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disclosed—altered the recommendations, which are based in strong scientific evidence. The law in this area turns on whether standard setting is essentially a sham method of suppressing competition as opposed to valid exercise of scientific expertise,⁴ and IDSA's process falls within the latter category.

Finally, antitrust law only deals with restraint of trade.⁵ Informational guidelines, such as the IDSA's Lyme disease guidelines, are suggestive only. They do not bind clinicians and do not create a restraint of trade. Certainly, the language from *Schacher* that Mr Wolfram quotes, while non-binding, suggests that courts afford practice guidelines substantial legal deference.

We remain worried that expanded application of antitrust law to clinical practice guidelines will chill medical associations' willingness to issue appropriate guidance on controversial topics.

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RESEARCH LETTER

Association of Nipple Piercing With Abnormal Milk Production and Breastfeeding

To the Editor: Body piercing has become increasingly popular and socially accepted throughout all age groups; it is particularly prevalent in the adolescent population.¹ Current information states that nipple piercing is generally not deemed to be detrimental to maternal milk supply.² However, irritation or trauma may predispose a nipple-pierced breast to infant attachment problems or blocked ducts.³ We present 3 patients with lactation difficulties suggesting that nipple piercings can lead to complications and that these complications can be associated with breastfeeding difficulties.

Methods. Patients were lactating women referred to the Human Lactation Research Group at the University of Western Australia for unilateral breast engorgement or poor milk supply. The ethics committee of the University of Western Australia provided approval for this study, and all participants gave informed consent for publication of these data.

Histories were obtained from the patients. All women were given advice regarding positioning and attachment of the infant to the breast. All women also attempted to increase breast-milk supply by expressing after feeds; in particular, mother-infant dyad 1 expressed immediately at secretory activation (lactogenesis II). Expressing was performed to assess whether lack of milk flow was due to nonuse of the breast. In addition, dyads 2 and 3 had been prescribed a galactagogue (domperidone).

Breastfeed volumes were measured by the test weight method.⁴ Mammary blood flow was measured by Doppler ultrasound. Breast anatomy and milk ejection were assessed by ultrasound.

Results. History, breastfeeding assessment, and management of the mother-infant dyads are presented in the TABLE. All women reported clinical signs of secretory activation in both breasts. However, they reported and we observed that their infants, when fed from the pierced breast, were extremely unsettled compared with feeding from the contralateral breast.

On examination, the nipple piercings were completely healed, with no milk leakage. None of the breasts appeared hypoplastic.

For dyads 1 and 2, minimal milk was expressed or removed by the infant from the pierced breast. There was a marked reduction in blood flow to the pierced breast. Septa were clearly visible with ultrasound in the milk ducts of the pierced breast of dyad 3. Milk ejection was confirmed by visualization of duct dilation. A decrease in the volume of complementary feeds was achieved after postfeed expression and the administration of domperidone in dyads 2 and 3.

Comment. These cases indicate that nipple piercing may cause complications leading to duct obstruction so that only negligible amounts of milk can be removed from the breast during lactation. Ineffective milk removal from the breast causes a decrease in milk supply due to local feedback.⁵

These women expressed minimal amounts of milk from their pierced breasts despite frequent breast pumping. The reduction in mammary blood flow is consistent with low milk production because a positive relationship between milk production and blood flow has been shown in animals.⁶ Although ductal obstruction is difficult to prove, ductal septa were confirmed in 1 woman. Although a ductogram might have shown ductal patency, the test is limited to 1 ductal system; moreover, catheterization of the nipple duct may be inhibited by scar tissue and carries a risk of infection.

Although the possibility of a spurious association exists, this potential complication should be recognized. Dyad 1 illustrates that with management of lactation, unilateral breastfeeding is possible. Many women have successfully breastfed with a nipple piercing, so it is likely that only a small percentage of women may encounter difficulties during lactation sub-

Table. Characteristics of 3 Mother-Infant Dyads Referred for Difficulties With Lactation in Which the Women Had Healed Nipple Piercing

Dyad 1		Dyad 2	Dyad 3
Maternal age, y	37	History 33	25
Age at piercing, y	28	26	18
Breast pierced and piercing type	Right, ring	Right, barbell	Right, ring
Complications of piercing	None	Barbell migration, allergy to metal	Ring torn out with resultant scar and loss of nipple sensation
Duration jewelry in place, y	3	2.5	3
Timing of jewelry removal before this pregnancy, y	7, at first pregnancy	4.5	4.5
Previous lactation	1, breastfed exclusively for 6 mo, left breast only, 6 y ago	0	0
Infant age at presentation, d	3	28	32
Reason for referral	Unresolved right breast engorgement	Poor milk supply, right breast	Poor milk supply, right breast
Formula supplement, mL/24 h	0	240	280
Baseline Assessment			
Test weigh breastfeed, g ^a	Right, 0 Left, 54	Right, 4 Left, 84	Right, 4 Left, 76
Postfeed expression, g	Right, 0 Left, not assessed	Right, 2 Left, 45	Right, not assessed Left, not assessed
Mammary blood flow, L/24 h ^b	Right, 3.6 Left, 356	Right, 3.3 Left, 84	Right, 4.4 Left, 340
Milk ejection, duct dilation	Positive	Positive	Positive
Duct anatomy, ultrasound	Normal	Normal	Septa, right breast
24-h milk production, g ^c	Not assessed	Right, 8 Left, 442	Not assessed
Recommended Management			
Interventions	Express right breast after feeds. Consider therapeutic ultrasound. Ibuprofen 400 mg for engorgement and pain.	At presentation had been taking domperidone 10 mg 3 times daily for the last 3 wk. Recommended increasing dose to 20 mg 3 times daily. Double express after feeds.	At presentation had been taking domperidone 20 mg 3 times daily for the last 4 wk. Recommended continuing regimen. Double express after feeds.
4-wk Follow-up			
Formula supplement, mL/24 h	0, exclusive breastfeeding with left breast	150	180
Domperidone use	NA	Increased dosage for 2 wk, then gradually reduced dosage. At 4 wk no longer medicated.	Continued regimen for 2 wk, then gradually reduced dosage. At 4 wk no longer medicated.

Abbreviation: NA, not applicable.

^aNormal (SD), 76 (12.6) g.^bNormal (SD), right, 197 (206) L/24 h; left, 170 (112) L/24 h.^cNormal (SD), 788 (169) g.

sequent to the procedure. Because these patients suggest that nipple piercing may in some cases lead to duct obstruction and impaired lactation, further investigation of potential effects of nipple piercing is necessary to identify factors that might contribute to lactation difficulties.

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Acquisition of data: Garbin, Deacon, Rowan, Geddes.
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