

INFECTION CONTROL

**INFECTION CONTROL
FOR THE DENTAL TEAM**



BUFFALO NIAGARA DENTAL MEETING
Wednesday, Nov 5, 3-6 PM
Thursday, Nov 6, 8:30-11:30 AM



FRANK C. BARNASHUK, DDS




Assistant Professor
AEGD Program Director
Department of Restorative Dentistry
UB/School of Dental Medicine

FB2@BUFFALO.EDU



NEW

Dec. 1st, 2013
Training Requirement
Revised
Hazard Communication Standard



ADA NEWS 10/16/2013

<https://www.osha.gov/dsg/hazcom>



HazCom GHS Training Video - New GHS Standard, Big Selection
www.osha-slc.gov
 English & Spanish \$19.95 - \$24.95
 View this ad's deal - valid as of yesterday

Hazard Communication - OSHA
www.osha-slc.gov
 Highlights: New Hazard Communication Walk Card (PPE) 5.7 (MS) New December 1, 2013 Training Requirements: 4th Sheet (PPE) 200 (MS) New GHS9 Brief ...
 You've visited this page many times. Last visit: 02/11/13

HAZCOM Program
 An effective HAZCOM program depends on the capability of ...
Quick Cards
 Hazard Communication Standard
 Quick Cards, Safety Data Sheets ...
Fact Sheet
 Hazard Communication Standard
 Fact Sheet - 7/2012 Sheet ...
Safety Data Sheets
 Safety Data Sheets: OSHA QuickCard
 PPE 111 MS ...

The OSHA HAZCOM standard from 1994 was updated and passed in 2012, and some things will be changing over the next three years!

New OSHA Requirements
Hazcom Training



Hazard Communication Standard
Updated

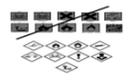
What's New ?



- ◆ Based on Global Harmonization System (GHS)
- ◆ HazCom 2012 is:
 - More uniform
 - Specification Oriented
 - More global (based mainly on 4 systems, including US, UK)
 - A system that can be adopted by any country
 - "Building Block" approach - all or part
 - Sixty-seven countries have adopted all or part of the GHS.
- ◆ Many companies already implementing

Labels

- ◆ Labels must include:
 - Symbols (Pictograms)
 - Signal words "Danger" or "Warning" - emphasis hazards, level of severity
 - Hazard Statements - standard phrases




New Labeling requirements with HAZCOM Update

HCS Pictograms and Hazards		
Health Hazard • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	Flame • Flammable • Oxidizing • Corrosive • Highly Flammable Gas • Gas Under Pressure • Organic Peroxides 	Exclamation Mark • Irritant (skin and eye) • Gas Sensitizer • Aquatic Toxicity • Acute Toxicity • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory) 
Gas Cylinder • Gas Under Pressure 	Corrosion • Skin Corrosion/Irritant • Eye Damage • Corrosive to Metals 	Explosive Bomb • Explosive • Self-Heating • Organic Peroxides 
Flame Over Circle • Oxidizer 	Environment (Non-Mandatory) • Aquatic Toxicity 	Skull and Crossbones • Acute Toxicity (oral or toxic) 

