Limitations of the study were its small sample size and incomplete VNTR analysis in 4 subjects, which could have provided stronger evidence of zoonotic transmission. Future studies will aim to expand the sample size by collaborating with the National Hansen's Disease Program and additional regional dermatology practices.

Determining the mode of transmission of HD is important for preventing future infection and also to dispel the notion that HD is strictly a disease of migrants and foreign travelers. How our subjects who did not recall any direct contact with armadillos contracted HD is unclear. Further investigation of HD transmission is warranted.

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REFERENCES

1. Florida Health. *Reportable diseases frequency report*; 2010-2017. Available at: http://www.flhealthcharts.com/ChartsReports/rdPage.aspx?rdReport=FrequencyMerlin.Frequency. Accessed June 25, 2018.
2. Truman RW, Singh P, Sharma R, et al. Probable zoonotic leprosy in the southern United States. *N Engl J Med*. 2011;364(17):1626-1633.
3. Rendini T, Levis W. Autochthonous leprosy in the eastern United States is from international migration, not from armadillos. *JAAD Case Rep*. 2017;3(4):370.
4. Sharma R, Singh P, Loughry WJ, et al. Zoonotic leprosy in the southeastern United States. *Emerg Infect Dis*. 2015;21(12):2127-2134.
5. Monot M, Honore N, Garnier T, et al. Comparative genomic and phylogeographic analysis of *Mycobacterium leprae*. *Nat Genet*. 2009;41(12):1282-1289.

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The acceleration of melanoma in situ: A population-based study of melanoma incidence trends from Victoria, Australia, 1985-2015

To the Editor: When considering melanoma burden, national health bodies generally focus on invasive melanoma, giving comparatively little attention to melanoma in situ (MIS). However, because MIS incidence is not publicly reported, the true burden of melanoma in a community may be underrecognized. Public health goals to slow or plateau the incidence of invasive melanoma could be achieved even with rates of the underlying disease still increasing. A number of studies have found that the incidence of MIS has been increasing at a faster rate than invasive melanoma in several countries, demonstrating the importance of considering MIS.[1-3]

This population-based study investigates trends in the incidences of MIS and invasive melanoma from the state of Victoria, Australia. Both invasive melanoma and MIS are mandatorily reported in Victoria, and all melanoma records held by the Victorian Cancer Registry from 1985 to 2015 were examined. Cancer Council Victoria approved the data release, and ethics committee approval was obtained (HREC ref: LNR/17/HAWKE/206). Age-standardized incidences were calculated in the standard manner and trends were examined by joinpoint analysis. Joinpoint models were constrained to have a minimum of 4 data points between joinpoints, with additional joinpoints considered sequentially.

A total of 100,848 records from 87,004 individuals were considered. After adjustment for multiple primary tumors following standard convention, the final sample consisted of 53,982 invasive melanomas and 33,022 in MIS tumors.

Table I presents the 2015 incidences and estimated trends from the fitted joinpoint models of the age-standardized incidences. In 2015, Victoria recorded more melanoma tumors than in any year prior. A total of 5967 initial primary tumors were diagnosed in 2015; of these tumors, 3235 (54%) were MIS tumors and 2732 (46%) were invasive melanoma. For males, this equates to 2015 incidences of 59.0 per 100,000 for MIS and 52.9 for invasive melanoma. The 2015 incidences for females were 50.0 per 100,000 for MIS and 39.2 for invasive melanoma. This is the second consecutive year in which there have been more cases of MIS than invasive melanoma tumors.

The invasive melanoma incidence trend models exhibit a deceleration in late 1990s, whereas the trend models for MIS incidences show a flattening in 1990 and a steep acceleration in 2012 (Fig 1). This

Table I. Melanoma: Victoria, Australia, 2015 incidence per 100,000 and age-standardized incidence estimated annual percentage changes

