



## Tattooing Regulations in U.S. States, 2011

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**Abstract** Tattooing's popularity has led to regulatory concerns because medical complications linked to unsanitary practices can have a lasting health impact. The authors' study sought to determine whether existing state tattooing laws and regulations (rules) effectively protect public health. A 10-item checklist was created for each of three types of rules (sanitation, training, and infection control) identified as having the greatest public health impact. State rules were classified as effective if the state scored  $\geq 7$  on all three categories, moderate if  $\geq 4$  in all three categories, minimal if  $< 4$  in one or more categories, and ineffective if  $\leq 2$  in all three categories.

Forty-one states have at least one state statute regulating tattooing practice. On the basis of the authors' study criteria, 36 states regulate sanitation effectively; 15 states regulate training effectively; and 26 states regulate infection control effectively. Fourteen states meet the criteria for regulating all three categories effectively. Specific rules vary substantially by state. Public health agencies should encourage states to adopt and enforce effective, evidence-based tattooing rules.

### Introduction

Humans have been decorating their bodies to express religious beliefs, cultural values, and personal aesthetics for thousands of years. Although initially less common in Europe and the U.S., the past 200 years have seen major shifts in tattooing: the electric tattoo machine,

polymer-based pigments, and ease of access to equipment have led to tattoo shops becoming common throughout the Western world. The history and technical practice of tattooing have been described in detail elsewhere (Goldstein, 2007; Sperry, 1991, 1992) and are outside the scope of this article.

The majority of legally acquired tattoos are done by using a vertical vibrating electric tattoo machine and pigments purchased or created for the purpose. The design of a tattoo is limited only by the artist's imagination and the client's willingness to submit to the procedure, and millions of U.S. residents have gotten tattoos. This article examines existing state laws and regulations and focuses on standards protecting the health and safety of clients during tattooing procedures to determine whether tattooing practice is effectively regulated across the U.S.

Studies rarely have assessed the prevalence of tattooing among U.S. residents and populations are often not comparable. In the U.S., estimates among different populations vary widely, from 18% among patients at a spinal clinic in 1991 and 1992 (Haley & Fischer, 2001), to 36% among military recruits in the late 1990s (Armstrong, Murphy, Sallee, & Watson, 2000), and 23% among college undergraduates in 2001 and 2006 (Mayers & Chiffriller, 2007; Mayers, Judelson, Moriarty, & Rundell, 2002).

In 2003, an online poll by Harris Interactive concluded that the prevalence of tattooing among all U.S. adults is 16%, with substantially higher prevalence rates among certain age cohorts (Sever, 2003). In 2006, the Pew Research Foundation estimated that 36% of all U.S. adults aged 18–25 years and

40% aged 26–40 years had tattoos (Pew Research Center for the People and the Press, 2006). The same year, a random-digit-dialed survey of 500 U.S.-resident men and women aged 18–50 years found a 24% prevalence of tattoos (Laumann & Derick, 2006). By combining 2008 U.S. Census population estimates (U.S. Census, 2009) with available data on tattoo prevalence, at least 40 million U.S. residents have one or more tattoos and have been at risk for a tattoo-associated medical complication during their lifetime.

Complications of tattooing include infections transmitted during unsanitary tattoo procedures, allergies or adverse reactions to tattoo pigment, and coincidental lesions that appear on the skin surface covered by a tattoo but are not caused by the tattoo procedure (Jacob, 2002). Although no reliable estimates exist for the frequency with which complications of tattooing procedures occur, the risk of adverse effects can still be reduced by ensuring sanitary shops and equipment, comprehensive training of artists, and strong infection control practices (Armstrong, 2005; Armstrong & Fell, 2000; Armstrong & Kelly, 2001).

The most commonly identified complication of getting a tattoo is infection during healing (Antoszewski, Sitek, Jedrzejczak, Kasielska, & Kruk-Jeromin, 2006; Greif, Hewitt, & Armstrong, 1999). Potential transmission of bloodborne or dermatologic pathogens is possible if the tattoo needle or skin surface is not sterilized; many studies have documented infectious disease transmission during tattoo procedures (e.g., leprosy [Ghorpade, 2002], ringworm [Brancaccio, Berstein, Fisher, & Shalita, 1981], hepatitis [Nishioka & Gyorkos, 2001], and warts [Ragland, Hubbell, Stewart, & Nesbitt, 1994]). Extensive review of the infectious disease complications associated with tattooing is available in Armstrong and Kelly (2001), Kazandjeva and Tsankov (2007), and Papameletiou and co-authors (2003).

Adverse reactions to almost every color and type of tattoo pigment have been reported as isolated case studies in the scientific literature (Ashinoff, Levine, & Soter, 1995; Bjornberg, 1963; Bonnell & Russel, 1956; Duke, Urioste, Dover, & Anderson, 1998; Gallo, Parodi, Cozzani, & Guarrera, 1998; Loewenthal, 1960; Nguyen & Allen, 1979). Although tattoo pigments are considered to be cosmetics in the U.S. and should require

approval under the Food, Drug, and Cosmetic Act of 1938, pigments are approved for topical use only, and studies testing their safety for intradermal use have not been completed (Armstrong & Fell, 2000; U.S. Food and Drug Administration, 2009). National and international studies on the exact chemical composition of tattoo pigments have yielded inconclusive assessments of the long-term effects of intradermal placement, and further research is needed (Engel et al., 2008; Lundsgaard, 2002; Papameletiou et al., 2003). A discussion of the specific research needed, however, is outside the scope of this article.

