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From sniffles to sinusitis: managing nasal symptoms

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About the speakers



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Ben Chan is a Head and Neck surgeon based in Auckland. Ben completed his medical degree at the University of Otago in 2009. He then went on to surgical training in Otolaryngology, Head and Neck surgery and was awarded his Fellowship in the Royal Australasian College of Surgeons in 2019. His surgical training has taken him all over New Zealand as well as Calgary, Canada, where he completed subspecialty training in advanced Head and Neck surgical oncology and thyroid surgery.

Ben has a deep understanding of head and neck pathology, as well as the technical expertise required to operate confidently in this complex area. He is an expert in the surgical treatment of thyroid cancer, as well as cancers of the oral cavity, throat, salivary glands, sinonasal tract, and skin. Ben is also adept at the management of nasal obstruction and is experienced in both limited and comprehensive sinus surgery.

Abbreviation used in this review

CRS = chronic rhinosinusitis

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Dr Ben Chan delivered this session at the 2026 Goodfellow Symposium, focusing on the management of nasal symptoms. He presented a clear, structured framework for assessing and treating common conditions, ranging from simple nasal obstruction to recurrent chronic sinusitis. The session was organised by the Goodfellow Unit and supported by funding from Allevia Hospitals.

Introduction

Dr Chan began his presentation by acknowledging that approaches to nasal conditions can vary widely, even among specialists, which can make diagnosis and treatment confusing. To help address this, he proposed a conceptual model of “hallways” and “rooms” to assist his audience better understand the underlying issues. This model compares the nose to a “hallway,” where air and mucus flow in and out, while the sinuses are described as “rooms” connected to this hallway through small openings (**Figure 1**). The sinuses naturally produce mucus, which drains through these openings into the nasal passage “hallway”. By using this analogy, Dr Chan explained that symptoms can arise either from problems in the hallway (nasal obstruction), the rooms (sinus issues), or a combination of both. This framework is also useful for distinguishing nasal symptoms from other possible causes, such as tumours or even migraines.

The central message of Dr Chan's presentation was the need to pinpoint whether the problem stems from the nasal passage or the sinuses, since this distinction dictates the appropriate treatment strategy. The hallway-and-rooms analogy serves as a simple but effective tool for guiding diagnosis, explaining conditions to patients, and clarifying how different treatments or possible surgical interventions function.



Figure 1: The “hallway” and “rooms” analogy

The nose and nasal obstructions

The “hallway,” or central compartment of the nose, serves as the primary airway for breathing with the key structures within this passage including the septum and the middle and inferior turbinates (**Figure 2**). Dr Chan explained that the human nose is specifically designed to condition the air we breathe. As air passes through, the turbinates create turbulent flow that warms and humidifies the air so that by the time it reaches the larynx, it is at body temperature and fully humidified. This accounts for why patients with nasal obstruction often experience dry mouth, especially at night, as they are forced to breathe through their mouth, which delivers larger volumes of air that are colder and drier, irritating the throat. While mouth breathing allows greater airflow and can be useful during intense physical activity, it bypasses the nose's important filtering and conditioning functions.

Dr Chan highlighted how structural and inflammatory factors can disrupt this system. The turbinates, which play a key role in filtering air, can swell in response to allergens and contribute to nasal blockage. In addition, the septum may become deviated, either from obvious trauma or more subtle causes. Interestingly, Dr Chan theorised that many septal deviations may originate in early childhood, when minor, often unnoticed injuries create small structural changes that become more pronounced during growth. As a result, individuals may develop increasing nasal obstruction over time. When a deviated septum is combined with allergic swelling of the turbinates, patients are more likely to experience significant symptoms, as both structural and inflammatory factors compound the blockage.

