

Estimation of Annual Indirect Costs Associated With Moderate-to-Severe Plaque Psoriasis in the United States

Christopher N Graham,¹ LaStella Miles,¹ Doreen McBride,² Yang Zhao,³ Vivian Herrera³

¹ RTI Health Solutions, Research Triangle Park, NC, United States; ² RTI Health Solutions, Manchester, United Kingdom; ³ Novartis Pharmaceuticals Corporation, East Hanover, NJ, United States

BACKGROUND

- Psoriasis is a chronic, immune-mediated skin disease that affects approximately 2% to 3% of the population in the United States (US).^{1,2}
- The economic burden of psoriasis in the US was estimated to be \$35.2 billion in 2013, with the costs of productivity loss accounting for 32% of this burden.³
- The Psoriasis Area Severity Index (PASI) score is a weighted measurement of the average redness, thickness, and scaliness of psoriasis lesions that is used to assess the severity of the disease. PASI 75 response (75%-100% improvement in PASI score from baseline) is recognized as a clinically meaningful endpoint in clinical trials for the treatment of psoriasis, and PASI 90 (90%-100% improvement) has recently been used in the development of many psoriasis treatments.⁴
- Among US patients with moderate-to-severe plaque psoriasis, there are limited data on indirect costs due to loss of work productivity (missed work time and impairment while working) by measures of treatment effect (e.g., change in PASI).

OBJECTIVE

- To estimate the indirect costs of moderate-to-severe plaque psoriasis by treatment-based disease improvement, as measured by PASI score change, from an employer's perspective in the US.

METHODS

- Psoriasis data from a phase 3b study comparing the efficacy and safety of secukinumab versus ustekinumab (CLEAR) were analyzed from baseline to 16 weeks.
- Pooled secukinumab and ustekinumab data were stratified by four levels of PASI score change from baseline to 16 weeks:
 - Less than 50% improvement (PASI < 50)
 - 50%-74% improvement (PASI 50-74)
 - 75%-89% improvement (PASI 75-89)
 - At least 90% improvement (PASI ≥ 90)
- The Work Productivity and Activity Impairment Questionnaire (WPAI) is a quantitative measure of health-related work productivity loss, with a 1-week recall period, that assesses work time missed (absenteeism), reduced on-the-job effectiveness (presenteeism), and daily activity impairment.⁵
- Percentage of work time missed and impairment while working were captured by the WPAI from baseline to Week 16 for all trial subjects employed at baseline and were used to estimate the percentage of overall work impairment due to psoriasis.
- Employment parameter inputs were obtained from the CLEAR study, and the national averages for full-time and part-time employment, hours worked per week, and hourly wages were obtained from the US Department of Labor.
- Productivity loss (average work hours lost per week) was calculated as the average work hours per week times the percentage of work impairment.
- Annual indirect costs were calculated by multiplying the productivity loss by the average hourly wage data.

Employment Parameters

Parameter	Value
Percentage of psoriasis population employed ⁶	67.0%
Percentage of part-time employment ⁷	18.9%
Average work hours per week ⁸	
Full-time	39.5
Part-time	20.7
Average hourly wage ^{8,9}	
Full-time	\$25.01
Part-time	\$13.33