		First trend			Second trend			Third trend		
Sex	Incidence in 2015	Period	APC (95% CI)	*P* value	Period	APC (95% CI)	*P* value	Period	APC (95% CI)	*P* value
Melanoma in situ										
Males	59	1985-1990	27.2 (10.5, 46.3)	.002	1990-2012	4.9 (4.0, 5.8)	<.001	2012-2015	15.6 (3.4, 29.2)	.013
Females	50	1985-1990	23.5 (10.8, 37.7)	<.001	1990-2012	3.1 (2.3, 3.9)	<.001	2012-2015	18.2 (5.9, 31.9)	.005
All persons	54.5	1985-1990	24.9 (11.2, 40.3)	<.001	1990-2012	4.1 (3.3, 4.9)	<.001	2012-2015	16.9 (5.4, 29.7)	.005
Invasive melanoma										
Males	52.9	1985-1996	5.3 (3.6, 7.1)	<.001	1996-2015	0.9 (0.3, 1.5)	.006			
Females	39.2	1985-1996	3.4 (2.0, 4.9)	<.001	1997-2015	−0.1 (−0.8, 0.5)	.670			
All persons	46	1985-1996	4.5 (2.9, 6.1)	<.001	1996-2015	0.5 (−0.1, 1.1)	.074			

Joinpoint analysis performed with software from the US National Cancer Institute. Age-standardized incidences were standardized to the 2015 Victorian population.
APC, Annual percentage change; *CI*, confidence interval.

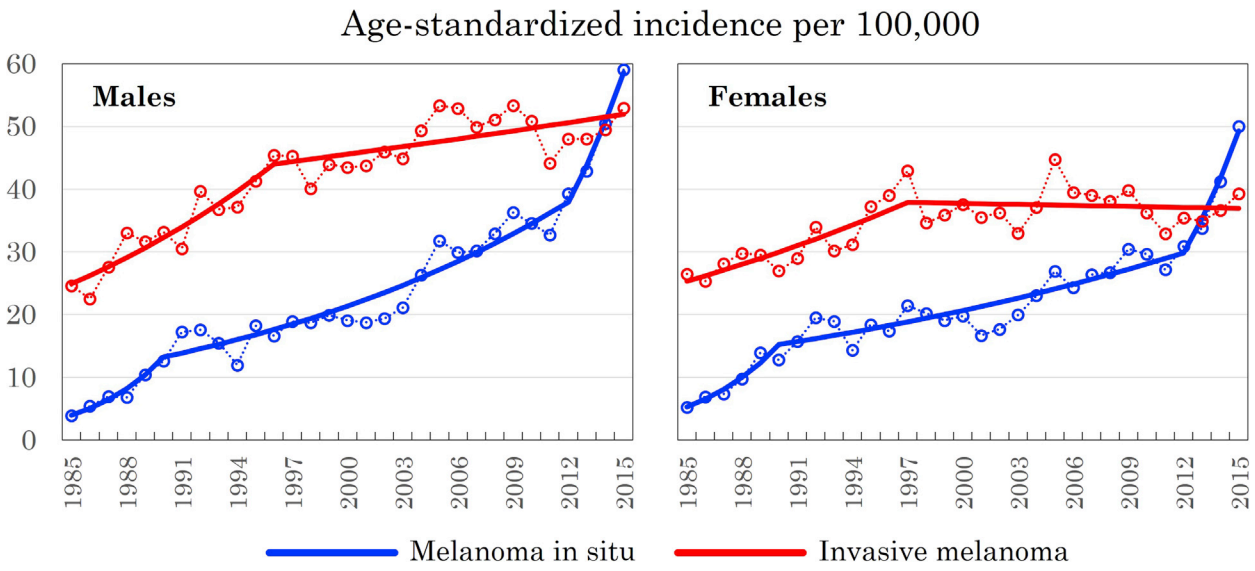

Fig 1. Melanoma in situ and invasive melanoma: Victorian age-standardized incidences (standardized to the 2015 population of Victoria, Australia).

acceleration since 2012 is largely responsible for MIS incidence overtaking invasive melanoma incidence. From 2012 to 2015, MIS incidence has risen annually by 18.2% (95% confidence interval, 5.9%-31.9%) for females and 15.6% (95% confidence interval, 3.4%-29.2%) for males.