GHS Labels

By December, Must Know Both



Inflam
TOXIC
COMBUSTIBLE LIQUID AND VAPOR

My Company, My Street, MyTown NJ
07000
Tel: 444 999 9999

HCS Label

Inflam
TOXIC
Danger: Toxic if Inhaled, Flammable Liquid and Vapor

Pictograms: GHS02, GHS05, GHS09
Signal Word: DANGER
Hazard Statement: H228, H302, H332, H360Df, H410
Prevention: P201, P202, P273, P501
Response: R102, R103, R107, R108, R112, R113, R114, R115, R120, R121, R122, R123, R124, R125, R126, R127, R128, R129, R130, R131, R132, R133, R134, R135, R136, R137, R138, R139, R140, R141, R142, R143, R144, R145, R146, R147, R148, R149, R150, R151, R152, R153, R154, R155, R156, R157, R158, R159, R160, R161, R162, R163, R164, R165, R166, R167, R168, R169, R170, R171, R172, R173, R174, R175, R176, R177, R178, R179, R180, R181, R182, R183, R184, R185, R186, R187, R188, R189, R190, R191, R192, R193, R194, R195, R196, R197, R198, R199, R200, R201, R202, R203, R204, R205, R206, R207, R208, R209, R210, R211, R212, R213, R214, R215, R216, R217, R218, R219, R220, R221, R222, R223, R224, R225, R226, R227, R228, R229, R230, R231, R232, R233, R234, R235, R236, R237, R238, R239, R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250, R251, R252, R253, R254, R255, R256, R257, R258, R259, R260, R261, R262, R263, R264, R265, R266, R267, R268, R269, R270, R271, R272, R273, R274, R275, R276, R277, R278, R279, R280, R281, R282, R283, R284, R285, R286, R287, R288, R289, R290, R291, R292, R293, R294, R295, R296, R297, R298, R299, R300, R301, R302, R303, R304, R305, R306, R307, R308, R309, R310, R311, R312, R313, R314, R315, R316, R317, R318, R319, R320, R321, R322, R323, R324, R325, R326, R327, R328, R329, R330, R331, R332, R333, R334, R335, R336, R337, R338, R339, R340, R341, R342, R343, R344, R345, R346, R347, R348, R349, R350, R351, R352, R353, R354, R355, R356, R357, R358, R359, R360, R361, R362, R363, R364, R365, R366, R367, R368, R369, R370, R371, R372, R373, R374, R375, R376, R377, R378, R379, R380, R381, R382, R383, R384, R385, R386, R387, R388, R389, R390, R391, R392, R393, R394, R395, R396, R397, R398, R399, R400, R401, R402, R403, R404, R405, R406, R407, R408, R409, R410, R411, R412, R413, R414, R415, R416, R417, R418, R419, R420, R421, R422, R423, R424, R425, R426, R427, R428, R429, R430, R431, R432, R433, R434, R435, R436, R437, R438, R439, R440, R441, R442, R443, R444, R445, R446, R447, R448, R449, R450, R451, R452, R453, R454, R455, R456, R457, R458, R459, R460, R461, R462, R463, R464, R465, R466, R467, R468, R469, R470, R471, R472, R473, R474, R475, R476, R477, R478, R479, R480, R481, R482, R483, R484, R485, R486, R487, R488, R489, R490, R491, R492, R493, R494, R495, R496, R497, R498, R499, R500, R501, R502, R503, R504, R505, R506, R507, R508, R509, R510, R511, R512, R513, R514, R515, R516, R517, R518, R519, R520, R521, R522, R523, R524, R525, R526, R527, R528, R529, R530, R531, R532, R533, R534, R535, R536, R537, R538, R539, R540, R541, R542, R543, R544, R545, R546, R547, R548, R549, R550, R551, R552, R553, R554, R555, R556, R557, R558, R559, R560, R561, R562, R563, R564, R565, R566, R567, R568, R569, R570, R571, R572, R573, R574, R575, R576, R577, R578, R579, R580, R581, R582, R583, R584, R585, R586, R587, R588, R589, R590, R591, R592, R593, R594, R595, R596, R597, R598, R599, R600, R601, R602, R603, R604, R605, R606, R607, R608, R609, R610, R611, R612, R613, R614, R615, R616, R617, R618, R619, R620, R621, R622, R623, R624, R625, R626, R627, R628, R629, R630, R631, R632, R633, R634, R635, R636, R637, R638, R639, R640, R641, R642, R643, R644, R645, R646, R647, R648, R649, R650, R651, R652, R653, R654, R655, R656, R657, R658, R659, R660, R661, R662, R663, R664, R665, R666, R667, R668, R669, R670, R671, R672, R673, R674, R675, R676, R677, R678, R679, R680, R681, R682, R683, R684, R685, R686, R687, R688, R689, R690, R691, R692, R693, R694, R695, R696, R697, R698, R699, R700, R701, R702, R703, R704, R705, R706, R707, R708, R709, R710, R711, R712, R713, R714, R715, R716, R717, R718, R719, R720, R721, R722, R723, R724, R725, R726, R727, R728, R729, R730, R731, R732, R733, R734, R735, R736, R737, R738, R739, R740, R741, R742, R743, R744, R745, R746, R747, R748, R749, R750, R751, R752, R753, R754, R755, R756, R757, R758, R759, R760, R761, R762, R763, R764, R765, R766, R767, R768, R769, R770, R771, R772, R773, R774, R775, R776, R777, R778, R779, R780, R781, R782, R783, R784, R785, R786, R787, R788, R789, R790, R791, R792, R793, R794, R795, R796, R797, R798, R799, R800, R801, R802, R803, R804, R805, R806, R807, R808, R809, R810, R811, R812, R813, R814, R815, R816, R817, R818, R819, R820, R821, R822, R823, R824, R825, R826, R827, R828, R829, R830, R831, R832, R833, R834, R835, R836, R837, R838, R839, R840, R841, R842, R843, R844, R845, R846, R847, R848, R849, R850, R851, R852, R853, R854, R855, R856, R857, R858, R859, R860, R861, R862, R863, R864, R865, R866, R867, R868, R869, R870, R871, R872, R873, R874, R875, R876, R877, R878, R879, R880, R881, R882, R883, R884, R885, R886, R887, R888, R889, R890, R891, R892, R893, R894, R895, R896, R897, R898, R899, R900, R901, R902, R903, R904, R905, R906, R907, R908, R909, R910, R911, R912, R913, R914, R915, R916, R917, R918, R919, R920, R921, R922, R923, R924, R925, R926, R927, R928, R929, R930, R931, R932, R933, R934, R935, R936, R937, R938, R939, R940, R941, R942, R943, R944, R945, R946, R947, R948, R949, R950, R951, R952, R953, R954, R955, R956, R957, R958, R959, R960, R961, R962, R963, R964, R965, R966, R967, R968, R969, R970, R971, R972, R973, R974, R975, R976, R977, R978, R979, R980, R981, R982, R983, R984, R985, R986, R987, R988, R989, R990, R991, R992, R993, R994, R995, R996, R997, R998, R999, R1000, R1001, R1002, R1003, R1004, R1005, R1006, R1007, R1008, R1009, R1010, R1011, R1012, R1013, R1014, R1015, R1016, R1017, R1018, R1019, R1020, R1021, R1022, R1023, R1024, R1025, R1026, R1027, R1028, R1029, R1030, R1031, R1032, R1033, R1034, R1035, R1036, R1037, R1038, R1039, R1040, R1041, R1042, R1043, R1044, R1045, R1046, R1047, R1048, R1049, R1050, R1051, R1052, R1053, R1054, R1055, R1056, R1057, R1058, R1059, R1060, R1061, R1062, R1063, R1064, R1065, R1066, R1067, R1068, R1069, R1070, R1071, R1072, R1073, R1074, R1075, R1076, R1077, R1078, R1079, R1080, R1081, R1082, R1083, R1084, R1085, R1086, R1087, R1088, R1089, R1090, R1091, R1092, R1093, R1094, R1095, R1096, R1097, R1098, R1099, R1100, R1101, R1102, R1103, R1104, R1105, R1106, R1107, R1108, R1109, R1110, R1111, R1112, R1113, R1114, R1115, R1116, R1117, R1118, R1119, R1120, R1121, R1122, R1123, R1124, R1125, R1126, R1127, R1128, R1129, R1130, R1131, R1132, R1133, R1134, R1135, R1136, R1137, R1138, R1139, R1140, R1141, R1142, R1143, R1144, R1145, R1146, R1147, R1148, R1149, R1150, R1151, R1152, R1153, R1154, R1155, R1156, R1157, R1158, R1159, R1160, R1161, R1162, R1163, R1164, R1165, R1166, R1167, R1168, R1169, R1170, R1171, R1172, R1173, R1174, R1175, R1176, R1177, R1178, R1179, R1180, R1181, R1182, R1183, R1184, R1185, R1186, R1187, R1188, R1189, R1190, R1191, R1192, R1193, R1194, R1195, R1196, R1197, R1198, R1199, R1200, R1201, R1202, R1203, R1204, R1205, R1206, R1207, R1208, R1209, R1210, R1211, R1212, R1213, R1214, R1215, R1216, R1217, R1218, R1219, R1220, R1221, R1222, R1223, R1224, R1225, R1226, R1227, R1228, R1229, R1230, R1231, R1232, R1233, R1234, R1235, R1236, R1237, R1238, R1239, R1240, R1241, R1242, R1243, R1244, R1245, R1246, R1247, R1248, R1249, R1250, R1251, R1252, R1253, R1254, R1255, R1256, R1257, R1258, R1259, R1260, R1261, R1262, R1263, R1264, R1265, R1266, R