

EVOLVE: Harnessing the Power of AI, Real-World Data, and Targeted Education to Minimize Breast Cancer Care Disruptions

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Background

HER2-targeted therapies have significantly advanced the treatment of HER2+ breast cancer. However, some of these therapies are associated with interstitial lung disease (ILD), a serious and potentially life-threatening adverse event (AE) that warrants careful consideration.

Given the severity of ILD, developing a comprehensive understanding of its incidence, risk factors, and early warning signs is paramount for patient safety. While established monitoring protocols and management guidelines exist, continued research into ILD prevention and management strategies remains essential to help healthcare providers optimize treatment decisions and support patients through their treatment journey with HER2+ breast cancer.

Quality Improvement Methods

Project EVOLVE is a two-part quality improvement study that combined Novellia's AI-powered health platform with PRIME Education's expertise to analyze real-world evidence to understand ILD patterns in relation to HER2+ therapies, aiming to develop targeted educational resources for both clinicians and patients to enhance early recognition, monitoring, and management of this serious adverse event.

Part 1

A real-time observational study analyzed over 500,000 unique health records of HER2+ breast cancer patients using structured data analytics to identify patterns in ILD occurrence, diagnosis, management approaches, and potential gaps in care.



Part 2

Development and implementation of targeted educational interventions for patients on the Novellia platform and their treating HCPs.



- Patient interventions included personalized modules on cancer basics, treatment adherence, and side effect management
- HCP interventions focused on patient-specific care strategies and advanced ILD management techniques

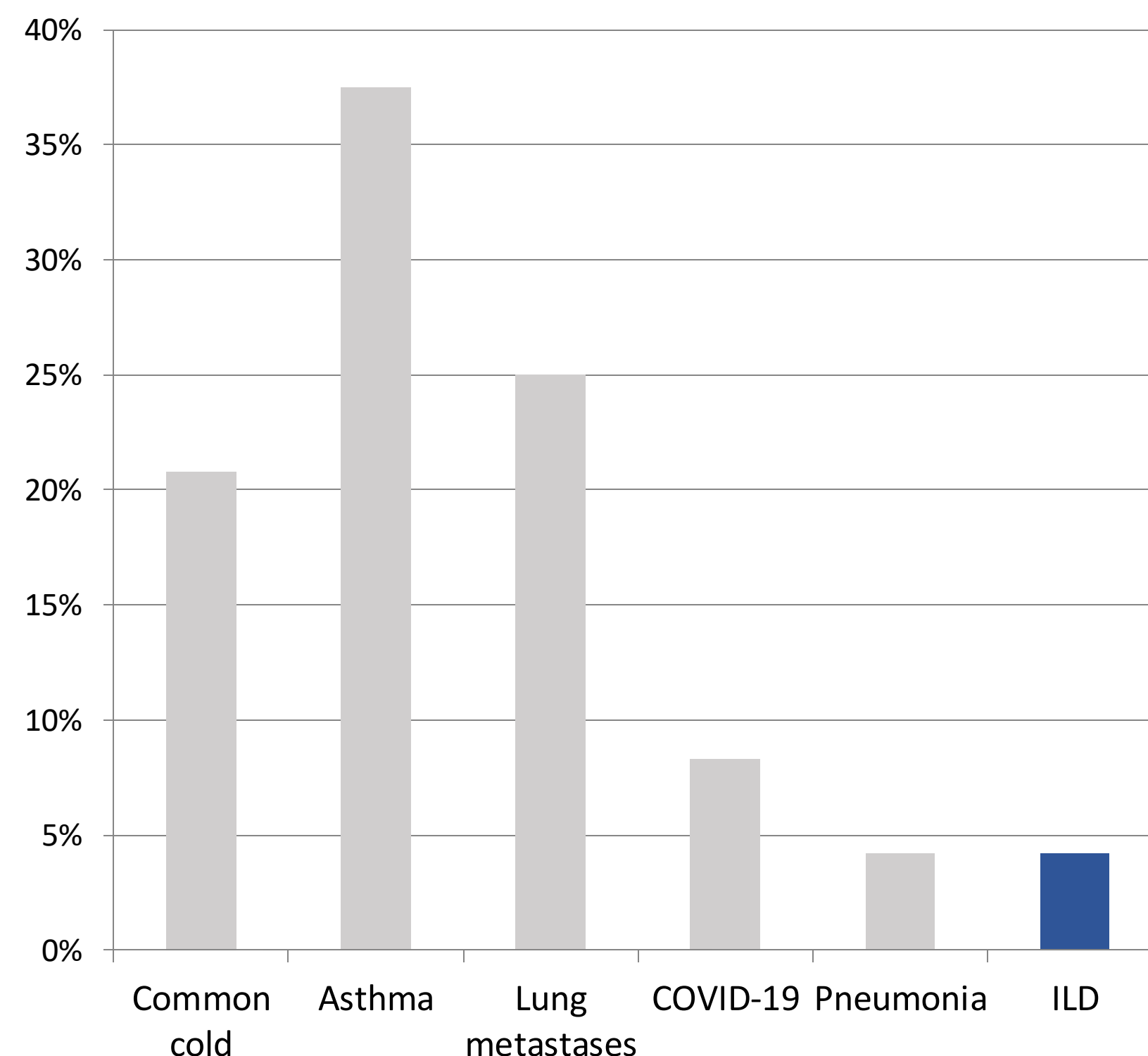
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Part 1 Findings