Medical case reports documenting noninfectious tattoo-associated illnesses and dermatologic complications are uncommon, but do exist (e.g., skin papules [Kluger, Muller, & Gral, 2008; Lubeck & Epstein, 1952], malignant melanoma [Kircik, Armus, & Vandebroek, 1993; Kirsch, 1969], and pseudolymphoma [Kahofer, El Shabrawi-Caelen, Horn, Kern, & Smolle, 2003]). Isolated case reports also exist of ferromagnetic tattoo pigments causing complications for patients undergoing magnetic resonance imaging (Kreidstein, Giguere, & Freiberg, 1997; Wagle & Smith, 2000), although other research has questioned this premise (Tope & Shellock, 2002).

States have regulated tattooing for decades in an attempt to address public health concerns. In 1978, Maine became the first state to regulate tattooing (Braithwaite, Stephens, Sterk, & Braithwaite, 1999). Stauter (1988, 1989) reported that 19 states regulated tattooing in some way, including three that banned the practice altogether (Mississippi, Oklahoma, and South Carolina). Six years later, Tope (1995) reported that 29 states were regulating tattooing, including seven banning the practice (Connecticut, Florida, Indiana, Massachusetts, Oklahoma, South Carolina, and Vermont).

No clear guidance existed for states developing tattoo regulations until NEHA published *Body Art: A Comprehensive Guidebook and Model Code* (NEHA, 1999). The model code was written by an interdisciplinary collaboration of stakeholders, including university faculty members, public health professionals, medical doctors, representatives of professional organizations, environmental health professionals, and body art practitioners. The model

code provided detailed guidelines and recommended regulations on two of the three areas that are deemed as having the most public health impact—sanitation and infection control. Artist training was addressed by NEHA by specifying that artists should have training in sterilization procedures, anatomy, and infection control.

In 2005, Armstrong published a comprehensive review of body art regulations enacted through September 20, 2003, which reported that 39 states (78%) had body art legislation in place (Armstrong, 2005). Armstrong's 2005 article concluded with a call for comprehensive, strongly enforced body art regulations. This call was echoed internationally by Noah (2006) and by Vasold and co-authors (2008). Given that persons who want a tattoo are likely to obtain one regardless of the safety considerations or costs (Armstrong & Murphy, 1997), ensuring that existing regulations support safe tattooing practices and that health inspectors enforce those regulations effectively are important public health concerns.

## Methods

Tattooing laws and regulations were downloaded from state legislatures' and enforcing agencies' Internet sites March 1–May 31, 2011; only laws and regulations enacted at the state level were included in this analysis (Table 1). To quantify the existing laws and regulations and make a standardized determination of the quality and strengths of each state's rules governing tattooing, a 10-item checklist was created for each of the three types of rules (sanitation, training, and infection control) with the greatest public health impact as identified by Armstrong's three papers (Armstrong, 2005; Armstrong & Fell, 2000; Armstrong & Kelly, 2001) (Table 2). The 30 items were chosen on the basis of a literature review, items included in the NEHA model code, initial review of state laws and regulations, and the researchers' knowledge of tattooing practice and infection control.

Categories were scored independently. A state's laws and regulations were classified as effectively regulated if they scored  $\geq 7$  on all three categories, moderately regulated if they scored  $\geq 4$  in all three categories, and minimally regulated if they scored  $< 4$  in one or more categories. A state was classified as ineffectively regulated if it scored  $\leq 2$  in all three categories.