RESULTS

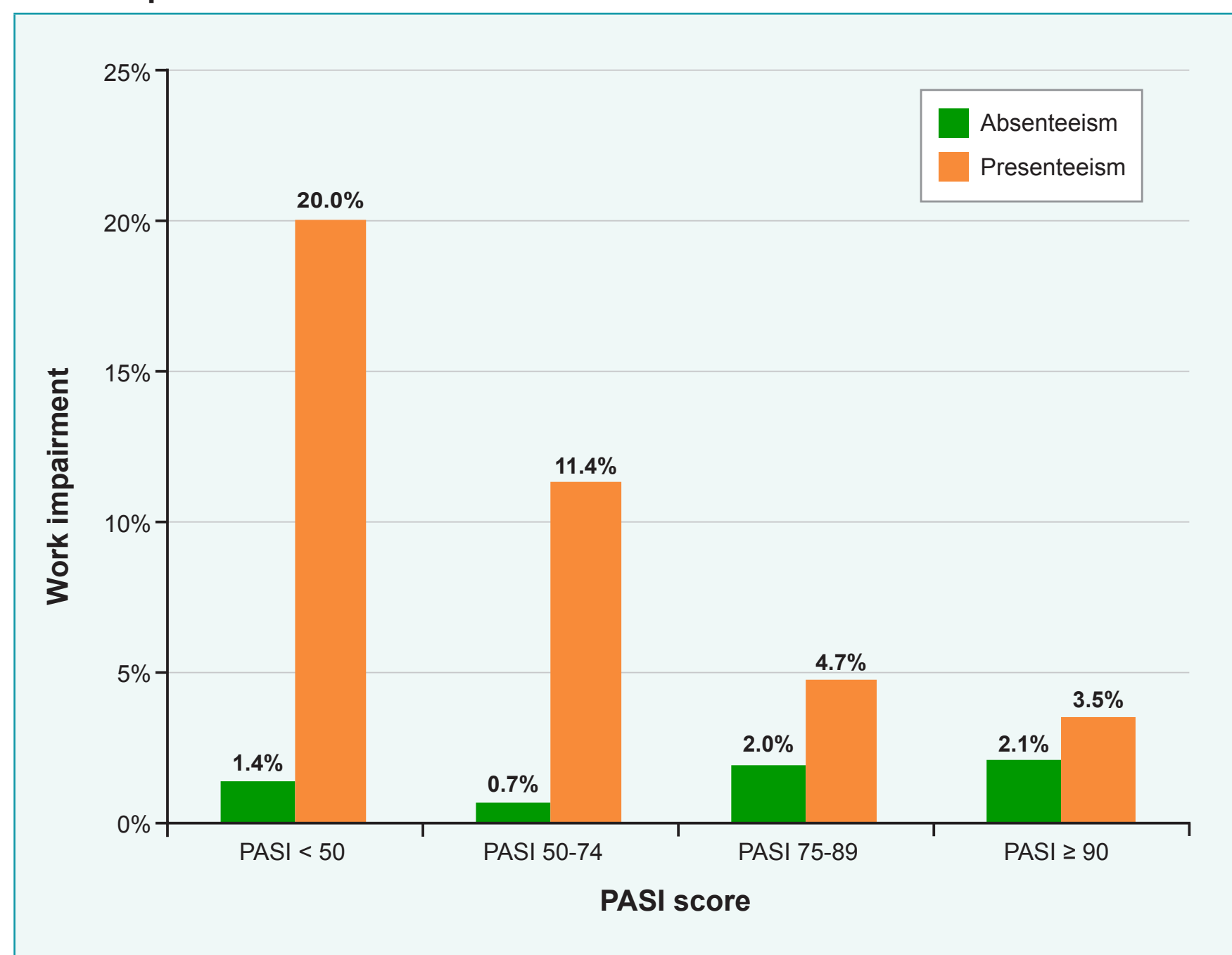
- Overall work impairment due to psoriasis decreased with greater skin clearance, with the majority of impairment being related to productivity loss at work (presenteeism) rather than to work time missed (absenteeism).

Overall Work Impairment by PASI Score Change

PASI Score Change	Overall Work Impairment	
	Mean	Standard Error
PASI < 50	22.8%	0.15
PASI 50-74	13.3%	0.08
PASI 75-89	6.4%	0.06
PASI ≥ 90	4.9%	0.07

PASI = Psoriasis Area Severity Index. Results based on WPAI by PASI from the CLEAR study.