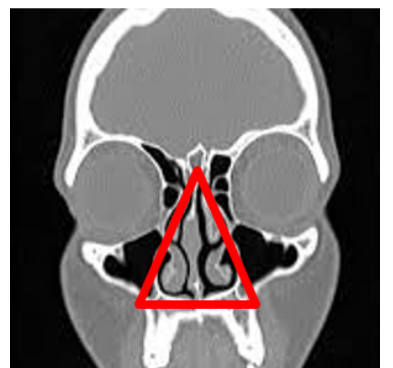


Figure 2: CT scan showing nasal passage

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Medical management of nasal obstruction

Dr Chan emphasised that the most widely accepted and effective first-line treatment for nasal obstruction is the use of intranasal corticosteroid sprays, which work by reducing inflammation at a cellular level. However improper use is common, with many patients expecting immediate results and therefore stop treatment too early. Dr Chan explained that these sprays typically take at least one to two weeks to have a noticeable effect and should be used consistently in adults for around eight weeks. After symptoms improve, patients can stop and then restart treatment as needed, eventually identifying patterns in their symptoms rather than relying on continuous, indefinite use.

In addition to steroid sprays, sinus rinses were highlighted as a highly effective, non-medicated option for symptom relief. Dr Chan likened them to “washing out” allergens at the end of the day and helping to clear irritants from the nasal passages. Although the process can initially feel uncomfortable, many patients with chronic symptoms find significant relief with regular use. Proper technique is important with gentle, high-volume rinsing preferred over forceful application to avoid discomfort such as ear pain. Various delivery methods exist, and patients are encouraged to find one that works comfortably for them.

The presentation also addressed other causes of nasal symptoms including vasomotor rhinitis, which is characterised by watery nasal discharge triggered by factors like spicy or hot foods. In these cases, targeted treatments such as ipratropium nasal spray can be effective.

Dr Chan further discussed common issues with nasal spray use, particularly nosebleeds, which are often due to incorrect technique. Patients are advised to aim the spray backward, following the natural airflow of the nasal cavity and to gently sniff during application to ensure proper distribution and to reduce irritation to the nasal septum. Structural issues, such as a significantly deviated septum, can make correct application difficult and may predispose patients to ongoing bleeding regardless of technique.

Finally, Dr Chan outlined the considerations for children, noting that while some steroid spray products are labelled for older age groups, evidence supports safe use in much younger patients under medical guidance. In paediatric cases, shorter treatment courses are typically used, and frequent need for repeated courses may prompt consideration of surgical intervention.

Surgical management of nasal obstruction

Surgical management of nasal obstruction can be appropriate when medical treatments have failed. Dr Chan favoured a generally conservative approach to surgery, particularly for the turbinates, preferring techniques such as cauterisation and out fracture rather than more aggressive removal. Dr Chan explained that in cases of a deviated septum, the turbinates on the wider (concave) side may enlarge to compensate therefore further contributing to obstruction. Another anatomical variation, known as a concha bullosa (an air-filled middle turbinate), can also play a role in blocking airflow.

When symptoms persist despite appropriate use of sprays and other medical therapies, particularly if they significantly affect sleep, surgical intervention may be considered. A septoplasty involves lifting the mucosal lining of the septum, removing the portions of cartilage and bone causing the deviation, and then reconstructing the septum, leaving the external appearance unchanged. However, deviations at the front (caudal septum) are more complex to treat because they provide structural support to the nasal tip. In such cases, more extensive procedures like septorhinoplasty may be required involving the external nasal bone/cartilage as well as the internal septum. Turbinate surgery typically involves reducing the underlying bone while preserving the mucosal lining to maintain function.

Dr Chan addressed concerns about “empty nose syndrome,” noting ongoing debate. His personal view was that this disorder is more likely a psychosomatic condition rather than a direct result of turbinate size or surgery.

He emphasised that postoperative care is a critical component of successful outcomes, especially in children. Recovery often involves crusting and requires regular sinus rinses and follow-up care which includes endoscopic cleaning. Because of this, Dr Chan noted that he carefully selects paediatric patients for surgery based on their ability to tolerate postoperative management as avoiding unnecessary distress in children is essential, both for immediate recovery and for maintaining trust in future medical care.