TABLE 1

**Internet Addresses for State Tattooing Laws and Regulations**

State	URL
Alabama	<a href="http://www.legislature.state.al.us/codeofAlabama/1975/22-17A-3.htm">http://www.legislature.state.al.us/codeofAlabama/1975/22-17A-3.htm</a> and <a href="http://www.adph.org/foodsafety/Default.asp?id=1138">http://www.adph.org/foodsafety/Default.asp?id=1138</a>
Alaska	<a href="http://www.dec.alaska.gov/eh/fss/Public_Facilities/Body_Art_Home.html">http://www.dec.alaska.gov/eh/fss/Public_Facilities/Body_Art_Home.html</a>
Arizona	No state laws enacted; body art regulated at the county level only
Arkansas	<a href="http://www.healthy.arkansas.gov/programsServices/environmentalHealth/tattooBodyArt/Pages/default.aspx">http://www.healthy.arkansas.gov/programsServices/environmentalHealth/tattooBodyArt/Pages/default.aspx</a> and <a href="http://www.healthy.arkansas.gov/aboutADH/RulesRegs/Tattoos.pdf">http://www.healthy.arkansas.gov/aboutADH/RulesRegs/Tattoos.pdf</a>
California	No state laws enacted; body art regulated at the county level only
Colorado	<a href="http://www.colorado.gov/oed/industry-license/337IndDetail.html">http://www.colorado.gov/oed/industry-license/337IndDetail.html</a> and <a href="http://www.cdph.state.co.us/regulations/consumer/101022bodyartreg.pdf">http://www.cdph.state.co.us/regulations/consumer/101022bodyartreg.pdf</a>
Connecticut	<a href="http://www.ct.gov/dph/lib/dph/practitioner_licensing_and_investigations/plis/tatoo/tattoo_info.pdf">http://www.ct.gov/dph/lib/dph/practitioner_licensing_and_investigations/plis/tatoo/tattoo_info.pdf</a>
Delaware	<a href="http://dhss.delaware.gov/dhss/dph/hsp/files/bodyartregs.pdf">http://dhss.delaware.gov/dhss/dph/hsp/files/bodyartregs.pdf</a> and <a href="http://dhss.delaware.gov/dhss/dph/hsp/bodyart.html">http://dhss.delaware.gov/dhss/dph/hsp/bodyart.html</a>
Florida	<a href="http://www.doh.state.fl.us/Environment/community/Tattoo/index.html">http://www.doh.state.fl.us/Environment/community/Tattoo/index.html</a>
Georgia	No permanent Internet link; state laws and regulations: Title 31 (Health), Chapter 40 (Tattoo Studios)
Hawaii	<a href="http://oeqc.doh.hawaii.gov/sites/har/AdmRules/11-17.pdf">http://oeqc.doh.hawaii.gov/sites/har/AdmRules/11-17.pdf</a>
Idaho	<a href="http://legislature.idaho.gov/idstat/Title18/T18CH15SECT18-1523.htm">http://legislature.idaho.gov/idstat/Title18/T18CH15SECT18-1523.htm</a>
Illinois	<a href="http://www.idph.state.il.us/rulesregs/2009_Rules/Adopted/77_IAC_797_1-9.pdf">http://www.idph.state.il.us/rulesregs/2009_Rules/Adopted/77_IAC_797_1-9.pdf</a>
Indiana	<a href="http://www.in.gov/legislative/iac/T04100/A00010.PDF">http://www.in.gov/legislative/iac/T04100/A00010.PDF</a> (p. 89)
Iowa	<a href="http://www.idph.state.ia.us/eh/tattoo.asp">http://www.idph.state.ia.us/eh/tattoo.asp</a> and <a href="http://www.idph.state.ia.us/eh/common/pdf/tattoo/chapter_135.pdf">http://www.idph.state.ia.us/eh/common/pdf/tattoo/chapter_135.pdf</a> and <a href="http://search.legis.state.ia.us/NXT/gateway.dll/ar/iac/6410_public%20health%20department%205b641_5d/0220_chapter%2022%20practice%20of%20tattooing/_c_6410_0220.xml?f=templates\$fn=default.htm">http://search.legis.state.ia.us/NXT/gateway.dll/ar/iac/6410_public%20health%20department%205b641_5d/0220_chapter%2022%20practice%20of%20tattooing/_c_6410_0220.xml?f=templates\$fn=default.htm</a>
Kansas	<a href="http://www.kansas.gov/kboc/StatsandRegs.htm#tatoolaws">http://www.kansas.gov/kboc/StatsandRegs.htm#tatoolaws</a>
Kentucky	<a href="http://chfs.ky.gov/dph/info/phps/tattoo.htm">http://chfs.ky.gov/dph/info/phps/tattoo.htm</a>
Louisiana	<a href="http://dhh.louisiana.gov/index.cfm/page/622">http://dhh.louisiana.gov/index.cfm/page/622</a>
Maine	<a href="http://www.maine.gov/sos/cec/rules/10/chaps10.htm">http://www.maine.gov/sos/cec/rules/10/chaps10.htm</a> (Chapter 210)
Maryland	No state laws and regulations other than Chapter 25, section 256, authorizing a single county in the state to establish tattoo/body piercing regulations in that county
Massachusetts	No state laws enacted; body art regulated at the city or town level only
Michigan	<a href="http://www.legislature.mi.gov/(S(u215f255enju5n2kxejuko45))/mileg.aspx?page=getobject&amp;objectname=mcl-333-13101">http://www.legislature.mi.gov/(S(u215f255enju5n2kxejuko45))/mileg.aspx?page=getobject&amp;objectname=mcl-333-13101</a> through section 13112
Minnesota	<a href="http://www.health.state.mn.us/divs/hpsc/hop/tattoo/brochure.html">http://www.health.state.mn.us/divs/hpsc/hop/tattoo/brochure.html</a> and <a href="https://www.revisor.mn.gov/laws?id=317&amp;doctype=chapter&amp;year=2010&amp;type=0">https://www.revisor.mn.gov/laws?id=317&amp;doctype=chapter&amp;year=2010&amp;type=0</a>

