that resources are allocated to those who are most likely to benefit.

Conclusions

Based on the findings of this nationwide survey conducted among Italian rhinology surgeons, SESIs may represent a valuable adjunct in endoscopic sinus surgery when reserved for carefully selected high-risk patients, particularly in complex or revision procedures where the risk of restenosis is highest. In the Italian healthcare setting, their broader adoption will require clearer evidence-based indications, dedicated cost-effectiveness analyses, and incorporation into national guidelines to ensure appropriate and economically-sustainable use.

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Conflict of interest statement

The authors declare that they have no personal, financial, or professional conflicts of interest relevant to this study. Medtronic provided logistical support by making the survey platform available and facilitating the infrastructure for Advisory Board meetings. The company had no role in the study design, data collection, analysis or interpretation of the data, or in the writing of the manuscript.

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Author contributions

MTZ, MB: study conception and design; MTZ, MB, MF: data collection; MF, FP: statistical analysis; MTZ, MB, MF, PN, FP: interpretation of data and final approval; MTZ, MB, MF, PN, FP: manuscript writing; PN: critical revision of the manuscript; MTZ, MB, MF, PN, FP.

Ethical consideration

The research was conducted ethically, with all study procedures being performed in accordance with the requirements of the World Medical Association's Declaration of Helsinki. This study did not involve human or animal subjects, nor did it include the analysis of patients' medical records or identifiable health data. As the research was based exclusively on an anonymous survey of physicians, approval from an Institutional Ethics Committee was not required. Written informed consent from patients was not necessary, as no patients were involved in the study.

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Supplementary material

Questions reported in the survey

Introduction

In what geographical area do you mainly perform your professional activity?

- North-east (Emilia-Romagna, Friuli Venezia Giulia, Trentino-Alto Adige, Veneto)
- North-west (Liguria, Lombardia, Piemonte, Valle d'Aosta)

Center (Lazio, Marche, Tuscany, Umbria)

South (Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia) and Islands (Sicily, Sardegna)

Years of experience in the treatment of patients with chronic rhinosinusitis (CRS) undergoing endoscopic sinus surgery (ESS):

- < 5 years
- 5-10 years
- 11-15 years
- > 15 years

What is the average number of ESS procedures for treatment of CRS patients done per year at your center?

- < 50
- 50-100
- 100-300
- 300-500
- > 500

What is the average number of ESS procedures for treatment of CRS patients done by you per year?

- < 25
- 26-50
- 51-100
- > 100

In your clinical practice, do you use PROPEL™ implants (i.e., PROPEL™, PROPEL™ Mini and/or PROPEL™ Contour)?

- Yes
- No, but I am familiar with PROPEL™ technology and interested in its use
- No, I am not interested in its use *(if selected, survey will end)*

Survey - PROPEL™

PROPEL™ benefits

In your opinion, what are the main benefits of using PROPEL™ in clinical practice? *(tick all that apply)*

- Reduction in the incidence of restenosis
- Reduction in revision procedures
- Reduction in the incidence of middle turbinate lateralization after ESS
- Reduction in the incidence of adhesions/synechiae after ESS
- Reduction in the incidence of nasal polyps' formation after ESS
- Optimising sinus ventilation and mucociliary clearance by open design
- Video-endoscopic postoperative surveillance through

design allowing for open implants
- Controlled healing through a localised release of corticosteroid
- Stabilization/maintenance in place of pedunculated flaps for mucosal healing
- Medium/long-term effectiveness
- Potential improvement in patients' quality of life (in terms of reduction in hospitalisations, reduction in access to the outpatient clinic, reduction in access to the emergency room, reduction in surgical revisions, reduction in oral drug therapy, either short- or long-term)
- Potential health economic benefit (in terms of reduction in hospitalisations, reduction in access to the outpatient clinic, reduction in access to the emergency room, reduction in surgical revisions, reduction in oral drug therapy, either short- or long-term)

PROPEL™ limitations

In your opinion, what are the main limitations to PROPEL™ technology when you use it in clinical practice? (tick all that apply)
- Risk of inducing an inflammatory response (e.g., foreign body reaction)
- Complexity of use/need for experienced surgeons
- Limited evidence of its efficacy available in the literature
- Lack of clarity in current guideline indications
- Proven efficacy in the short-term only
- Limited release of corticosteroid in terms of dose and/or time