The sinuses

The second section of Dr Chan's presentation shifted focus from the “hallway” (nasal passage) to the “rooms” (sinuses), highlighting that sinus conditions are more complex and can arise from a variety of causes, including:

- infection;
- inflammation;
- benign growths; or
- malignancy.

Using his simple analogy, Dr Chan explained that the sinuses are connected to the nasal passage by small openings (“doors”) that allow mucus to drain (**Figure 3**). When these drainage pathways become inflamed or blocked, mucus accumulates within the sinuses, creating an environment that can lead to bacterial growth and acute sinusitis. Other issues, such as nasal polyps or pressure-related blockages (as seen in sinus barotrauma), can also interfere with normal sinus function, with some individuals especially frequent flyers or pilots, being particularly affected.

Dr Chan also emphasised the normal physiology of the sinuses, noting that the body produces a surprisingly large volume of mucus each day, most of which is swallowed unconsciously. This helps explain why post-nasal drip is a common symptom, although in some cases, patients can be experiencing heightened sensitivity or throat irritation rather than excessive mucus production. The exact purpose of the sinuses remains uncertain, with theories ranging from reducing skull weight to influencing voice resonance to even a possible bacterial reservoir.

Common symptoms of sinus disease include:

- facial pressure;
- headaches;
- post-nasal drip;
- thick nasal discharge;
- reduced sense of smell; and
- nasal obstruction.

The anatomy of sinus drainage pathways are more intricate than the simple hallway analogy suggests, involving multiple interconnected channels (**Figure 3**). Certain sinuses, particularly the sphenoid sinus, can be challenging to diagnose and treat because obstructions in this area often produce vague, non-specific symptoms including deep or occipital headaches. In such cases, patients may already have undergone extensive evaluation before sinus involvement is considered. Surgical treatment can be complex and uncertain, as accessing deeper sinuses requires passing through other structures, and it is not always guaranteed that intervention will relieve symptoms.

Medical management of sinus issues

Medical management of sinus issues is relevant for chronic rhinosinusitis (CRS), the most common sinus condition, which can occur either with or without nasal polyps. While both forms share an underlying inflammatory and sometimes infective basis, the management differs. The central problem in CRS is inflammation that blocks the normal drainage and ventilation of the sinuses. As a result, treatment is aimed at reducing inflammation and restoring access for medications to reach the affected areas.

First-line management includes both saline rinses and intranasal corticosteroids. Rinses help mechanically clear retained mucus and may also disrupt bacterial biofilms that contribute to persistent disease, while steroid sprays provide long-term anti-inflammatory effects similar to their role in treating nasal obstruction. In cases involving infection, such as when patients have foul-smelling discharge or visible pus, antibiotics and short courses of steroids may be used. Dr Chan cautioned against overinterpreting green nasal discharge as a definite sign of infection, noting that it more often reflects an imbalance in normal nasal flora rather than true bacterial disease.

For CRS with nasal polyps, the condition is driven more specifically by an eosinophilic, immunoglobulin E-mediated inflammatory process. While intranasal steroids and rinses remain essential, short courses of oral steroids like prednisone can be particularly effective in shrinking polyps. However,