State	URL
Mississippi	<a href="http://www.msdh.state.ms.us/msdhsite/index.cfm/30,880,82.pdf/TattooBodyPiercingRegs.pdf">http://www.msdh.state.ms.us/msdhsite/index.cfm/30,880,82.pdf/TattooBodyPiercingRegs.pdf</a>
Missouri	<a href="http://www.sos.mo.gov/adrules/csr/current/20csr/20csr.asp#20-2267">http://www.sos.mo.gov/adrules/csr/current/20csr/20csr.asp#20-2267</a>
Montana	<a href="http://www.mtrules.org/gateway/ChapterHome.asp?Chapter=37.112">http://www.mtrules.org/gateway/ChapterHome.asp?Chapter=37.112</a>
Nebraska	<a href="http://nebraskalegislature.gov/laws/browse-chapters.php?chapter=38">http://nebraskalegislature.gov/laws/browse-chapters.php?chapter=38</a> sections 1007, 1053, 1054, 1060–1071
Nevada	<a href="http://health.nv.gov/BFHS_EHS_FAQs.htm">http://health.nv.gov/BFHS_EHS_FAQs.htm</a> (See the frequently asked questions regarding regulation of tattoo parlors.)
New Hampshire	<a href="http://www.gencourt.state.nh.us/rsa/html/xxx/314-a/314-a-mrg.htm">http://www.gencourt.state.nh.us/rsa/html/xxx/314-a/314-a-mrg.htm</a> and <a href="http://www.dhhs.nh.gov/oos/blc/bodyart/documents/bodyartrules.pdf">http://www.dhhs.nh.gov/oos/blc/bodyart/documents/bodyartrules.pdf</a>
New Jersey	<a href="http://www.state.nj.us/health/eoh/phss/bodyart.pdf">http://www.state.nj.us/health/eoh/phss/bodyart.pdf</a>
New Mexico	<a href="http://www.nmcpr.state.nm.us/nmac/parts/title16/16.036.0001.htm">http://www.nmcpr.state.nm.us/nmac/parts/title16/16.036.0001.htm</a> through 16.036.0006
New York	<a href="http://www.health.state.ny.us/community/body_art/article_4a.htm">http://www.health.state.ny.us/community/body_art/article_4a.htm</a> and <a href="http://www.nyhealth.gov/community/body_art/">http://www.nyhealth.gov/community/body_art/</a>
North Carolina	<a href="http://www.ncga.state.nc.us/enactedlegislation/statutes/pdf/bysection/Chapter_130a/gs_130a-283.pdf">http://www.ncga.state.nc.us/enactedlegislation/statutes/pdf/bysection/Chapter_130a/gs_130a-283.pdf</a>
North Dakota	<a href="http://www.legis.nd.gov/information/acdata/html/.%5Cpdf%5C33-41-01.pdf">http://www.legis.nd.gov/information/acdata/html/.%5Cpdf%5C33-41-01.pdf</a>
Ohio	<a href="http://codes.ohio.gov/oac/3701-9">http://codes.ohio.gov/oac/3701-9</a> and <a href="http://codes.ohio.gov/orc/3730">http://codes.ohio.gov/orc/3730</a>
Oklahoma	<a href="http://www.ok.gov/health/Protective_Health/Consumer_Protection_Division/Body_Piercing_and_Tattooing/">http://www.ok.gov/health/Protective_Health/Consumer_Protection_Division/Body_Piercing_and_Tattooing/</a>
Oregon	<a href="http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_331/331_tofc.html">http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_331/331_tofc.html</a> (Division 915) and <a href="http://www.leg.state.or.us/ors/690.html">http://www.leg.state.or.us/ors/690.html</a> and <a href="http://www.oregon.gov/OHLA/BAP/Tattoo_Arts_Licensure.shtml">http://www.oregon.gov/OHLA/BAP/Tattoo_Arts_Licensure.shtml</a>
Pennsylvania	No state laws enacted
Rhode Island	<a href="http://www2.sec.state.ri.us/dar/regdocs/released/pdf/DOH/4857.pdf">http://www2.sec.state.ri.us/dar/regdocs/released/pdf/DOH/4857.pdf</a>
South Carolina	<a href="http://www.scdhec.gov/administration/regs/docs/61-111.pdf">http://www.scdhec.gov/administration/regs/docs/61-111.pdf</a>
South Dakota	<a href="http://legis.state.sd.us/rules/DisplayRule.aspx?Rule=44:12:01">http://legis.state.sd.us/rules/DisplayRule.aspx?Rule=44:12:01</a>
Tennessee	<a href="http://tennessee.gov/sos/rules/1200/1200-23/1200-23-03.pdf">http://tennessee.gov/sos/rules/1200/1200-23/1200-23-03.pdf</a>
Texas	<a href="http://info.sos.state.tx.us/pls/pub/readtac\$ext.ViewTAC?tac_view=5&amp;ti=25&amp;pt=1&amp;ch=229&amp;sch=V&amp;rl=Y">http://info.sos.state.tx.us/pls/pub/readtac\$ext.ViewTAC?tac_view=5&amp;ti=25&amp;pt=1&amp;ch=229&amp;sch=V&amp;rl=Y</a> and <a href="http://www.statutes.legis.state.tx.us/Docs/HS/htm/HS.146.htm">http://www.statutes.legis.state.tx.us/Docs/HS/htm/HS.146.htm</a>
Utah	No state laws enacted
Vermont	<a href="http://www.leg.state.vt.us/statutes/fullchapter.cfm?Title=26&amp;Chapter=079">http://www.leg.state.vt.us/statutes/fullchapter.cfm?Title=26&amp;Chapter=079</a> and <a href="http://vtprofessionals.org/opr1/tattooists_piercers/rules/TAT_Rules.pdf">http://vtprofessionals.org/opr1/tattooists_piercers/rules/TAT_Rules.pdf</a>
Virginia	<a href="http://www.dpor.virginia.gov/dporweb/tat_regs.pdf">http://www.dpor.virginia.gov/dporweb/tat_regs.pdf</a>
Washington	<a href="http://www.dol.wa.gov/business/tattoo/laws.html">http://www.dol.wa.gov/business/tattoo/laws.html</a>
West Virginia	<a href="http://www.wvdhhr.org/phs/forms/16-38_Tattoo_Studio_Business.pdf">http://www.wvdhhr.org/phs/forms/16-38_Tattoo_Studio_Business.pdf</a>
Wisconsin	<a href="http://www.legis.state.wi.us/rsb/code/dhs/dhs173.pdf">http://www.legis.state.wi.us/rsb/code/dhs/dhs173.pdf</a>
Wyoming	No state laws enacted

*Note.* All links confirmed live April 23, 2012. Some rules and regulations listed here have been updated since this research was completed.

TABLE 2

### Checklist Items for States' Tattoo Laws and Regulations and Total Number of States That Address Each Item

Sanitary Standards of Working Environment	#	Training and Licensure of Artist and Workspace	#	Infection Control	#
Sharps disposal regulations specified or referenced	36	Artist must attend accredited bloodborne pathogens course	30	Detailed procedures for when and how to reglove specified	35
Health inspector must inspect tattoo shops (any schedule; range from once when shop opens, to annually, to every three months)	36	Artist must be cardiopulmonary resuscitation (CPR)-certified	8	Regulations require single-use items only, or shop must have sterilization capacity	37
Consumption of goods (food, drink, cigarettes) prohibited in procedural areas of tattoo shop	32	Artist must have first aid certification	19	Artists must have proof of hepatitis B vaccination, or immunity, or decline vaccination in writing	14
Biohazardous waste disposal regulations specified or referenced	37	Artist must have training in anatomy and physiology	17	Client must complete a medical history form disclosing selected risk factors	23
Physical restrictions on material for walls, floors, countertops, and other areas	36	Artist must have training in sanitation/sterilization procedures	25	Artist must report complications of procedures (that they become aware of) to public health authorities	14
Specifications for bathroom and other sanitary facilities	36	Artist must have training in local tattooing laws	16	Client's skin surface must appear healthy (i.e., no boils, rashes, or lesions)	31
Procedural areas must be separated from living areas by physical barrier (e.g., closed door or wall), or tattoo shops may not operate in residential buildings at all	34	Artist must complete an apprenticeship (any >300 hours assumed to include training on bloodborne pathogens, first aid, anatomy and physiology, sanitation/sterilization, and local tattooing regulations; range 360–4,500 hours)	14	Emergency procedures of any type are specified in regulations (i.e., first aid kit onsite, eyewash stations, evacuation routes, needlestick procedures)	12
Penalties specified for violations of regulations identified during inspections or reported to regulatory department by customers	36	Continuing education credits required (e.g., renewal of CPR or bloodborne pathogens training periodically)	16	Artist may not work if he or she is suffering from any kind of infection or transmissible illness (e.g., rash on hands, respiratory infection)	27
Specifications for workspace quality (i.e., ventilation standards, lighting minimums)	31	Artist must be licensed to practice	32	Aftercare instructions must be posted in tattoo shop or provided to all clients	32
Vermin must be excluded from tattoo shops	27	Facility must be licensed to operate	34	Autoclave must be spore-tested periodically (range weekly–quarterly)	34