- 4.17% of documented respiratory AEs were identified as ILD, as compared to 10-14% in published literature¹ (n=24)
- Primary respiratory AEs: asthma (37.5%), common cold (20.8%), COVID-19 (8.3%)
- 65.79% of patients lacked COVID-19 vaccination history
- Secondary survey (n=187): 67% cited fatigue as the most challenging side effect; 38% lacked awareness of cancer subtypes and stages

Documented Respiratory AEs



TAKEAWAY

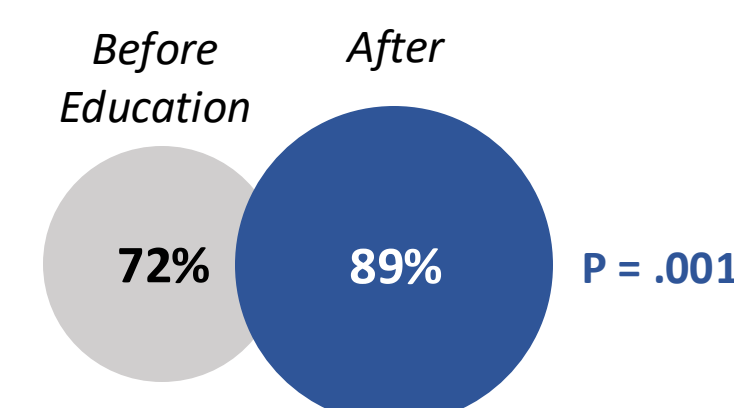
Data reveal critical need for better education to help clinicians and patients recognize and manage ILD in HER2+ breast cancer treatment.

Results

Part 2 Outcomes: Patient Improvements (n=187)

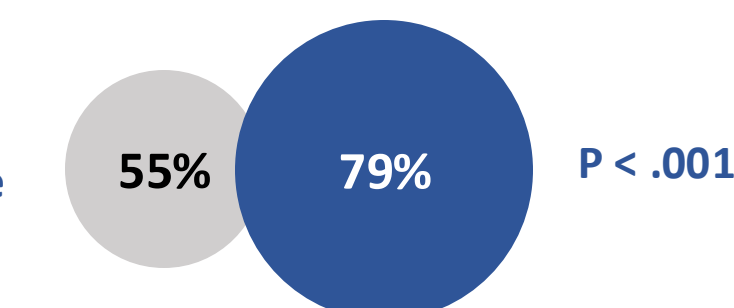
CONFIDENCE IMPACT

High confidence in ability to **stay on track with treatment plan**



CONFIDENCE IMPACT

High confidence in ability to **manage side effects of treatment at home**



Combining increased patient knowledge with greater patient empowerment can lead to **stronger alignment with guideline-based care**.

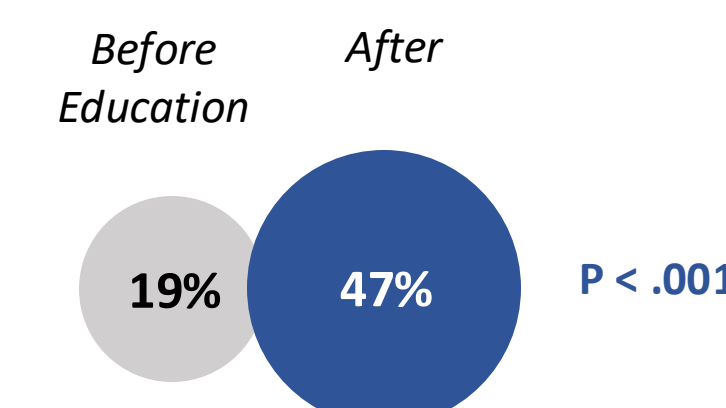
How patients say tools like Novellia can help

- 53% provide education & patient resources
- 42% empower my caregivers (caregiver portal)
- 37% medication and symptom tracker
- 26% teach me how to participate in SDM
- 21% maintain better records of my visits

