

ACCREDITED CME · 60-MINUTE LECTURE

Severe Asthma in the Biologic Era

Phenotype-driven therapy, steroid stewardship, and team-based care
across the lifespan

[Faculty name, MD] · [Title, Institution]

Faculty Disclosures

Faculty: [list relevant financial relationships with ineligible companies, or "No relevant financial relationships"]

All relevant relationships have been mitigated according to ACCME Standards for Integrity and Independence.

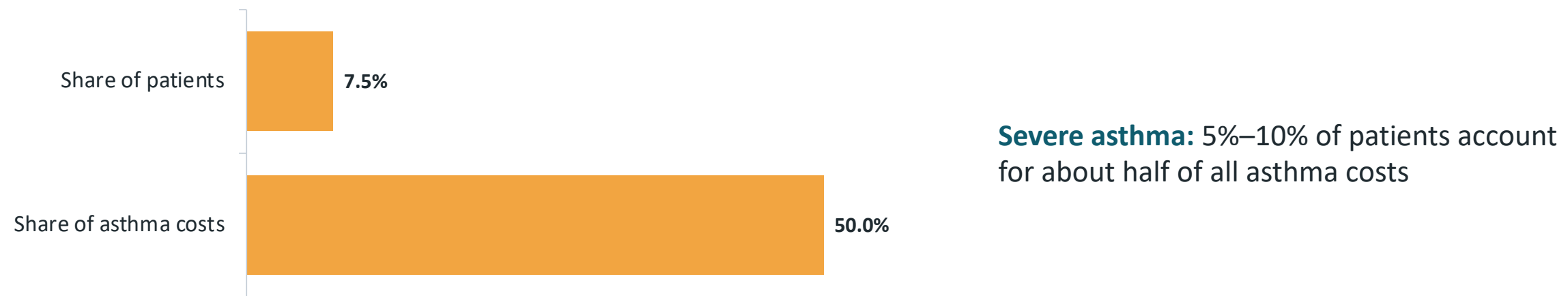
Off-label and investigational uses will be identified when discussed.

Learning Objectives

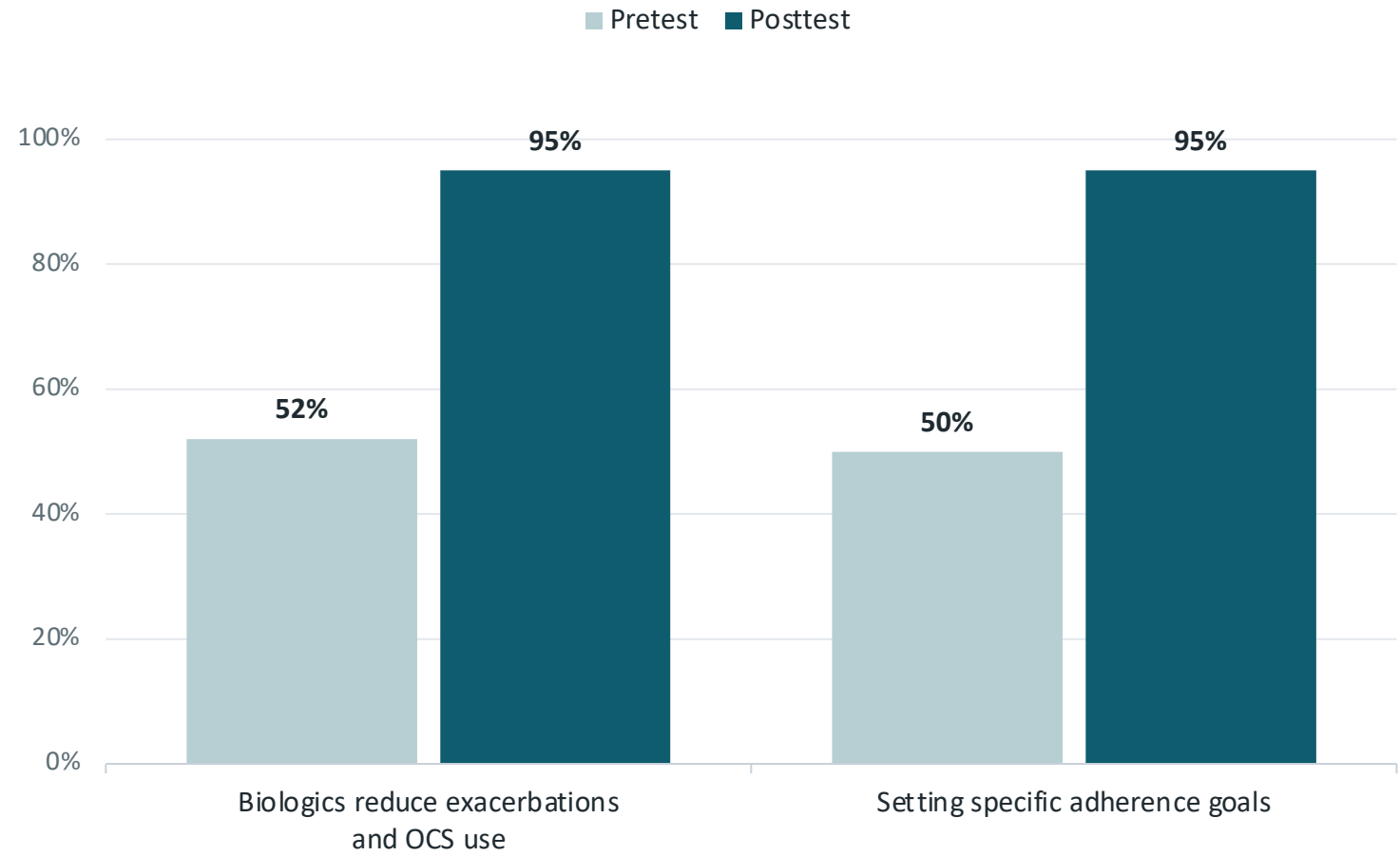
After this session, participants will be able to:

-  1 Apply current GINA and NAEPP recommendations, including SMART and AIR regimens, across age groups
-  2 Define and measure asthma control with validated tools and type 2 biomarkers
-  3 Select biologic therapy by phenotype and minimize oral corticosteroid exposure
-  4 Coordinate multidisciplinary, patient-centered care that addresses comorbidities

Asthma Remains Common, Costly, and Sometimes Fatal



Clinicians Want and Benefit From Targeted Education



But gaps persist

- Timely specialist referral
- Therapy escalation decisions
- Biologic choice in complex cases (37% relative drop on one simulation)

1

Guideline Essentials

GINA and NAEPP updates that change daily practice

GINA: Two Tracks for Adults and Adolescents

Track 1

Preferred

- Reliever: as-needed low-dose ICS–formoterol
- Steps 1–2: AIR only
- Steps 3–5: maintenance-and-reliever (MART)
- Fewer severe exacerbations than SABA-based care

Track 2

Alternative

- Reliever: SABA (with ICS when taken)
- Controller: ICS or ICS–LABA daily
- Use when Track 1 is not possible
- Check adherence before stepping up

For everyone: ICS-containing treatment for all adults and adolescents; SABA-only treatment is no longer recommended.

Why One Inhaler Works: SMART and AIR



Severe exacerbations vs
conventional regimens