*Note.* Only state-level regulations were examined during this research.

## Results

Forty-one states have at least one statute in place regulating tattooing. The remaining nine states delegate all tattooing regulation to the local level, and individual jurisdictions within those states may not have adopted tattooing regulations. Fourteen states (28%) scored  $\geq 7$  in all three categories, meeting the definition of having effective laws and regulations; residents of the 14 states account for only 20% of the U.S. adult population. The highest scoring states were South Carolina and Oklahoma, each of which met 29/30 total checklist criteria. The other extensively regulated states are Alabama, Alaska, Arkansas, Kansas, Minnesota, Missouri, New Jersey, New Mexico, Oregon, Tennessee, Virginia, and Vermont (Figure 1). Nine states (20% of the U.S.

adult population) regulate tattooing moderately ( $\geq 4$  on all three checklist categories), and 14 states (19% of the U.S. adult population) regulate tattooing minimally ( $< 4$  in one or more checklist categories). Thirteen states (41% of the U.S. adult population) regulate tattooing ineffectively at the state level ( $\leq 2$  in all three categories), and 9/15 ineffectively regulated states scored 0 in all three categories.

Thirty-six states regulate sanitary standards of tattooing facilities effectively (checklist score  $\geq 7$ ). Fifteen states regulate training and licensure effectively, and 26 regulate infection control effectively. The median scores were 9/10 for sanitation, 3/10 for training, and 7/10 for infection control; the overall median score was 20/30 (Table 2).

In 2006, Oklahoma became the last state to legalize tattooing. During January 2006–May 2011, a total of 25 states updated or reviewed their tattooing laws; in March 2011, a total of 10 states had body art laws being debated before their legislature. Although certain states have both updated existing laws and attempted to pass new laws, a total of 29 states (58%) changed or attempted to change their tattooing regulations during the five-year period examined in our study.

Thirty-one states depend on public health departments to write and enforce tattooing regulations, including performing inspections and issuing licenses. Eleven of those states can delegate enforcement of regulations to local health departments, and the remaining 20 have enforcement personnel at the state level. Eleven states have not

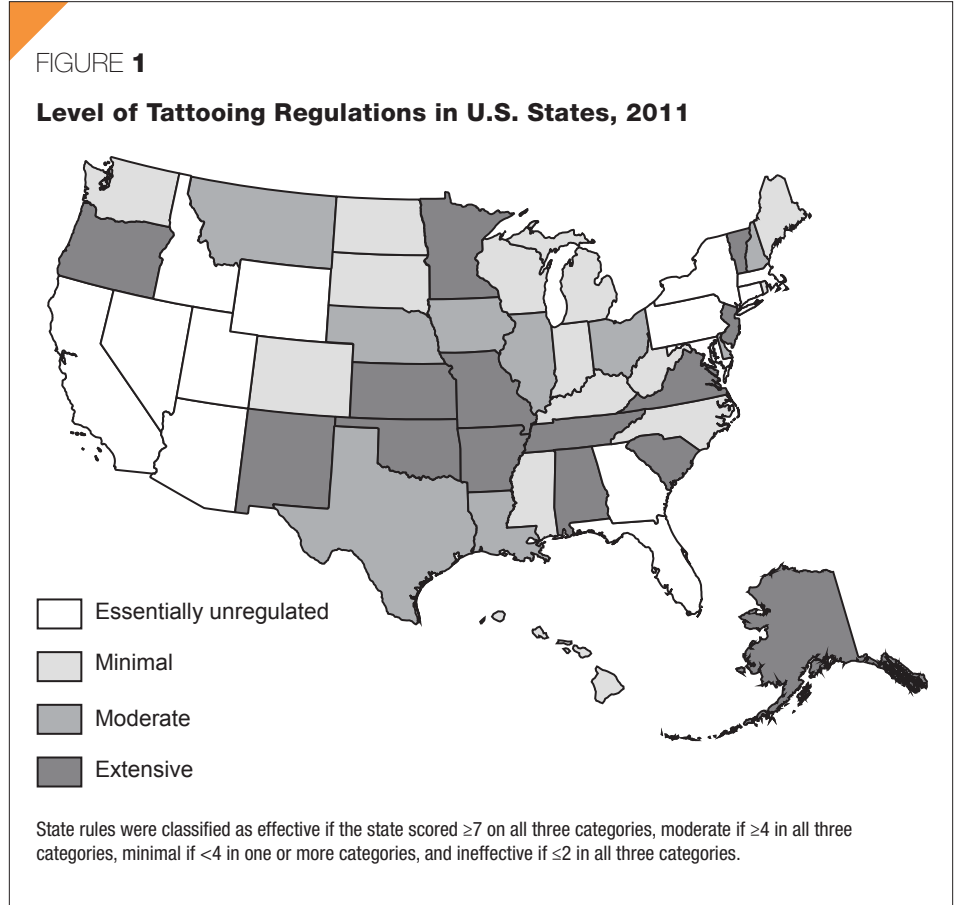
identified a responsible agency to regulate tattooing at the state level, although local jurisdictions can enact and enforce their own rules. Three states regulate tattooing through a state board or commission outside of public health (e.g., a board of medicine or a board of cosmetologists) and two states use the state environmental agency. Three states regulate tattooing through their labor or business licensing bureaus.