1267, R1268, R1269, R1270, R1271, R1272, R1273, R1274, R1275, R1276, R1277, R1278, R1279, R1280, R1281, R1282, R1283, R1284, R1285, R1286, R1287, R1288, R1289, R1290, R1291, R1292, R1293, R1294, R1295, R1296, R1297, R1298, R1299, R1300, R1301, R1302, R1303, R1304, R1305, R1306, R1307, R1308, R1309, R1310, R1311, R1312, R1313, R1314, R1315, R1316, R1317, R1318, R1319, R1320, R1321, R1322, R1323, R1324, R1325, R1326, R1327, R1328, R1329, R1330, R1331, R1332, R1333, R1334, R1335, R1336, R1337, R1338, R1339, R1340, R1341, R1342, R1343, R1344, R1345, R1346, R1347, R1348, R1349, R1350, R1351, R1352, R1353, R1354, R1355, R1356, R1357, R1358, R1359, R1360, R1361, R1362, R1363, R1364, R1365, R1366, R1367, R1368, R1369, R1370, R1371, R1372, R1373, R1374, R1375, R1376, R1377, R1378, R1379, R1380, R1381, R1382, R1383, R1384, R1385, R1386, R1387, R1388, R1389, R1390, R1391, R1392, R1393, R1394, R1395, R1396, R1397, R1398, R1399, R1400, R1401, R1402, R1403, R1404, R1405, R1406, R1407, R1408, R1409, R1410, R1411, R1412, R1413, R1414, R1415, R1416, R1417, R1418, R1419, R1420, R1421, R1422, R1423, R1424, R1425, R1426, R1427, R1428, R1429, R1430, R1431, R1432, R1433, R1434, R1435, R1436, R1437, R1438, R1439, R1440, R1441, R1442, R1443, R1444, R1445, R1446, R1447, R1448, R1449, R1450, R1451, R1452, R1453, R1454, R1455, R1456, R1457, R1458, R1459, R1460, R1461, R1462, R1463, R1464, R1465, R1466, R1467, R1468, R1469, R1470, R1471, R1472, R1473, R1474, R1475, R1476, R1477, R1478, R1479, R1480, R1481, R1482, R1483, R1484, R1485, R1486, R1487, R1488, R1489, R1490, R1491, R1492, R1493, R1494, R1495, R1496, R1497, R1498, R1499, R1500, R1501, R1502, R1503, R1504, R1505, R1506, R1507, R1508, R1509, R1510, R1511, R1512, R1513, R1514, R1515, R1516, R1517, R1518, R1519, R1520, R1521, R1522, R1523, R1524, R1525, R1526, R1527, R1528, R1529, R1530, R1531, R1532, R1533, R1534, R1535, R1536, R1537, R1538, R1539, R1540, R1541, R1542, R1543, R1544, R1545, R1546, R1547, R1548, R1549, R1550, R1551, R1552, R1553, R1554, R1555, R1556, R1557, R1558, R1559, R1560, R1561, R1562, R1563, R1564, R1565, R1566, R1567, R1568, R1569, R1570, R1571, R1572, R1573, R1574, R1575, R1576, R1577, R1578, R1579, R1580, R1581, R1582, R1583, R1584, R1585, R1586, R1587, R1588, R1589, R1590, R1591, R1592, R1593, R1594, R1595, R1596, R1597, R1598, R1599, R1600, R1601, R1602, R1603, R1604, R1605, R1606, R1607, R1608, R1609, R1610, R1611, R1612, R1613, R1614, R1615, R1616, R1617, R1618, R1619, R1620, R1621, R1622, R1623, R1624, R1625, R1626, R1627, R1628, R1629, R1630, R1631, R1632, R1633, R1634, R1635, R1636, R1637, R1638, R1639, R1640, R1641, R1642, R1643, R1644, R1645, R1646, R1647, R1648, R1649, R1650, R1651, R1652, R1653, R1654, R1655, R1656, R1657, R1658, R1659, R1660, R1661, R1662, R1663, R1664, R1665, R1666, R1667, R1668, R1669, R1670, R1671, R1672, R1673, R1674, R1675, R1676, R1677, R1678, R1679, R1680, R1681, R1682, R1683, R1684, R1685, R1686, R1687, R1688, R1689, R1690, R1691, R1692, R1693, R1694, R1695, R1696, R1697, R1698, R1699, R1700, R1701, R1702, R1703, R1704, R1705, R1706, R1707, R1708, R1709, R1710, R1711, R1712, R1713, R1714, R1715, R1716, R1717, R1718, R1719, R1720, R1721, R1722, R1723, R1724, R1725, R1726, R1727, R1728, R1729, R1730, R1731, R1732, R1733, R1734, R1735, R1736, R1737, R1738, R1739, R1740, R1741, R1742, R1743, R1744, R1745, R1746, R1747, R1748, R1749, R1750, R1751, R1752, R1753, R1754, R1755, R1756, R1757, R1758, R1759, R1760, R1761, R1762, R1763, R1764, R1765, R1766, R1767, R1768, R1769, R1770, R1771, R1772, R1773, R1774, R1775, R1776, R1777, R1778, R1779, R1780, R1781, R1782, R1783, R1784, R1785, R1786, R1787, R1788, R1789, R1790, R1791, R1792, R1793, R1794, R1795, R1796, R1797, R1798, R1799, R1800, R1801, R1802, R1803, R1804, R1805, R1806,