These results indicating that MIS incidence in Victoria is increasing at a faster rate than invasive melanoma incidence are similar to findings observed elsewhere.[1-3] However, the increases described here are among the highest recently reported. Rising MIS may demonstrate the success of public awareness campaigns through early detection and intervening while melanoma is still in situ.[3] Improvements in diagnostic technologies and criteria could be contributing to the steep increases in MIS incidence and may indicate the presence of overdiagnosis.[4,5]

This study demonstrates that the overall burden of melanoma in Victoria, Australia, is increasing faster than the traditional measure of invasive melanoma indicates. Reporting both MIS and invasive melanoma is important to evaluate the effectiveness of public health programs and guide future efforts and policy.

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REFERENCES

1. Wei EX, Qureshi AA, Han J, et al. Trends in the diagnosis and clinical features of melanoma in situ (MIS) in US men and women: a prospective, observational study. *J Am Acad Dermatol*. 2016;75(4):698-705.
2. Toender A, Kjaer SK, Jensen A. Increased incidence of melanoma in situ in Denmark from 1997 to 2011: results from a nationwide population-based study. *Melanoma Res*. 2014;24(5):488-495.
3. Aitken JF, Youlden DR, Baade PD, Soyer HP, Green AC, Smithers BM. Generational shift in melanoma incidence and mortality in Queensland, Australia, 1995-2014. *Int J Cancer*. 2018;142(8):1528-1535.
4. March J, Hand M, Grossman D. Practical application of new technologies for melanoma diagnosis: part I. Noninvasive approaches. *J Am Acad Dermatol*. 2015;72(6):929-941; quiz 41-2.
5. Nufer KL, Raphael AP, Soyer HP. Dermoscopy and overdiagnosis of melanoma in situ. *JAMA Dermatol*. 2018;154(4):398-399.

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Examining cutaneous disease activity as an outcome measure for clinical trials in dermatomyositis

To the Editor: Due to successful emerging therapies for psoriasis, total skin clearance has become a primary endpoint in clinical trials and has impacted trial design for other inflammatory skin conditions such as dermatomyositis.[1] However, insufficient evidence exists on the impact of total skin clearance from these patients' perspectives, and dermatomyositis patients might retain signs of inflammation and damage despite having an acceptable quality of life (QoL). For example, periungual telangiectasias are asymptomatic markers of disease activity in dermatomyositis but can be retained even when disease is well-controlled.[2] The effect of skin clearance on QoL was investigated in some studies by comparing patient-reported outcomes to validated measures of disease severity.[1] The current standardized QoL instruments, Skindex-29 and Dermatology Life Quality Index (DLQI), are shown to correlate with Cutaneous Dermatomyositis Disease Area and Severity Index (CDASI) activity scores and have been validated for use in clinical trials.[3] However, the Skindex-29 and DLQI scores have not been specifically examined in patients with mild disease (CDASI $\leq$14), who might have an acceptable QoL despite their cutaneous manifestations.[4] This is clinically important, as strict total clearance endpoints might impede development of much needed therapies that might provide substantial QoL benefit without complete resolution of skin findings. In this study, we aimed to identify CDASI cutoff values to be used as meaningful endpoints in clinical trials to optimize drug development for this difficult-to-treat and rare disease.

We performed a retrospective review of 171 patients enrolled in a prospective longitudinal dermatomyositis database. We evaluated the correlation of individual Skindex-29 and DLQI scores versus the CDASI activity scores in patients with dermatomyositis at their enrollment visit. A slope-changing linear model was fitted to determine the CDASI cutoff value, defined as the lowest CDASI score at which the instrument correlates well with QoL (Fig 1). The DLQI had the lowest CDASI cutoff value of 4, compared with the other Skindex-29 subscales (emotions 10, functioning 8, symptoms 7). Below these CDASI cutoff values, the Skindex-29 and DLQI were found to correlate poorly with cutaneous disease activity. Further improvement in CDASI activity score does not lead to further improvement in QoL. Our findings suggest that QoL is not directly affected by the minimal cutaneous disease activity below these CDASI cutoff values and, therefore, total clearance of skin findings might be irrelevant as a meaningful outcome for patients. In addition, the linear correlation of CDASI with QoL until the cutoff value suggests that changes in CDASI scores are relevant over the spectrum of disease activity above these cutoffs.