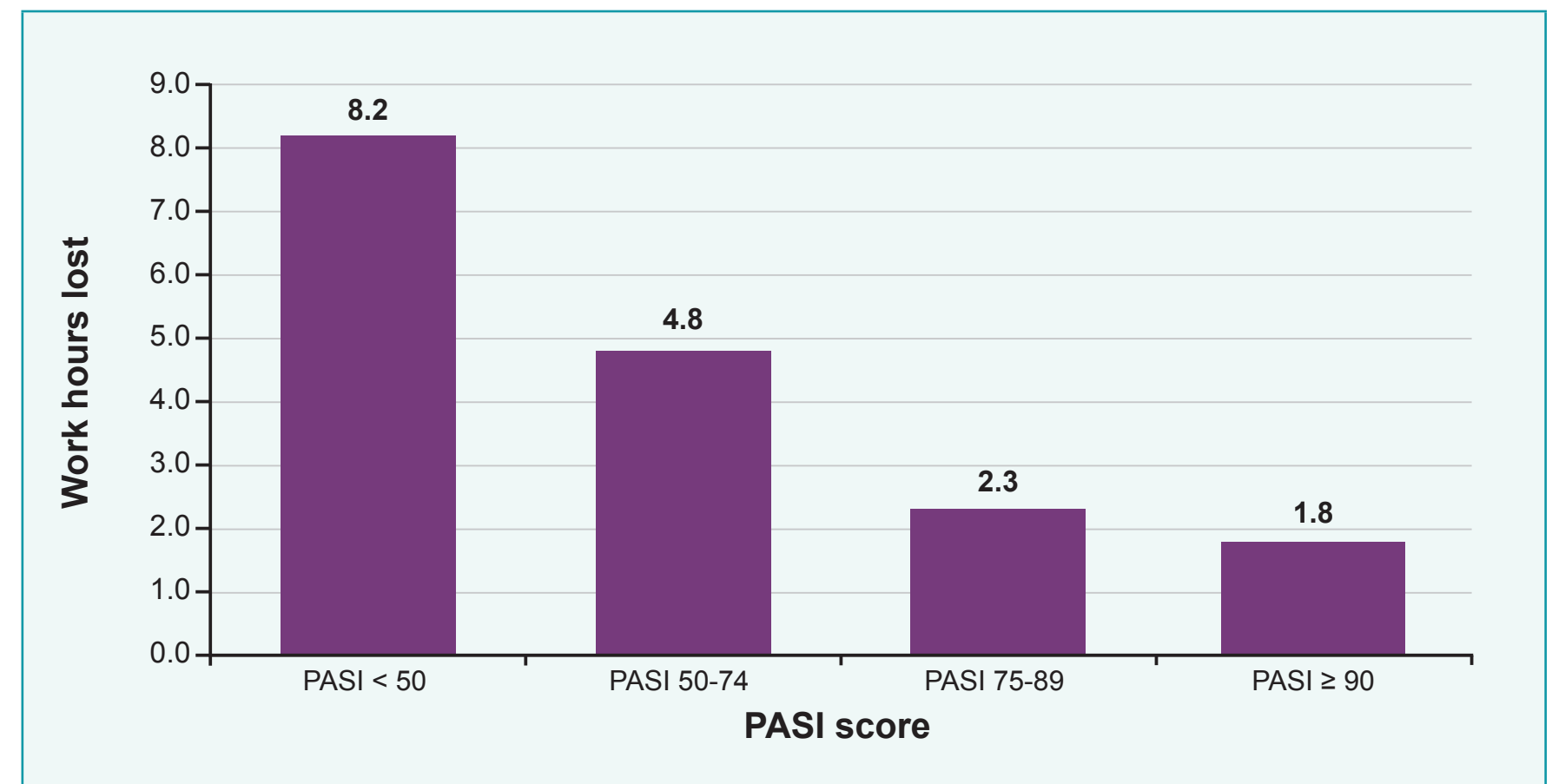
Work Impairment Due to Absenteeism and Presenteeism



PASI = Psoriasis Area Severity Index.