INFECTION CONTROL

Labeling

Secondary containers used within a facility
AKA.....“Transfer Containers” –

- Can contain all information on a shipped container label
- Must contain, at a minimum:
 - Product name
 - Pictures, symbols or words to convey contents and hazards
 - Enough info to find out more information

Attention! Attention!

MSDS (Material Safety Data Sheets)

Are soon going to be:

SDS (Safety Data Sheets)



SDS

- Can't take an MSDS and call it an SDS!
- 16 specific sections, must be in order
- Sections 12-15 not being enforced
 - Include Tox/Disposal/Transport/Reg. Info
 - Outside OSHA jurisdiction
- May be paper or electronic
- Provide in English or other languages



SDS 'Sections'

- Sec. 1: Identification
- Sec. 2: Hazard identification
- Sec. 3: Composition/information on ingredients
- Sec. 4: First aid measures
- Sec. 5: Fire-fighting measures;
- Sec. 6: Accidental release measures;
- Sec. 7: Handling and storage;
- Sec. 8: Exposure control/personal protection
- Sec. 9: Physical and chemical properties
- Sec. 10: Stability and reactivity
- Sec. 11: Toxicological information
- Sec. 12*: Ecological information
- Sec. 13*: Disposal considerations
- Sec. 14*: Transport information
- Sec. 15*: Regulatory information
- Sec. 16: Other information, including date of preparation or most recent revision.



Deadlines



- December 1, 2013**
 - Employers must complete training on new label elements and SDS formats
- June 1, 2015**
 - Manufacturers must ship only HazCom 2012 compliant SDS and labels
- December 1, 2015**
 - Distributors/importers must ship products with only HazCom 2012 compliant labels, SDS

Deadlines

June 1, 2016*

All HAZCOM programs must be updated

*Only current office requirement is **TRAINING** by 12.1.2013



Back to Infection Control



Ebola Virus Disease

CDC Slides for U.S. Healthcare Workers*

October 31, 2014



Presentation is current through October 31, 2014 and will be updated every Friday by 5pm. For the most up-to-date information, please visit www.cdc.gov/ebola.
*Presentation contains materials from CDC, NSF, and WHO

Centers for Disease Control and Prevention
Office of the Director

Ebola Virus

- Prototype Viral Hemorrhagic Fever Pathogen
 - Filovirus: enveloped, non-segmented, negative-stranded RNA virus
 - Severe disease with high case fatality
 - Absence of specific treatment or vaccine
- >20 previous Ebola and Marburg virus outbreaks
- 2014 West Africa Ebola outbreak caused by Zaire ebolavirus species (five known Ebola virus species)




INFECTION CONTROL

Ebola Virus

- Zoonotic virus – bats the most likely reservoir, although species unknown
- Spillover event from infected wild animals (e.g., fruit bats, monkey, duiker) to humans, followed by human-human transmission

Illustration: Zoonotic transmission of Ebola virus from bats to humans. Following initial exposure to Ebola virus, humans contract the disease through direct contact with infected individuals or their body fluids. Human-to-human transmission is a predominant mode of spread.