Cumulative corticosteroid exposure



Adherence through a simpler
regimen



Endorsed by GINA and the 2020
NAEPP update



2

Control, Phenotype, and Biologics

Measuring what matters and matching therapy to biology

Defining Asthma Control



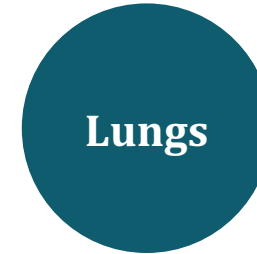
Minimal daytime symptoms



No night waking



Minimal reliever use



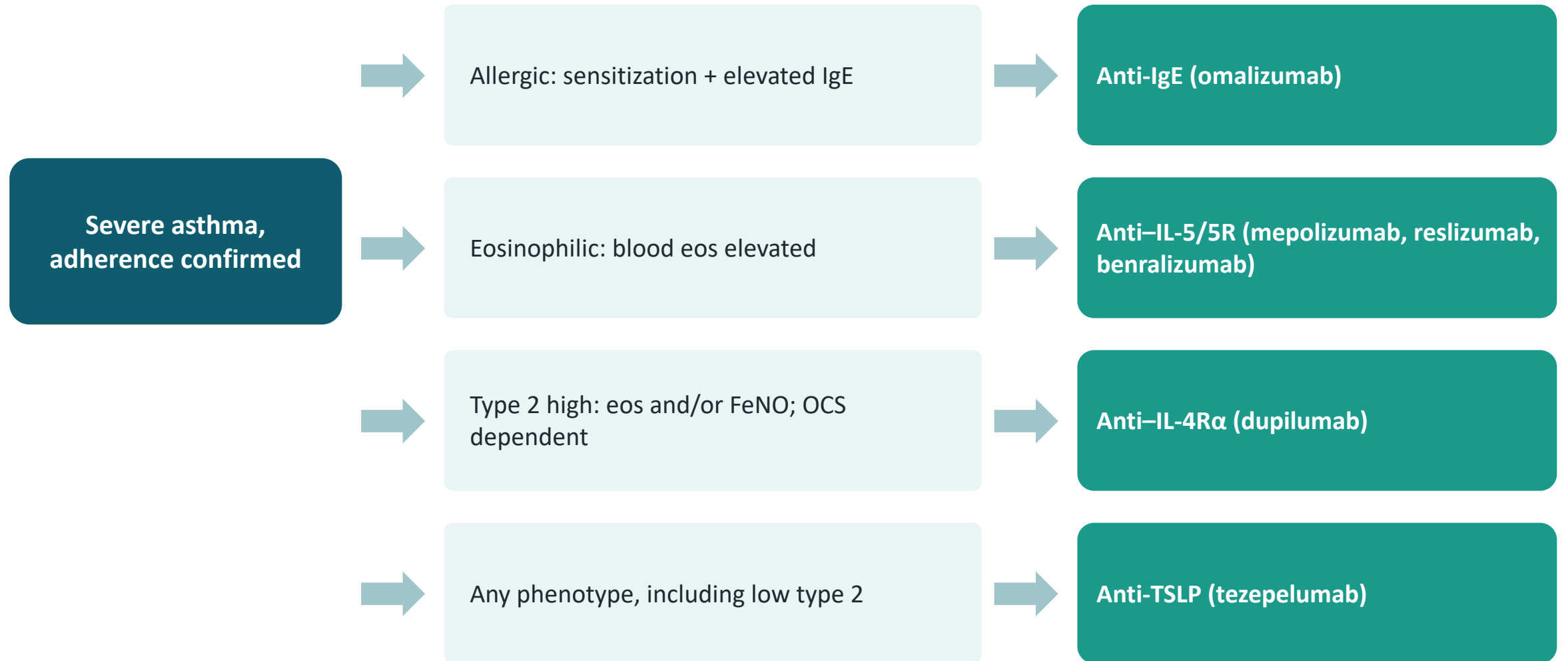
Normal activity and lung function



No exacerbations

Measure, do not guess: use the Asthma Control Test (ACT) or Asthma Control Questionnaire (ACQ), spirometry, exacerbation history, and type 2 biomarkers at every review.

Let Biomarkers Guide the Biologic



Six Biologics, Different Targets

Agent	Target	Best fit	Lowest age
Omalizumab	IgE	Allergic asthma	6 y
Mepolizumab	IL-5	Eosinophilic asthma	6 y
Reslizumab	IL-5 (IV)	Eosinophilic asthma	18 y
Benralizumab	IL-5 receptor α	Eosinophilic asthma	6 y
Dupilumab	IL-4 receptor α	Eos or FeNO high; OCS dependent	6 y
Tezepelumab	TSLP	Any phenotype	12 y

What Biologics Deliver

44%

reduction in annualized
exacerbations

60%

reduction in hospitalizations

+0.11 L

mean FEV1 improvement

↓ OCS

substantial oral
corticosteroid sparing

- Pooled randomized evidence across currently licensed agents
- Some patients reach clinical remission: no exacerbations, no OCS, stable lung function