HCP Improvements (n=275)

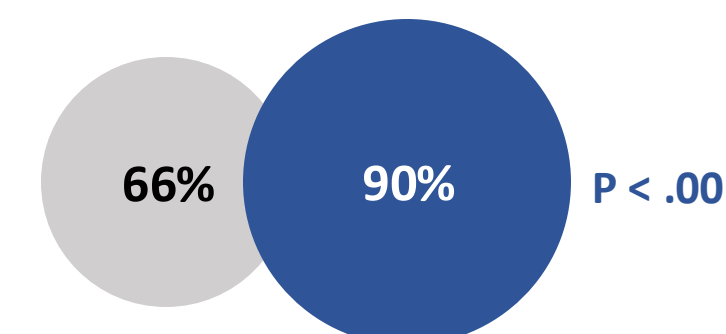
KNOWLEDGE IMPACT

Correctly selected **ILD** as the AE specifically highlighted in boxed warning for **trastuzumab deruxtecan**, necessitating close monitoring and early intervention



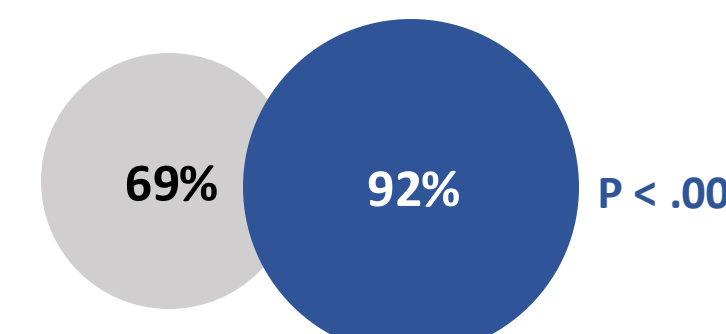
CONFIDENCE IMPACT

HCPs' overall confidence in **individualizing treatment selection** and sequencing based on patient, disease-, and treatment-related factors



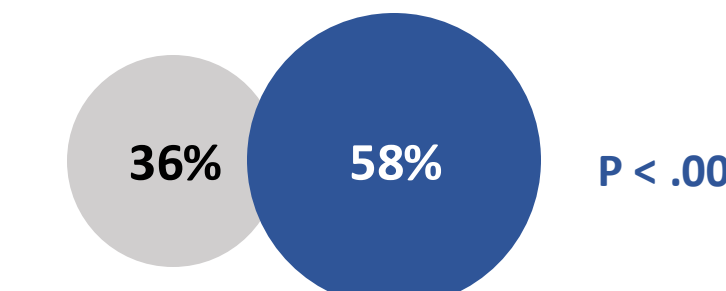
CONFIDENCE IMPACT

HCPs' overall confidence in **identifying and managing adverse events** (e.g., ILD) associated with novel HER2 targeted therapies



COMPETENCE IMPACT

Recommended trastuzumab deruxtecan for patients with HR-/HER2+ unresectable breast cancer with bone metastases & new bone lesions after therapy with trastuzumab + pertuzumab + docetaxel



Statistical analysis was conducted using chi-square or Fisher's exact tests to assess the significance of pre- and post-activity score differences.

Conclusions

Project EVOLVE demonstrated the efficacy of integrating AI-driven real-world data analysis with targeted educational interventions in optimizing HER2+ breast cancer care, particularly in managing ILD.

- Within a small cohort, EVOLVE data revealed an **ILD incidence lower than published research** and informed the creation of targeted, focused HCP and patient education
- This education drove significant improvements in **HCP confidence and decision-making regarding AE management** and treatment recommendations
- **Patient outcomes also improved substantially**, with increased confidence in treatment adherence and side effect management
- This data-driven, targeted education approach was identified as a **key benefit by 53% of patients**

These findings suggest that this novel methodology helped inform and deliver highly impactful education to patients and HCPs, potentially improving AE management and patient outcomes in HER2+ breast cancer.

This innovative approach presents a promising model for addressing complex adverse events in oncology and beyond, particularly around serious adverse events, paving the way for more personalized and effective cancer care strategies that prioritize patient safety and treatment efficacy.

References

1. Henning JW, Brezden-Masley C, Gelmon K, Chia S, Shaperira S, McClinnis M, Rayson D, Asselah J. Managing the Risk of Lung Toxicity with Trastuzumab Deruxtecan (T-DXd): A Canadian Perspective. *Curr Oncol*. 2023 Aug 30;30(9):8019-8038. doi: 10.3390/curroncol30090582. PMID: 37754497; PMOD: PMC10529919.