Figure. Ebola virus disease (EVD) cumulative incidence* — West Africa, October 18, 2014

* Cumulative number of reported EVD cases per 100,000 persons since December 22, 2013. [MMWR 2014;93\(41\):787-881](http://dx.doi.org/10.1093/infdis/jiu1381)

2014 Ebola Outbreak, West Africa

A. West Africa

Legend: ■ Sierra Leone, □ Liberia, ■ Guinea

WHO Ebola Response Team. N Engl J Med 2014. DOI: 10.1056/NEJMoA1411100 <http://www.nejm.org/doi/full/10.1056/NEJMoA1411100> <http://dx.doi.org/10.1093/infdis/jiu1381>

	Reporting Date	Total Cases	Confirmed Cases	Total Deaths
Guinea	27 Oct 14	1,906	1,391	997
Liberia	25 Oct 14	6,535	2,515	2,413
Sierra Leone	27 Oct 14	5,235	3,700	1,500
Nigeria**	15 Oct 14	20	19	8
Spain	27 Oct 14	1	1	0
Senegal**	15 Oct 14	1	1	0
United States	24 Oct 14	4	4	1
Mali	23 Oct 14	1	1	1
TOTAL		13,733	7,632	4,920

EVD Cases and Deaths*

Updated case counts available at <http://www.cdc.gov/eid/content/vol20/18/1802a1411100.html>

* Reported by WHO, using data from literature of cases

** The number of EVD in Senegal and Nigeria were declared over on October 17 and 18, respectively.

EVD Cases (United States)

- As of October 24, 2014, EVD has been diagnosed in the United States in four people, one (the index patient) who traveled to Dallas, Texas from Liberia, two healthcare workers who cared for the index patient, and one medical aid worker who traveled to New York City from Guinea
- Index patient** – Symptoms developed on September 24, 2014 approximately four days after arrival, sought medical care at Texas Health Presbyterian Hospital of Dallas on September 28, was admitted to hospital on September 28, testing confirmed EVD on September 30, patient died October 8.
- TX Healthcare Worker, Case 2** – Cared for index patient, was self-monitoring and presented to hospital reporting low-grade fever, diagnosed with EVD on October 10, recovered and released from NIH Clinical Center October 24.
- TX Healthcare Worker, Case 3** – Cared for index patient, was self-monitoring and reported low-grade fever, diagnosed with EVD on October 15, recovered and released from Emory University Hospital in Atlanta October 28.
- NY Medical Aid Worker, Case 4** – Worked with Ebola patients in Guinea, was self-monitoring and reported fever, diagnosed with EVD on October 24, currently in isolation at Bellevue Hospital in New York City.

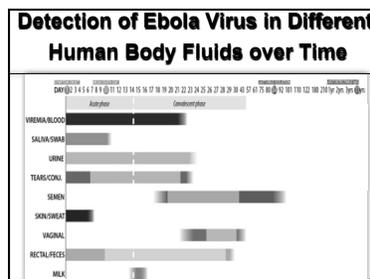
Information on U.S. EVD cases available at <http://www.cdc.gov/eid/content/vol20/18/1802a1411100.html>

EVD Cases (United States)

- As of October 31, 2014, four U.S. health workers and one journalist who were infected with Ebola virus in West Africa were transported to hospitals in the United States for care
- All the patients have recovered and have been released from the hospital after laboratory testing confirmed that they no longer have Ebola virus in their blood