Why Eligible Patients Still Miss Out

Underuse

Many eligible patients are never escalated to biologics

Generalizability

Only 5%–10% of real-world patients resemble trial populations

Adherence

Suboptimal adherence erodes benefit

Response

No consensus definition of response or nonresponse

Children

Pediatric safety and effectiveness data remain limited

Access

Cost and coverage barriers leave patients untreated

Case 1: The Teenager Who Keeps Flaring

Interactive polling question

- 15-year-old with 3 OCS bursts in the past year
- Medium-dose ICS–LABA; inhaler technique corrected
- Blood eosinophils 480 cells/ μ L; FeNO 52 ppb
- Moderate atopic dermatitis
- ACT score 13

Which biologic best fits this patient?

A. Omalizumab

B. Dupilumab

C. Reslizumab

D. No biologic; increase ICS only

Sections 1–2 Takeaways

- 1 Every adult and adolescent needs ICS-containing therapy; prefer ICS–formoterol reliever
- 2 Measure control with validated tools and biomarkers at every visit
- 3 Choose biologics by phenotype, comorbidity, and age
- 4 Escalate early: repeated OCS bursts are a signal, not a strategy

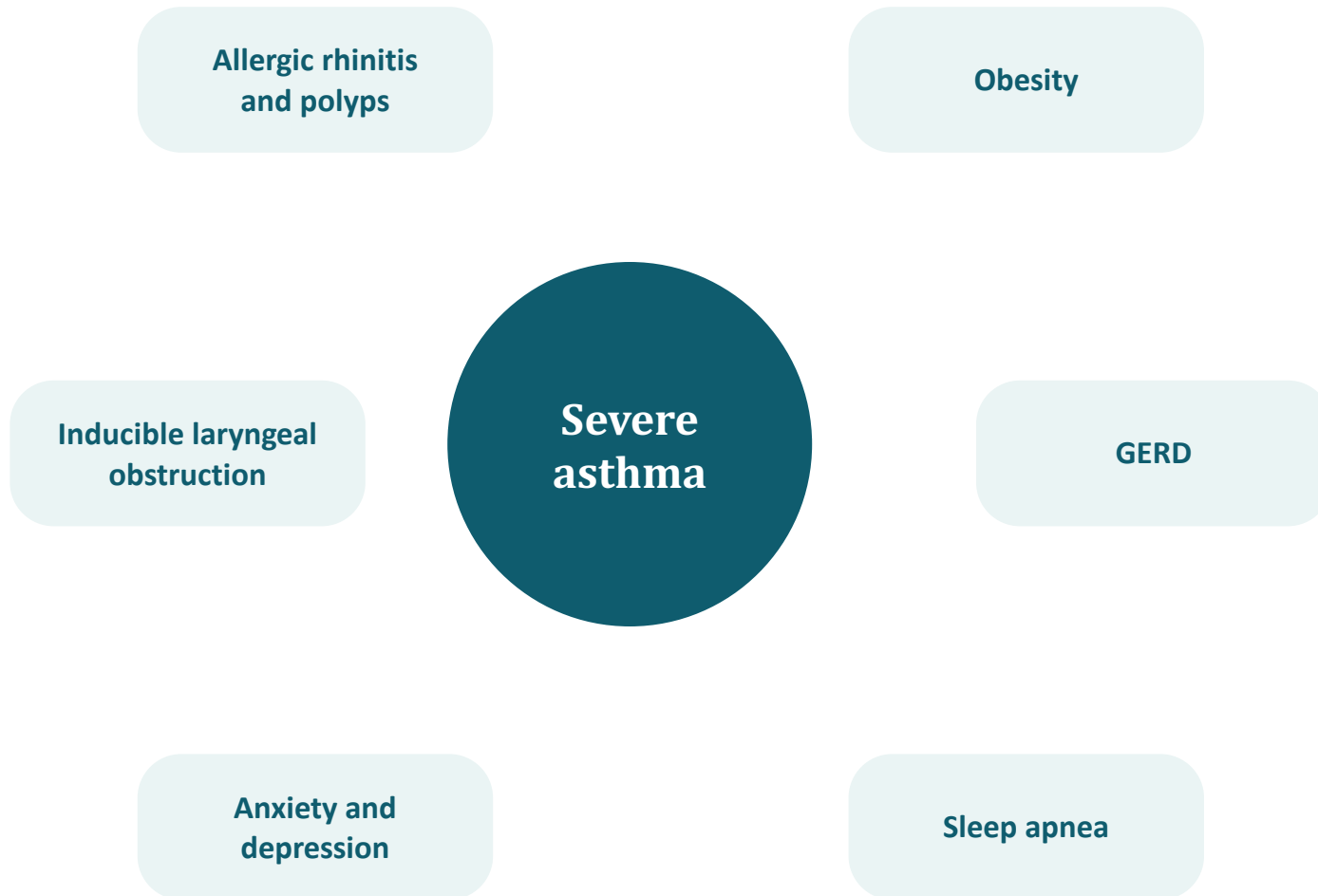


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Patient-Centered, Team-Based Care

Comorbidities, steroid stewardship, and shared decisions

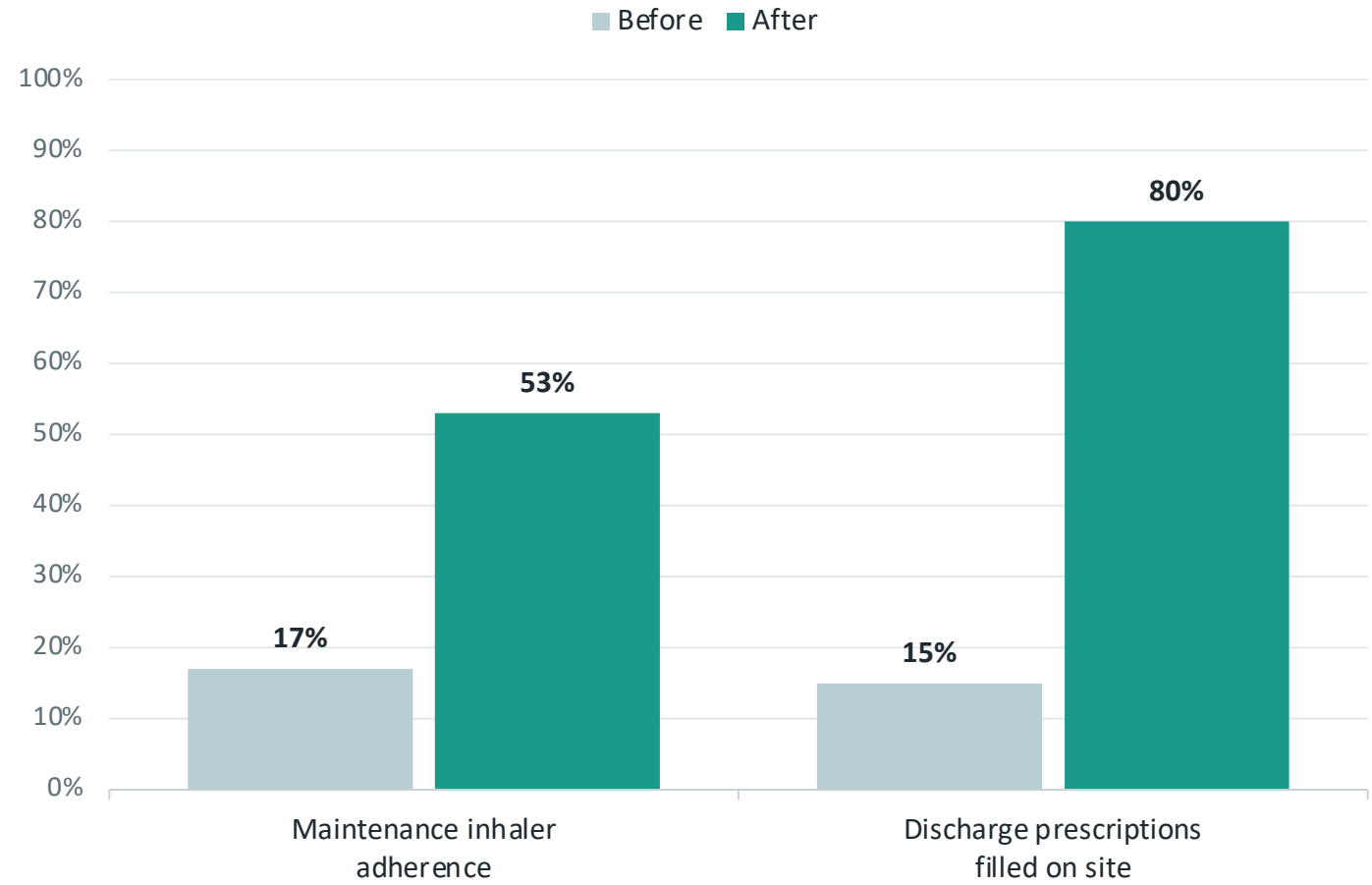
Comorbidities That Mimic or Worsen Asthma



