in situ hybridization (FISH) following an abnormal triple screen during pregnancy. The incidence of RXLI is thought to range from 15 to 50 per 100,000, based on enzyme and genetic studies. The discrepancy between boys and girls in our data does not approach 50 per 100,000, but this may be because FISH is not a routine test in many communities, and RXLI is often a relatively mild form of ichthyosis making it clinically unrecognizable early in life.

What is the best number for incidence of moderate to severe ichthyosis to use from these data? Since girls do not get the milder form of ichthyosis, RXLI, we can take the incidence of girls with the ICD-9-CM 757.1 diagnosis as reasonably representative of moderate to severe ichthyosis. That average incidence over the 10 years of the study is 6.7 per 100,000. An oft-quoted but un-referenced figure of 1 in 200,000 has been used for 2 of the more common and easily recognizable subtypes of disease: lamellar ichthyosis and epidermolytic hyperkeratosis. If we add to those incidence numbers the dozen rarer syndromic and nonsyndromic types of clinically distinctive congenital ichthyosis, 6.7 in 100,000 for all moderate to severe types of ichthyosis seems quite consistent. To our knowledge, this is the first estimate of moderate to severe ichthyosis based on patient data.

It should be noted that the databases used for this study are de-identified, precluding independent validation of ICD-9-CM coding. Concerns about this limitation are mitigated, however, by the distinctive clinical presentation, the unique code for ichthyosis, and our limiting the sample to the first year of life.

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Results. A total of 41,007 cases were analyzed, including only 374 cases of regressing melanoma. Use of the code for regressing melanomas did not occur until 1986, and its use has steadily increased since, in disproportionate to the rising incidence of melanoma (Figure 1). Use of the code was highest in New Mexico and Hawaii and lowest in Detroit and Iowa (Figure 2). Compared with other cases of malignant melanoma, regressing melanomas occurred more often on the trunk and among men and blacks. These tumors had smaller Breslow depths and were less often ulcerated than other malignant melanomas; however, they were more likely to invade the lymph nodes and metastasize (Table 1).

Survival did not differ significantly between the regressing melanomas and other malignant melanomas (P = .72). By univariate analysis, older age (P < .001), greater Breslow depth (P < .001), presence of metastases (P < .001), and spread to regional or distant lymph nodes (P < .001, P = .83, respectively) were found to predict poor survival. Sex (P = .22), presence of ulceration (P > .99), and presence of tumor on the head or neck, upper extremities, or lower extremities vs the trunk (P = .96, P = .59, and P = .19, respectively) did not influence survival. Older age, greater Breslow depth, and lymph node invasion were significant prognostic factors for regressing melanomas in multivariable analysis (Table 2).
Comment. Our findings emphasize the need for consistent reporting of melanoma regression among clinicians and dermatopathologists. Spontaneous regression in melanoma is considered partial or complete resolution of a tumor in the absence of any treatment or therapy that is adequate to alter the course of malignancy. Between 13.8% and 50% of primary tumors are estimated to demonstrate spontaneous regression. In our population-based study, the diagnostic code for regressing melanomas was used only 374 times over a 20-year period, a 0.912% incidence rate. Despite the steady increase in its use over the 20-year period, this figure grossly underestimates the true incidence of primary spontaneous regression of melanomas. It reflects the lack of consistency in reporting this finding, leading to lack of abstraction of this feature for major incidence reporting at the national level. Coding of this morphologic subtype in ICD-O-3 codes usually occurs only when regression is indicated in the final diagnosis in place of a histologic subtype. Listing of regression is a site-specific factor in the database but is not required to be reported and is therefore of little utility. The inconsistency of recording of regression has been reported in Australia and Europe as well.

The clinical significance of regression in melanomas is difficult to determine owing to the inability to assess true Breslow depth. It is therefore imperative to study this factor at the population-based level. Regressing melanomas present with a mixed prognostic picture—they are thinner, occur more often on the trunk, and are less likely
to be ulcerated, but they occur more often among men and blacks and are more likely to invade. In our limited snapshot of regression reported on the national level, overall survival was no different than that for other melanomas. Studies have shown mixed data with regard to the prognostic significance of regression in melanomas. Both clinical and histopathologic characterization of regressing melanomas at the national level would be aided by consistency of reporting of this phenomenon.

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Comparison of Diagnostic and Management Sensitivity to Melanoma Between Dermatologists and MelaFind: A Pilot Study

In 2011, malignant melanoma (MM) was estimated to be the fifth most commonly diagnosed cancer in the United States, with 70,230 new MM diagnoses and 8,790 MM deaths estimated that year. Early detection of MM is critically important. In this pilot study, we evaluate a handheld imaging device called MelaFind (Mela Sciences Inc), which acts as a noninvasive guide to help dermatologists determine whether they should biopsy a pigmented lesion. Our objectives were to estimate MM management accuracy between dermatologists and MelaFind and to estimate diagnostic sensitivity and specificity to MM among dermatologists. We also assess physician reasoning for performing biopsies of pigmented lesions that prove to be melanomas.

Methods. The protocol and consent process were approved through the BRANY (Biomedical Research Alliance of New York) institutional review board. In this cross-sectional reader study, 39 dermatologists were compared with MelaFind in evaluations of 23 MMs and 24 benign pigmented lesions. The cases were selected from a repository of lesions amassed during an acquisition study conducted by MELA Sciences Inc for the US Food and Drug Administration. In the acquisition study, MelaFind was applied to the lesions and produced 1 of 2 suggested courses: “consider biopsy: use clinical judgment” or “consider follow-up: use clinical judgment.” Prior to biopsy of the lesion, photographs of the lesion were taken from 21 inches away (distance image), 8 inches away (close-up image), and dermoscopically. Lesions were biopsied in toto and evaluated by a panel of dermatopathologists who were unaware of the MelaFind recommendations.

Forty-seven lesions (23 MMs and 24 nonmelanomas) were randomly selected from the repository for raters to evaluate. Raters viewed the images and a detailed case history for each lesion but were unaware of the MelaFind recommendations. The raters were asked a series of questions regarding each case, including whether they would biopsy the lesion, their reason for recommending biopsy, and whether they thought it was a melanoma.

Uncertainty in individual estimates was quantified using 1-sided mid-P exact 95% lower confidence bounds (LCBs) for sensitivity and 2-sided mid-P exact 95% confidence intervals (CIs) for specificity. Average biopsy sensitivity was estimated, and a 2-sided 95% CI was constructed based on the Student [sic] t distribution.

Results. Estimated biopsy sensitivity was 22 of 23 (0.96; 95% LCB, 0.83) for MelaFind, and ranged from 0.48 to 1.00 across study dermatologists. Average biopsy sensitivity of study dermatologists among the 23 melanomas was 0.80 (95% CI, 0.72-0.87). Estimated biopsy specificity was 2 of 24 (0.08; 95% CI, 0.00-0.25) for MelaFind, and ranged from 0.04 to 0.71 across study dermatologists. Average biopsy specificity of study dermatologists was 0.43.

Diagnostic sensitivities and specificities for MM among dermatologists was 0.51 and 0.71, respectively.

For MMs, the most common dermatologist rationale for performing a biopsy was “concern that this lesion is a melanoma” (49%); the second most common was “concern about an aggressive melanocytic lesion other than melanoma” (35%). Other reasons were “I am not concerned about this lesion, but the patient has expressed