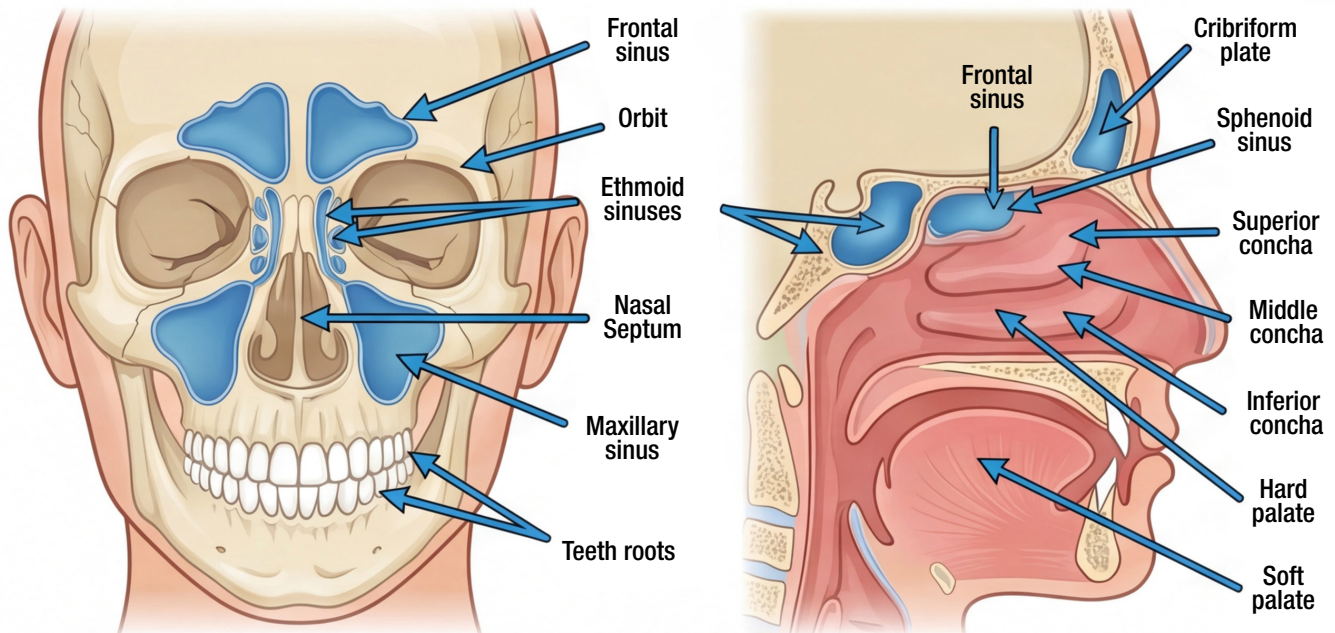


Figure 3: Anatomy of the sinuses (frontal and lateral view). Image licensed from Adobe Stock.

Dr Chan stressed that prednisone is a powerful medication with significant potential side effects, including metabolic, psychiatric, and rare but serious complications such as avascular necrosis of the hip. Because these risks are cumulative, frequent reliance on oral steroids should signal the need to escalate treatment. Additional therapies, such as a course of doxycycline, may also provide benefit in polyp-related disease.

Surgical management of sinus issues

The final part of Dr Chan's presentation explored the role of surgery in managing sinus disease, particularly CRS with nasal polyps, where medical therapy alone is often insufficient. While surgery can significantly improve symptoms, Dr Chan noted that it is not curative since polyps frequently recur, and around 20% of patients may require revision surgery within five years. Certain groups, such as those with aspirin sensitivity (Samter's triad or Aspirin-Exacerbated Respiratory Disease), are especially prone to rapid recurrence. Although aspirin desensitisation can be highly effective for these patients, it is a demanding and intensive process requiring long-term commitment and careful supervision.

Dr Chan also highlighted important "red flags" and less common causes of sinus disease. Nasal polyps in children should signal prompt investigation for conditions like cystic fibrosis, as paediatric sinuses are not typically developed enough to form polyps otherwise. Other conditions that may mimic or contribute to sinus symptoms include odontogenic sinusitis (originating from dental infections), allergic fungal sinusitis, and invasive fungal sinusitis, the latter being a medical emergency in immunocompromised patients. Rare but serious conditions including juvenile nasal angiofibroma in adolescent males, and nasopharyngeal cancer in adults presenting with unilateral ear effusion with or without nasal obstruction, are also emphasised as critical diagnoses not to miss.