Ebola Virus Transmission

- Virus present in high quantity in blood, body fluids, and excreta of symptomatic EVD-infected patients
- Opportunities for human-to-human transmission
 - Direct contact (through broken skin or unprotected mucous membranes) with an EVD-infected patient's blood or body fluids
 - Sharps injury (with EVD-contaminated needles or other sharp)
 - Direct contact with the corpse of a person who died of EVD
 - Indirect contact with an EVD-infected patient's blood or body fluids via a contaminated object (soiled linens or used utensils)
- Ebola can also be transmitted via contact with blood, fluids, or meat of an infected animal
 - Limited evidence that dogs become infected with Ebola virus
 - No reports of dogs or cats becoming sick with or transmitting Ebola



Human-to-Human Transmission

- Infected persons are not contagious until onset of symptoms
- Infectiousness of body fluids (e.g., viral load) increases as patient becomes more ill
 - Remains from deceased infected persons are highly infectious
- Human-to-human transmission of Ebola virus via inhalation (aerosols) has not been demonstrated

INFECTION CONTROL

EVD Risk Assessment

<p>HIGH-RISK EXPOSURE</p> <p>Household or close contact or mucous membrane contact with blood or body fluids from an Ebola patient</p> <p>OR</p> <p>Direct skin contact with, or exposure to blood or body fluids of an Ebola patient</p> <p>OR</p> <p>Processing blood or body fluids from an Ebola patient without appropriate personal protective equipment (PPE) or facility ventilation</p> <p>OR</p> <p>Direct contact with a dead body (including during funeral rites) in a country with widespread Ebola transmission* without appropriate PPE</p>	<p>LOW-RISK EXPOSURE</p> <p>Household members of an Ebola patient and others who had brief direct contact (e.g., shaking hands) with an Ebola patient without appropriate PPE</p> <p>OR</p> <p>Healthcare personnel in facilities with confirmed or probable Ebola patients who have been in the care area for a prolonged period of time while not wearing recommended PPE</p>	<p>NO KNOWN EXPOSURE</p> <p>Residence in or travel to a country with widespread Ebola transmission* without HIGH- or LOW-risk exposure</p>
---	---	---

*CDC Website to check current affected areas: www.cdc.gov/ebs/index.htm

Ebola Virus Pathogenesis

- Direct infection of tissues
- Immune dysregulation
- Hypovolemia and vascular collapse
 - Electrolyte abnormalities
 - Multi-organ failure, septic shock
- Disseminated intravascular coagulation (DIC) and coagulopathy

Lancet, Mar 5, 2011; 377(9788): 848-852.

Early Clinical Presentation

- Acute onset: typically 8–10 days after exposure (range 2–21 days)
- Signs and symptoms
 - Initial: Fever, chills, myalgias, malaise, anorexia
 - After 5 days: GI symptoms, such as nausea, vomiting, watery diarrhea, abdominal pain
 - Other: Headache, conjunctivitis, hiccups, rash, chest pain, shortness of breath, confusion, seizures
 - Hemorrhagic symptoms in 18% of cases
- Other possible infectious causes of symptoms
 - Malaria, typhoid fever, meningococemia, Lassa fever and other bacterial infections (e.g., pneumonia) – all very common in Africa

Clinical Features

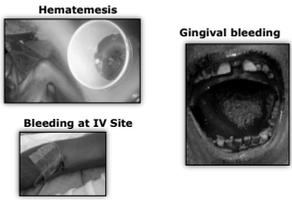
- Nonspecific early symptoms progress to:
 - Hypovolemic shock and multi-organ failure
 - Hemorrhagic disease
 - Death
- Non-fatal cases typically improve 6–11 days after symptoms onset
- Fatal disease associated with more severe early symptoms
 - Fatality rates of 70% have been reported in rural Africa
 - Intensive care, especially early intravenous and electrolyte management, may increase the survival rate

Clinical Manifestations by Organ System in West African Ebola Outbreak

Organ System	Clinical Manifestation
General	Fever (87%), fatigue (78%), arthralgia (39%), myalgia (39%)
Neurological	Headache (53%), confusion (13%), eye pain (8%), coma (6%)
Cardiovascular	Chest pain (37%)
Pulmonary	Cough (30%), dyspnea (23%), sore throat (22%), hiccups (11%)
Gastrointestinal	Vomiting (68%), diarrhea (66%), anorexia (65%), abdominal pain (44%), dysphagia (33%), jaundice (10%)
Hematological	Any unexplained bleeding (18%), melena/hematochezia (6%), hematemesis (4%), vaginal bleeding (2%), gingival bleeding (2%), hemoptysis (2%), epistaxis (2%), bleeding at injection site (2%), hematuria (1%), petechiae/ecchymoses (1%)
Integumentary	Conjunctivitis (21%), rash (6%)