PROPEL™ barriers

In your opinion, what do you consider as the main barrier to the use of PROPEL™ implants to date?
- Investment strategy of the hospital pharmacy/purchasing departments
- Investment priorities for technologies and devices of the specific operating unit, given the available budget
- Implant cost

Frontal sinus surgery section

Percentage of patients

Excluding potential barriers, particularly the economic ones, what is the percentage of patients undergoing frontal sinus surgery on whom you would use a PROPEL™ implant?
- 0%-25%
- 26%-50%
- 51%-75%
- 76%-100%

Adoption

What aspects should be considered to facilitate wider adoption of PROPEL™ implants following frontal sinus surgery? Please select up to two options
- Clarity of clinical indications and/or patient selection
- Technical characteristics of the product (e.g., duration, size, dose of corticosteroid)
- Cost/reimbursement

Nasal polyps

In clinical practice, you use/would use PROPEL™ implants following frontal sinus surgery…:
- In CRS patients with nasal polyps
- In CRS patients without nasal polyps
- Regardless of the presence or absence of nasal polyps

Diabetes/comorbidities

In diabetic patients or those with comorbidities for whom oral administration of systemic corticosteroids is contraindicated, you consider that PROPEL™ following frontal sinus surgery…:
- Is recommendable, as it reduces the need for systemic corticosteroid administration postoperatively
- Is contraindicated
- Can be contemplated as a possible option

Primary surgery

In patients undergoing primary frontal sinus surgery, you consider that PROPEL™…:
- Is recommendable in most cases
- Is recommendable only in very selected cases
- Can be used
- Is superfluous/contraindicated

Revision surgery

In patients undergoing revision frontal sinus surgery, you consider that PROPEL™…:
- Is recommendable in most cases
- Is recommendable only in very selected cases
- Can be used
- Is superfluous / contraindicated

[This question was displayed only to respondents who did not select "Is superfluous/contraindicated" in the previous question]

In patients undergoing revision frontal sinus surgery, in what cases do you consider that the use of PROPEL™ should be recommended? *Please assign a score from 1 (poorly or not recommended) to 5 (strongly recommended) to each of the following options*

- Scarring
- Incomplete clearance of ethmoidal lamellae in primary surgery
- Polyps regrowth

Surgical setting

In clinical practice, you use/would use PROPEL™ implants following frontal sinus surgery…: *(tick all that apply)*
- In the operating room
- In the office
- During post-ESS medication

Pathology

Considering the inflammatory pathology (regardless of the extent of the surgical approach and any previous sinus surgery), in what cases do you consider the use of PROPEL™ following frontal sinus surgery should be recommended? *Please assign a score from 1 (poorly or not recommended) to 5 (strongly recommended) to each of the following options*
- Patients with mucocele
- CRS patients with mucocele
- Non-type 2 CRS patients without nasal polyps
- Type 2 CRS patients without nasal polyps
- Non-type 2 CRS patients with nasal polyps
- Type 2 CRS patients with nasal polyps

Tissue

Considering the nature of the tissue (regardless of the extent of the surgical approach and any previous sinus surgery), in what cases do you consider the use of PROPEL™ following frontal sinus surgery should be recommended? *Please assign a score from 1 (poorly or not recommended) to 5 (strongly recommended) to each of the following options*
- Exposed drilled bone
- Exposed non-drilled bone
- Normal mucosa
- Inflamed mucosa
- Flaps and/or grafts for the mucosal healing

Extent of surgery

Considering the extent of the surgical approach (regardless of the pathology of the patient and any previous sinus surgery), in what cases do you consider the use of PROPEL™ following frontal sinus surgery should be recommended? *Please assign a score from 1 (poorly or not recommended) to 5 (strongly recommended) to each of the following options*
- Draf I procedures
- Draf IIa procedures
- Draf IIb/IIc procedures
- Draf III procedures
- Stabilization of the flaps or grafts for mucosal healing