Before escalating therapy:

- Confirm the diagnosis and adherence
- Screen for and treat comorbidities
- Distinguish undertreated asthma from anxiety-driven symptoms
- Address triggers: allergens, smoke, pollution

Team-Based Care Changes Outcomes



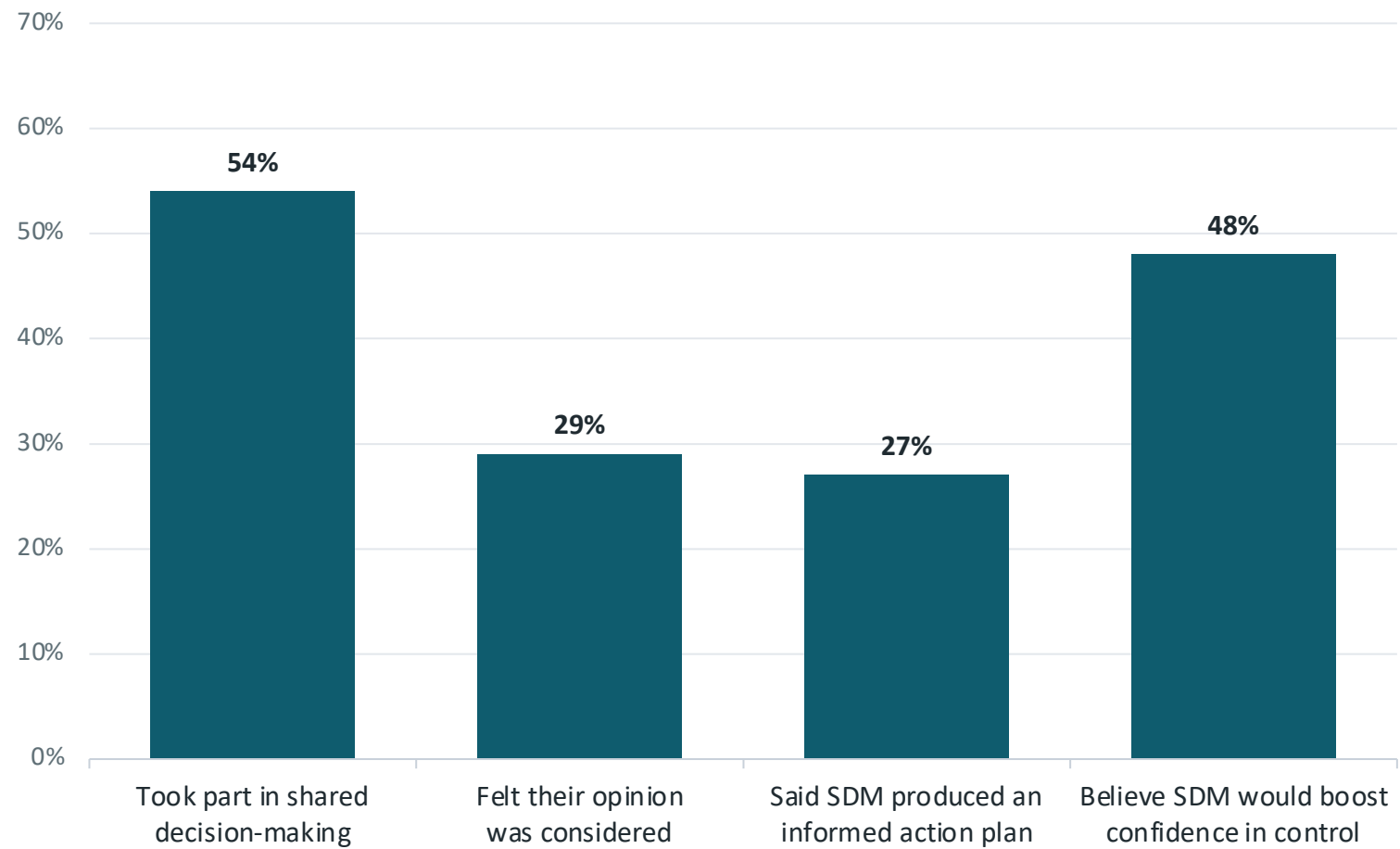
76 → 34

emergency visits after one multidisciplinary home visit

- Pharmacists: technique, adherence, access
- Nurses and RTs: education and coordination
- Specialists and PCPs: timely referral

Ghimire A, et al. Respir Med X. 2021;3:100026 (adults with severe asthma or COPD). Parikh K, et al. Pediatrics. 2019;144:e20190674 (pediatric inpatients).

Patients Want a Voice in Their Asthma Plan



Try this

Ask about goals, side-effect worries, injection preferences, and cost before choosing a biologic; agree on what success looks like at 4 months.

Steroid Stewardship in Practice

1

Count every burst

Two or more OCS courses a year should trigger review and referral

2

Switch the reliever

ICS–formoterol MART reduces exacerbations and total steroid load

3

Add nonsteroidal options

LAMA add-on for selected patients

4

Start a biologic

Benralizumab and dupilumab enable OCS tapering while maintaining control

Care Across the Lifespan

Age group	Priorities	Biologic considerations
Children 6–11	Confirm diagnosis; family education; growth and OCS exposure	Omalizumab, mepolizumab, benralizumab, dupilumab
Adolescents	Adherence, autonomy, transition to adult care	All except reslizumab; tezepelumab from 12 y
Adults	SMART/AIR; comorbidities; occupational triggers	Full range by phenotype