In terms of surgical principles, Dr Chan explained that sinus surgery does not directly treat the underlying inflammation or mucosal disease but focuses on improving anatomy by opening up the sinus drainage pathways, effectively "breaking down the doors" between the sinuses and the nasal passage. This allows mucus to drain more freely and, importantly, enables topical treatments like saline rinses and steroid sprays to reach deeper into the sinus cavities. Surgery can also reduce the overall mucosal surface area, which may help limit polyp regrowth. However, these procedures carry significant risks due to the proximity of the sinuses to critical structures such as the eyes, optic nerves, brain, and major blood vessels.

Discussion

The "hallway" and "rooms" analogy serves as an effective tool to simplify complex anatomy and guide diagnostic reasoning. By clearly separating nasal obstruction from sinus pathology, the framework Dr Chan has outlined reinforces the importance of identifying the primary source of symptoms before initiating treatment. This distinction is particularly valuable for clinical practice, where overlapping symptoms can often lead to misdiagnosis or delayed management. Dr Chan also highlighted the interplay between structural abnormalities, such as septal deviation, and inflammatory processes, such as allergic rhinitis, demonstrating that many patients have multifactorial disease requiring a combined approach to treatment.

A strong emphasis was placed on optimising medical management as the first-line strategy. Intranasal corticosteroids and saline rinses were presented as highly effective but frequently under-utilised due to poor patient adherence or incorrect technique. This underscores the importance of patient education, not only in explaining how treatments work but also in setting realistic expectations regarding onset and duration of therapy. The inclusion of specific scenarios, such as vasomotor rhinitis and paediatric considerations, further illustrated the need to tailor treatment to individual patient presentations rather than applying a one-size-fits-all approach.

The discussion of surgical management advocated for a conservative and carefully considered approach. Dr Chan highlighted that while surgery can significantly improve symptoms, it does not address the underlying inflammatory processes, particularly in CRS with nasal polyps, where recurrence is common. This reinforced the concept that surgery is an adjunct to, rather than a replacement for, ongoing medical therapy. Additionally, the consideration of postoperative care and patient suitability, especially in children, demonstrated a holistic, patient-centred perspective that extends beyond the procedure itself.

Finally, the presentation effectively draws attention to important red flags and less common but serious conditions, including malignancy, invasive infections, and systemic diseases. This serves as a reminder that not all nasal or sinus symptoms are benign and that clinicians must remain vigilant in identifying atypical features.



KEY TAKE-HOME MESSAGES

- The “hallway” and “rooms” analogy provides a simple framework to distinguish between nasal cavity and sinuses pathology, which is essential for accurate diagnosis and appropriate treatment.
- Nasal obstruction commonly results from a combination of structural factors (e.g., septal deviation) and inflammation (e.g., turbinate swelling), both of which should be addressed in management.
- First-line treatment for most nasal and sinus conditions is medical, particularly consistent and correct use of intranasal corticosteroids and saline rinses.
- Patient education is critical, as poor technique and unrealistic expectations (e.g., stopping sprays too early) often lead to suboptimal treatment outcomes.
- Surgical intervention should be considered only when medical therapy fails, with a generally conservative approach and careful patient selection, especially in children.
- Chronic sinus conditions, particularly those with nasal polyps, are often recurrent and require long-term management, with attention to red flags that may indicate more serious underlying disease.

CONCLUSION

Dr Chan's presentation brought clarity to the often complex and overlapping spectrum of nasal and sinus disorders by combining a simple conceptual framework with practical clinical guidance. The importance of distinguishing between nasal and sinus pathology ensures that management strategies are appropriately targeted. Emphasis on optimising medical therapy, particularly through correct technique and adherence, highlights that many conditions can be successfully managed without immediate recourse to surgery. At the same time, the discussion acknowledged the important role of surgical intervention in selected cases, while reinforcing its limitations and the need for ongoing care. By also addressing red flags and less common but serious conditions, Dr Chan promoted a thorough and cautious approach to diagnosis.

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