**Discussion**

Our study examined state laws and regulations in the context of their ability to protect public health by assessing regulations addressing sanitation, artist training, and infection control. Findings indicate that tattoo laws and regulations vary widely by state and 72% of states do not effectively regulate all three categories assessed in our study. On the basis of our study's criteria, only 20% of the U.S. adult population lives in a state with extensive rules that protect a client's health during tattoo procedures. Regulations change often, and they do not always focus on tattooing practices that have the most effect on protecting public health. For example, Ohio has an extensive list of how to determine fee schedules for tattoo shop permits; however, fee schedule requirements are unrelated to safe tattooing practices. The following sections highlight a few examples of laws and regulations in different states and demonstrate the wide variation in standards.

**Sanitation**

Sanitation is the most commonly and consistently regulated area of tattoo practice that affects public health. Perhaps public health agencies find drafting tattoo regulations that are grounded in other environmental health competencies (e.g., housing codes and restaurant regulations) easier than creating new, profession-specific rules. Comprehensive sanitation regulations noted during our research include regularly scheduled inspections (e.g., Tennessee's requirement that body art facilities be inspected every 90 days). South Dakota's regulations detail the minimum square footage and lighting standards for tattoo shops, and Mississippi requires that all flat surfaces including floors, walls, ceilings, and countertops be easy to clean as an aid to maintaining a sanitary environment. Alabama has detailed



regulations for the disposal of sharps and biohazardous material from tattoo facilities that are more stringent than biohazardous materials disposal regulations enacted by the federal government.

Certain states (e.g., New Jersey and South Carolina) use additional rules or statutes to regulate the sanitary conditions of businesses (e.g., building, fire, or plumbing codes). Tattoo shops might be required to comply with these codes even in states that essentially have no tattooing regulations. Our research focused only on the regulations specifically covering tattoo shops, and other standards for construction and maintenance of businesses were not analyzed.

**Training and Licensing**

Training was the least commonly and least consistently regulated of the three topics examined in our study. Certain states require no training before a tattoo artist obtains a license, whereas other states require a comprehensive apprenticeship under a licensed practitioner. The longest apprenticeship

specified in any tattooing regulations is New Hampshire's requirement that an artist seeking a new license must provide proof of apprenticeship and experience equaling three years of employment at 1,500 hours/year. Oregon is the only state in which the department of education licenses tattooing schools (as special career schools); Oregon also requires that all prospective tattoo artists pass a standardized exam before licensure, and the apprenticeship must be repeated if the applicant fails the exam three times. Kansas is the only state to include basic color theory and design as subject requirements for a tattoo apprentice, in addition to such traditional topics as first aid, bloodborne pathogens, business operations, and local tattooing laws. New Mexico's law includes a comprehensive list of subjects that a tattoo apprenticeship must address in its curriculum.

**Infection Control**

Infection control practices are regulated more strongly than training standards but less strongly than sanitation. The single

most commonly regulated practice on the 30-item checklist was regarding infection control (i.e., the requirement for using sterilized or single-use-only equipment during all tattooing procedures). The least commonly regulated practice on the 30-item checklist also was related to infection control: whether emergency procedures (of any type, from fire evacuation signage to blood exposure protocols) were specified in the laws or regulations. Vermont's regulations list detailed procedures for responding to blood spills and other biohazardous exposures, and tattoo shops in New Jersey must have a first aid kit and an eyewash station on site. Delaware's regulations have specific language regarding hepatitis B vaccinations or refusal thereof before an artist can practice, and Rhode Island has detailed rules covering the sterility of equipment and maintenance of the autoclave. South Carolina requires that tattoo shops enter into an agreement with the local fire station regarding response to emergencies before the shop can open.

### **Needed Regulations and Future Directions**

Sanitation standards are the easiest for states to write and enforce, because they can be modeled after other public health measures. Inspections by environmental health professionals at least annually can contribute to protecting public health by ensuring safe, sanitary premises for tattoo shops.

Training standards are costly in terms of human and financial resources and thus the most difficult to create and enforce because of the specialized knowledge required. States rarely require comprehensive apprenticeship programs. Standardized examinations for licensure and continuing education requirements can also serve to protect public health by ensuring a cadre of knowledgeable artists that understand the importance of strict sanitary and infection control regulations.

Infection control standards are possibly the most important way to protect public health during tattoo procedures because of the potential for exposure to bloodborne pathogens. In addition, data regarding adverse reactions to pigments and medical complications of procedures are essential for collating epidemiologic data and developing educational materials for both clients

and artists. Our study did not assess the relationship between tattoo procedures and the risk of acquiring infections, because the data are not available in published literature. State-level tattooing laws that incorporate requirements for reporting adverse reactions to the public health department, whether infectious or allergic, can contribute to knowledge of complications in this field and will allow future research to assess the link between tattooing and adverse health outcomes.

One limitation of our study is that local tattoo regulations were not analyzed. No adequate estimate of the number of localities responsible for regulating tattooing in the U.S. exists, and local health departments responsible for regulation might not have adopted rules for doing so. Additionally, local regulations may not be available electronically.

Areas of regulation that were not examined in our study because they have less impact on clients' or artists' health include the fee structure for licenses and permits, penalties for violating regulations and legal recourse for appeal, tattooing of minors, use of alcohol and drugs during procedures, and licensing renewal schedules. Additional research might quantify the effectiveness of a state's regulations on the basis of these factors as a way to confirm the findings of our study (see Sidebar).