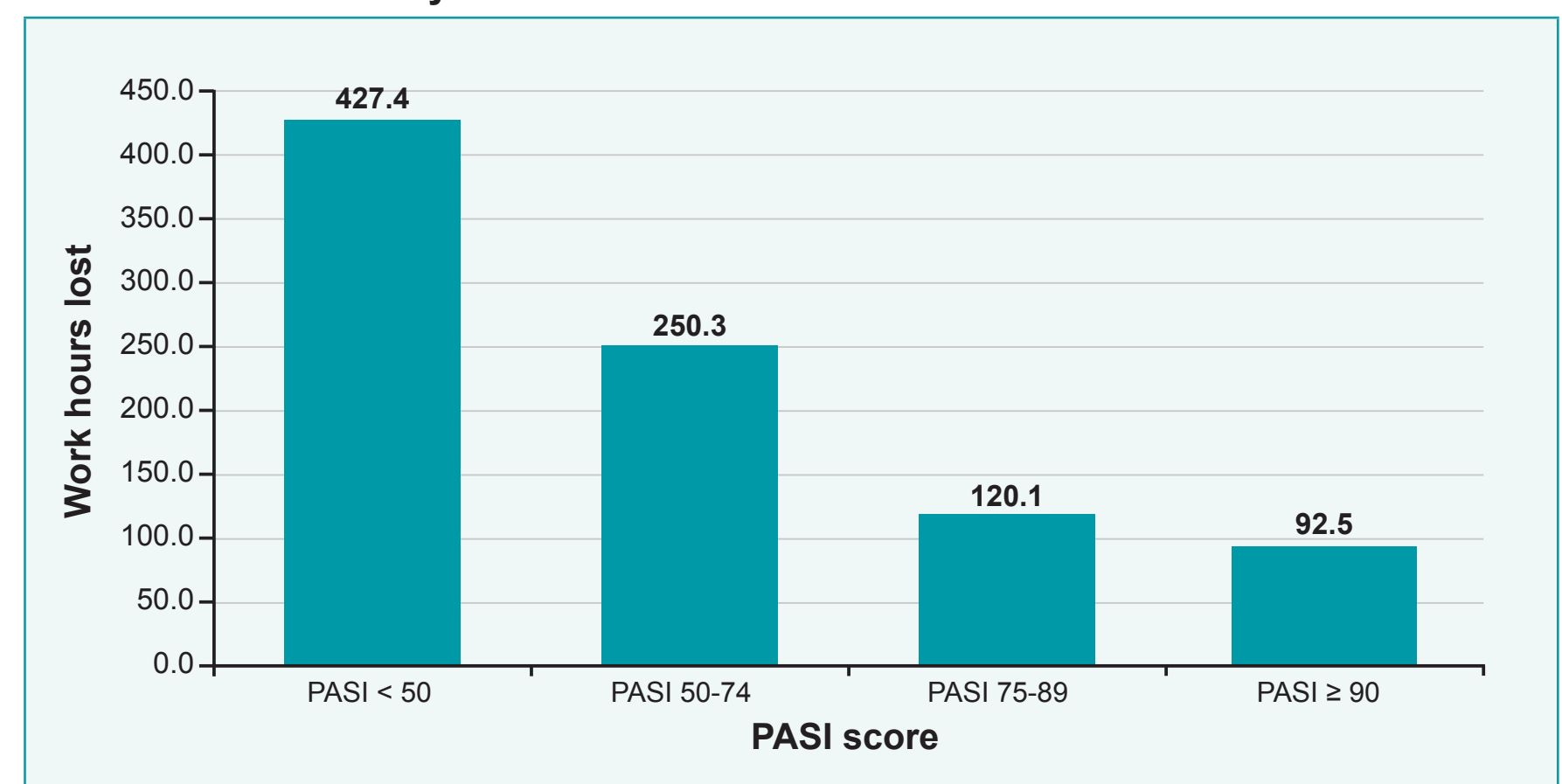
- On average, the productive work time missed due to psoriasis symptoms decreased with increasing psoriasis clearance.