Ethmoid sinus surgery section

Percentage of patients

Excluding potential barriers, particularly the economic ones, what is the percentage of patients undergoing ethmoid sinus surgery on whom you would use a PROPEL™ implant?
- 0%-25%
- 26%-50%
- 51%-75%
- 76%-100%

Adoption

What aspects should be considered to facilitate wider adoption of PROPEL™ implants following ethmoid sinus surgery? *Please select up to two options*
- Clarity of clinical indications and/or patient selection
- Technical characteristics of the product (e.g., duration, size, dose of corticosteroid)
- Cost/reimbursement

Nasal polyps

In clinical practice, you use/would use PROPEL™ implants following ethmoid sinus surgery…:
- In CRS patients with nasal polyps
- In CRS patients without nasal polyps
- Regardless of the presence or absence of nasal polyps

Diabetes/comorbidities

In diabetic patients or those with comorbidities for whom oral administration of systemic corticosteroids is contraindicated, you consider that PROPEL™ following ethmoid sinus surgery…:
- Is recommendable, as it reduces the need for systemic corticosteroid administration postoperatively
- Is contraindicated
- Can be contemplated as a possible option

Primary surgery

In patients undergoing primary ethmoid sinus surgery, you consider that PROPEL™…:
- Is recommendable in most cases
- Is recommendable only in very selected cases
- Can be used
- Is superfluous/contraindicated

Revision surgery

In patients undergoing revision ethmoid sinus surgery, you

consider that PROPEL™…:
- Is recommendable in most cases
- Is recommendable only in very selected cases
- Can be used
- Is superfluous/contraindicated

Surgical setting
In clinical practice, you use/would use PROPEL™ implants following ethmoid sinus surgery…: *(tick all that apply)*
- In the operating room
- In the office
- During post-ESS medication

Pathology
Considering the inflammatory pathology (regardless of the extent of the surgical approach and any previous sinus surgery), in what cases do you consider the use of PROPEL™ following ethmoid sinus surgery should be recommended? *Please assign a score from 1 (poorly or not recommended) to 5 (strongly recommended) to each of the following options*
- Patients with mucocele
- CRS patients with mucocele
- Non-type 2 CRS patients without nasal polyps
- Type 2 CRS patients without nasal polyps
- Non-type 2 CRS patients with nasal polyps
- Type 2 CRS patients with nasal polyps

Tissue
Considering the nature of the tissue (regardless of the extent of the surgical approach and any previous sinus surgery), in what cases do you consider the use of PROPEL™ following ethmoid sinus surgery should be recommended? *Please assign a score from 1 (poorly or not recommended) to 5 (strongly recommended) to each of the following options*
- Exposed drilled bone
- Exposed non-drilled bone
- Normal mucosa
- Inflamed mucosa

Extent of surgery
Considering the extent of the surgical approach (regardless of the pathology of the patient and any previous sinus surgery), in what cases do you consider the use of PROPEL™ following ethmoid sinus surgery should be recommended? *Please assign a score from 1 (poorly or not recommended) to 5 (strongly recommended) to each of the following options*
- In case of preservation of the middle turbinate
- In case of sacrifice of the middle turbinate
- Regardless of the treatment for the middle turbinate

Lateralization of the middle turbinate
In clinical practice, do you/would you use PROPEL™ implants following ethmoid sinus surgery to help prevent lateralisation of the middle turbinate?
Yes
I do not know/I cannot answer
No

Other aspects and follow-up
Maxillary sinus surgery
In your opinion, may the use of PROPEL™ be indicated following maxillary sinus surgery as well?
- Yes
- No

Follow-up frequency
In clinical practice, do you think that the use of PROPEL™ would reduce the frequency of follow-up visits?
- Yes
- No, at least until the implant is completely absorbed
- I do not know/I cannot answer

Post-implant course
What do you indicate/would indicate to patients during the post-implant clinical course in the 2 months following PROPEL™ placement (i.e. until complete implant absorption)? *(tick all that apply)*
- Systemic antibiotic therapy, with increased doses and/or timing than standard protocol ones
- Topical steroids
- Oral steroids
- High-volume nasal rinses