Older adults	Overlap with COPD and cardiac disease; polypharmacy	Phenotype carefully; review inhaler technique

Case 2: Steroid-Dependent Adult

Interactive polling question

- 48-year-old on prednisone 10 mg/day for 2 years
- High-dose ICS–LABA plus LAMA; good adherence
- Blood eosinophils 150 cells/ μ L (on prednisone)
- BMI 34; prediabetes; bone density reduced
- Wants fewer injections

What is the best next step?

A. Continue prednisone; add azithromycin

B. Start a biologic and plan a supervised OCS taper

C. Increase prednisone to 20 mg/day

D. Defer biologics: eosinophils are low

Key Takeaways

Follow

ICS-containing therapy for all; prefer ICS–formoterol reliever

Measure

Validated control tools and biomarkers at every visit

Match

Biologic by phenotype, comorbidity, age, and preference

Partner

Team-based care and shared decisions reduce OCS and exacerbations

Questions and Discussion

Please complete the post-test and evaluation to claim credit

Selected References

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2. Levy ML, et al. Key recommendations for primary care from the 2022 GINA update. *NPJ Prim Care Respir Med*. 2023;33:7.
3. Reddel HK, et al. A practical guide to implementing SMART. *J Allergy Clin Immunol Pract*. 2022;10:S31-S38.
4. Kyriakopoulos C, et al. Biologic agents for severe asthma: meta-analysis. *Eur Respir Rev*. 2024;33:230238.
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7. Khan J, et al. Management of comorbidities in difficult and severe asthma. *Breathe*. 2023;19:230133.
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