Weekly Hours Lost By PASI



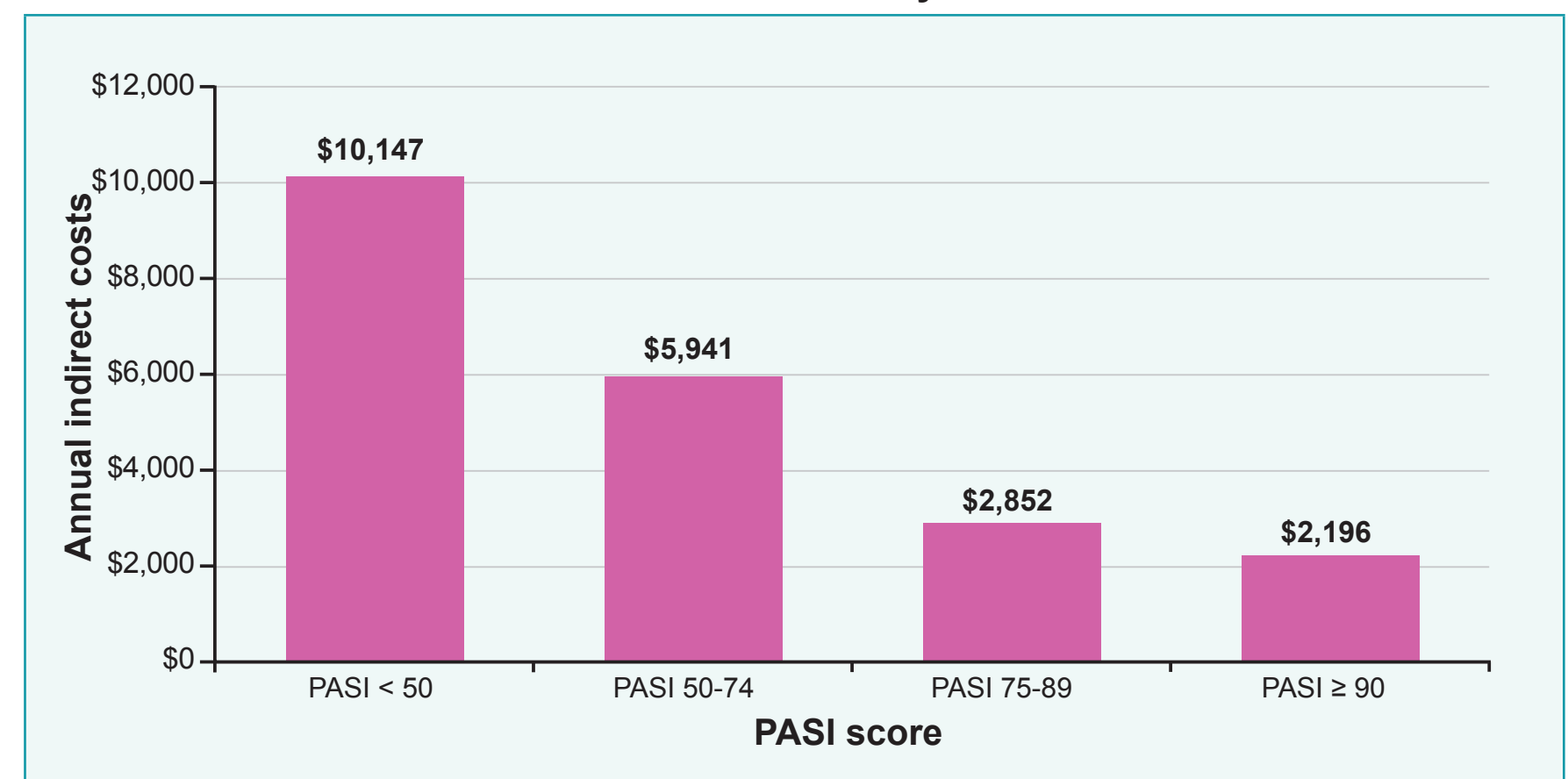
PASI = Psoriasis Area Severity Index.

Annual Hours Lost By PASI



PASI = Psoriasis Area Severity Index.

Annual Indirect Costs Due To Work Productivity Loss



PASI = Psoriasis Area Severity Index.

- Indirect costs associated with PASI ≥ 90 response were 78% lower than those associated with PASI < 50 response, 63% lower than those associated with PASI 50-74 response, and 23% lower than those associated with PASI 75-89 response.

LIMITATIONS

- Short-term (16-week) data were used to project long-term (annual) costs.
- Wages for the general population were assumed to be similar to wages for the psoriasis population.
- The percentage of patients with psoriasis who were employed was obtained from the CLEAR trial data and may not be representative of real-world employment percentages in the entire psoriasis population.

CONCLUSION

- Among US working patients with moderate-to-severe psoriasis, those achieving PASI improvement ≥ 90 are associated with a prominent increase in workplace productivity and reduction in annual indirect costs.

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