### **Conclusion**

Tattoo regulations are shifting rapidly across the U.S. When our research was initially conducted in 2009, only nine states met the definition of being extensively regulated; by the time our analysis was redone in 2011, five additional states had passed statutes that met the criteria for extensive regulation. It is interesting that the shift in tattoo regulations seems to be extreme: that is, states that met the definition for "essentially unregulated" in 2009 have moved into the "moderate" or "extensive" categories, and states that minimally regulated tattooing in 2009 have not updated their regulations as of May 2011.

NEHA's publication on body art is more than 10 years old but is still the most pertinent and comprehensive source on the topic that we have identified. Periodic updates of the model code, led by such a nationally recognized leader in environmental health as NEHA, are essential to promoting high

### **Suggested Topics for Future Research on the Health Risks of Tattooing**

- Obtaining an accurate estimate of the population at risk and frequency/type of complications
- Assessing the long-term safety of inks and pigments as intradermal cosmetics
- Determining if there is public health danger of unlicensed, unregulated (illegal or off-the-grid) shops
- Determining the feasibility of developing a standardized national curriculum for training tattoo artists
- Enumerating and evaluating locally enacted tattooing regulations in the U.S.
- Evaluating the actual enforcement of existing state and local regulations (vs. regulatory ideals)
- Reviewing and evaluating other types of regulations governing tattooing, such as fee schedules, license renewal, tattooing of minors, and penalties for violating regulations

standards for sanitation, training, and infection control during tattoo procedures. Public health professionals at all levels of practice should continue to use this valuable resource as a guide when developing or updating tattooing regulations until a newer version becomes available.

Further research remains to be done on enforcement of tattoo regulations at state and local levels. Our study did not test whether requirements for inspections and enforcement of sanitary codes are being met by state and local health departments, but only whether the laws and regulations exist and what the general standards are. Our study also did not address the potential public health dangers in getting a tattoo at an unlicensed shop because of the complexities of defining what is illegal or amateur on a state level.

Tattooing is a common type of self-expression in today's society, and yet it can be a risky practice if it is not done in a safe and sanitary

manner. Comprehensive, evidence-based regulation of tattooing practice, equipment, and artist training are needed to protect the public's health. Standards for sanitary practice of tattooing should continue to be reviewed periodically and enforced regularly by state public health agencies to reduce the risk of dangerous complications, including postprocedure

infection, allergic reactions, and bloodborne pathogen transmission. 🦠

**Disclaimer:** The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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## References

- Antoszewski, B., Sitek, A., Jedrzejczak, M., Kasielska, A., & Kruk-Jeromin, J. (2006). Are body piercing and tattooing safe fashions? *European Journal of Dermatology*, 16(5), 572–575.
- Armstrong, M.L. (2005). Tattooing, body piercing, and permanent cosmetics: A historical and current view of state regulations, with continuing concerns. *Journal of Environmental Health*, 67(8), 38–43, 54, 53.
- Armstrong, M.L., & Fell, P.R. (2000). Body art: Regulatory issues and the NEHA body art model code. *Journal of Environmental Health*, 62(9), 25–30.
- Armstrong, M.L., & Kelly, L. (2001). Tattooing, body piercing, and branding are on the rise: Perspectives for school nurses. *Journal of School Nursing*, 17(1), 12–23.
- Armstrong, M.L., & Murphy, K.P. (1997). Tattooing: Another adolescent risk behavior warranting health education. *Applied Nursing Research*, 10(4), 181–189.
- Armstrong, M.L., Murphy, K.P., Sallee, A., & Watson, M.G. (2000). Tattooed army soldiers: Examining the incidence, behavior, and risk. *Military Medicine*, 165(2), 135–141.
- Ashinoff, R., Levine, V.J., & Soter, N.A. (1995). Allergic reactions to tattoo pigment after laser treatment. *Dermatologic Surgery*, 21(4), 291–294.
- Bjornberg, A. (1963). Reactions to light in yellow tattoos from cadmium sulfide. *Archives of Dermatology*, 88, 267–271.
- Bonnell, J.A., & Russel, B. (1956). Skin reactions at site of green and red tattoo marks. *Proceedings of the Royal Society of Medicine*, 49(10), 823–825.
- Braithwaite, R.L., Stephens, T., Sterk, C., & Braithwaite, K. (1999). Risks associated with tattooing and body piercing. *Journal of Public Health Policy*, 20(4), 459–470.
- Braccaccio, R.R., Berstein, M., Fisher, A.A., & Shalita, A.R. (1981). Tinea in tattoos. *Cutis*, 28(5), 541–542.
- Duke, D., Urioste, S.S., Dover, J.S., & Anderson, R.R. (1998). A reaction to a red lip cosmetic tattoo. *Journal of the American Academy of Dermatology*, 39(3), 488–490.
- Engel, E., Santarelli, F., Vasold, R., Maisch, T., Ulrich, H., Prantl, L., König, B., Landthaler, M., & Bäuml, W. (2008). Modern tattoos cause high concentrations of hazardous pigments in skin. *Contact Dermatitis*, 58(4), 228–233.
- Gallo, R., Parodi, A., Cozzani, E., & Guarrera, M. (1998). Allergic reaction to India ink in a black tattoo. *Contact Dermatitis*, 38(6), 346–347.
- Ghorpade, A. (2002). Inoculation (tattoo) leprosy: A report of 31 cases. *Journal of the European Academy of Dermatology and Venereology*, 16(5), 494–499.
- Goldstein, N. (2007). Tattoos defined. *Clinics in Dermatology*, 25(4), 417–420.
- Greif, J., Hewitt, W., & Armstrong, M.L. (1999). Tattooing and body piercing: Body art practices among college students. *Clinical Nursing Research*, 8(4), 368–385.
- Haley, R.W., & Fischer, R.P. (2001). Commercial tattooing as a potentially important source of hepatitis C infection—clinical epidemiology of 626 consecutive patients unaware of their hepatitis C serologic status. *Medicine*, 80(2), 134–151.
- Jacob, C.I. (2002). Tattoo-associated dermatoses: A case report and review of the literature. *Dermatologic Surgery*, 28(10), 962–965.
- Kahofer, P., El Shabrawi-Caelen, L., Horn, M., Kern, T., & Smolle, J. (2003). Pseudolymphoma occurring in a tattoo. *European Journal of Dermatology*, 13(2), 209–212.
- Kazandjieva, J., & Tsankov, N. (2007). Tattoos: Dermatological complications. *Clinics in Dermatology*, 25(4), 375–382.
- Kircik, L., Armus, S., & Vandenbroek, H. (1993). Malignant-melanoma in a tattoo. *International Journal of Dermatology*, 32(4), 297–298.
- Kirsch, N. (1969). Malignant melanoma developing in a tattoo. *Archives of Dermatology*, 99(5), 596–598.
- Kluger, N., Muller, C., & Gral, N. (2008). Atypical mycobacteria infection following tattooing: Review of an outbreak in 8 patients in a French tattoo parlor. *Archives of Dermatology*, 144(7), 941–942.
- Kreidstein, M.L., Giguere, D., & Freiberg, A. (1997). MRI interaction with tattoo pigments: Case report, pathophysiology, and management. *Plastic and Reconstructive Surgery*, 99(6), 1717–1720.
- Laumann, A.E., & Derick, A.J. (2006). Tattoos and body piercings in the United States: A national data set. *Journal of the American Academy of Dermatology*, 55(3), 413–421.
- Loewenthal, L.J. (1960). Reactions in green tattoos: The significance of the valence state of chromium. *Archives of Dermatology*, 82, 237–243.

