# A Retrospective Analysis of Deep Tissue Injury Prevalence and Incidence Using a Large-Scale Wound Care Database in Long-Term Care Settings Across North America

## Robert D J Fraser,<sup>1,2</sup> Heba Tallah Mohammed,<sup>1</sup> Matthew Wynn,<sup>3</sup> Rishabh Gupta, Dhanesh Ramachandram,<sup>1</sup> Sharjeel Mustafa,<sup>14</sup> Lucas Goldstone,<sup>1</sup> Jose Rameriz-GarciaLuna,<sup>5</sup> Kevin Woo,<sup>6,7</sup> Joshua Moralejes,<sup>6</sup> Joyce Black,<sup>7</sup> Amy Cassata<sup>1</sup>

<sup>1</sup> Swift Medical,<sup>2</sup> Arthur Labatt Family School of Nursing, Western University of Salford, England,<sup>4</sup> Department of Computer Science, University of Windsor, <sup>5</sup> Department of Surgery, McGill University Health Centre <sup>6</sup> University Health Network <sup>7</sup>Queens University <sup>8</sup> University of Nebraska Medical Center

### Overview

- Deep tissue pressure injuries (DTPIs) is "a purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear."<sup>1</sup>
- Understanding the prevalence and incidence of DTPIs is important to develop effective strategies for their prevention, and resource allocation. However, limited research directly addresses the prevalence of DTPIs.<sup>2,3,4,5,6</sup>
- Our study sought to examine the epidemiology of DTPIs utilizing an extensive wound care database extracted from an AI-powered digital wound care solution (DWCS) designed to capture clear images, precise assessments and documentation.<sup>7</sup>

## Objective

• This retrospective study sought to examine the five-year incidence and prevalence rates of DTPIs within skilled nursing facilities (SNFs) that adopted DWCS.

### Methodology

#### Study Design & Data Source: • Retrospective analysis of de-identified wound care data from DWCS (SNFs) (2019–2023). **Setting & Participants:** 964 skilled nursing organizations and 4,845 facilities. o 204,706 DTPI wounds from 120,689 unique patients. **Data Indicators: Point Prevalence** = (Total DTPI cases / At-risk population) $\times$ 100. Cumulative Incidence = (New DTPI cases / Total admissions × Timeframe) × 100,000. Each DTPI lesion was considered a unique case (i.e., calculations were based

on individual wound occurrences rather than patient-level aggregation).





### **DTPI Incidence Rate Per 100,000 Population (2019-2023)**

- The incidence rate peaked in 2020 and 2021 with a 31.5% increase in 2020 raising the rate to 6.50, followed by a 4% rise in 2021.
- In 2022, the rate dropped by 13.6% but rebounded in 2023 with a 4.6% increase to 6.11. per 100,000 population.

### **DTPI Prevalence Rate (2019-2023)**

- The prevalence rate rose from 5.17% in 2019 to 6.93% in 2020 and grew slightly by 2.9% in 2021.
- In 2022, it dropped by 13.4% before stabilizing at 6.2% in 2023.