## References

- Lubeck, G., & Epstein, E. (1952). Complications of tattooing. *California Medicine*, 73(2), 83–85.
- Lundsgaard, J. (2002). *Investigation of pigments in tattoo colors*. Copenhagen: Danish Ministry of the Environment.
- Mayers, L., & Chiffrieller, S. (2007). Sequential survey of body piercing and tattooing prevalence and medical complication incidence among college students. *Archives of Pediatrics & Adolescent Medicine*, 161(12), 1219–1220.
- Mayers, L.B., Judelson, D.A., Moriarty, B.W., & Rundell, K.W. (2002). Prevalence of body art (body piercing and tattooing) in university undergraduates and incidence of medical complications. *Mayo Clinic Proceedings*, 77(1), 29–34.
- National Environmental Health Association. (1999). *Body art: A comprehensive guidebook and model code*. Denver, CO: Author.
- Nguyen, L.Q., & Allen, H.B. (1979). Reactions to manganese and cadmium in tattoos. *Cutis*, 23(1), 71–72.
- Nishioka, S.A., & Gyorkos, T.W. (2001). Tattoos as risk factors for transfusion-transmitted diseases. *International Journal of Infectious Diseases*, 5(1), 27–34.
- Noah, N. (2006). Tattooing and piercing—the need for guidelines in the European Union. *Eurosurveillance*, 11(1), 589.
- Papameletiou, D., Zenie, A., Schwela, D., & Baumler, W. (2003). *Risks and health effects from tattoos, body piercing, and related practices*. Ipsra, Cyprus: Joint Research Commission of the European Union.
- Pew Research Center for the People and the Press. (2006). *How young people view their lives, futures, and politics: A portrait of "Generation Next."* Washington, DC: Author.
- Ragland, H.P., Hubbell, C., Stewart, K.R., & Nesbitt, L.T., Jr. (1994). *Verruca vulgaris* inoculated during tattoo placement. *International Journal of Dermatology*, 33(11), 796–797.
- Sever, J.M. (2003). *Harris interactive poll #58: A third of Americans with tattoos say they make them feel more sexy*. Retrieved from <http://www.harrisinteractive.com/vaultHarris-Interactive-Poll-Research-A-Third-of-Americans-With-Tattoos-Say-They-Make-Them-Feel-More-Sexy-2003-10.pdf>
- Sperry, K. (1991). Tattoos and tattooing. Part I: History and methodology. *American Journal of Forensic Medicine and Pathology*, 12(4), 313–319.
- Sperry, K. (1992). Tattoos and tattooing. Part II: Gross pathology, histopathology, medical complications, and applications. *American Journal of Forensic Medicine and Pathology*, 13(1), 7–17.
- Stauter, R.L. (1988). Tattooing: The protection of the public health. *Health Matrix*, 6(2), 51–59.
- Stauter, R.L. (1989). Laws regulating tattooing. *American Journal of Public Health*, 79(9), 1308–1309.
- Tope, W.D. (1995). State and territorial regulation of tattooing in the United States. *Journal of the American Academy of Dermatology*, 32(5), 791–799.
- Tope, W.D., & Shellock, F.G. (2002). Magnetic resonance imaging and permanent cosmetics (tattoos): Survey of complications and adverse events. *Journal of Magnetic Resonance Imaging*, 15(2), 180–184.
- U.S. Census. (2009). *Population tables, age and sex finder*. Retrieved from <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
- U.S. Food and Drug Administration. (2009). *Tattoos and permanent makeup*. Retrieved from <http://www.fda.gov/Cosmetics/ProductandIngredientSafety/ProductInformation/ucm108530.htm>
- Vasold, R., Engel, E., Konig, B., Landthaler, M., & Baumler, W. (2008). Health risks of tattoo colors. *Analytical and Bioanalytical Chemistry*, 391(1), 9–13.
- Wagle, W.A., & Smith, M. (2000). Tattoo-induced skin burn during MR imaging. *American Journal of Roentgenology*, 174(6), 1795.

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