WHO Ebola Response team, NEJM 2014

Examples of Hemorrhagic Signs

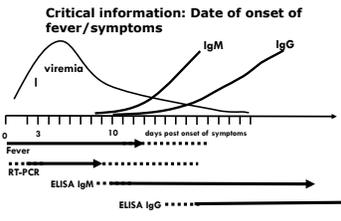


LAB FINDINGS

- Thrombocytopenia (50,000–100,000/ μ L range)
- Leukopenia (ALT)
- Transaminase elevation (AST>ALT)
- Electrolyte abnormalities from fluid shifts
- Coagulation: PT and PTT prolonged
- Renal: proteinuria, increased creatinine

EVD: Expected diagnostic test results over time

Critical information: Date of onset of fever/symptoms



IgM: up to 3–6 months
IgG: 3–5 years or more (life-long persistence?)

Ebola Virus Diagnosis

- Real Time PCR (RT-PCR)
 - Used to diagnose acute infection
 - More sensitive than antigen detection ELISA
 - Identification of specific viral genetic fragments
 - Performed in select CLIA-certified laboratories
- RT-PCR sample collection
 - Volume: minimum volume of 4mL whole blood
 - Plastic collection tubes (not glass or heparinized tubes)
 - Whole blood preserved with EDTA is preferred
 - Whole blood preserved with sodium polyanethanol sulfonate (SPS), citrate, or with clot activator is acceptable

INFECTION CONTROL

Interim Guidance for Monitoring and Movement of Persons with EVD Exposure

☐ CDC has created guidance for monitoring people exposed

RISK LEVEL	PUBLIC HEALTH ACTION		
	Monitoring	Restricted Public Activities	Restricted Travel
HIGH risk	Direct Active Monitoring	Yes	Yes
SOME risk	Direct Active Monitoring	Case-by-case assessment	Case-by-case assessment
LOW risk	Active Monitoring for some; Direct Active Monitoring for others	No	No
NO risk	No	No	No

www.cdc.gov/efebola/efc/monitoring-and-movement-of-person-with-exposure.html

- EVD Summary**
- ☐ The 2014 Ebola outbreak in West Africa is the largest in history and has affected multiple countries
 - ☐ Think Ebola: U.S. healthcare providers should be aware of clinical presentation and risk factors for EVD
 - ☐ Human-to-human transmission by direct contact
 - No human-to-human transmission via inhalation (aerosols)
 - No transmission before symptom onset
 - ☐ Early case identification, isolation, treatment and effective infection control are essential to prevent Ebola transmission

Recent/New Procedures at UB/SDM

EBV DISEASE

NEW RECOMMENDATIONS

EBV DISEASE

from the

A.D.A

ADA American Dental Association

ADA News

April 15, 2013

- ☐ ADA News
- ☐ ADA News Archive
- ☐ Emerging Issues
- ☐ Featured Events
- ☐ Videos
- ☐ Presskits
- ☐ Media Resources

Focus on Oklahoma oral surgeon puts spotlight on infection control in dentistry

By Ann Helms, ADA News Staff

Tulsa, Okla. — In the wake of reports of an alleged breach of standard infection control practices by a Tulsa, Okla., oral surgeon last month, the ADA is sending an ongoing message that dental health professionals take every precaution to protect patients and themselves.

According to the Oklahoma State Department of Health, some 7,000 patients potentially were exposed to infectious viruses, including human immunodeficiency virus, hepatitis B and hepatitis C. The Tulsa Health Department, the Oklahoma State Department of Health and the Oklahoma Board of Dentistry are jointly investigating the oral surgeon, as related to a letter to patients on the CDC website.

The dental board "so far has found numerous violations of health and safety laws and major violations of the State Dental Act," said a March 28 CDCM news release.

OKLAHOMA BOARD OF DENTISTRY

Oklahoma Board of Dentistry

Since March 21, 2013, the Board office has received hundreds of calls from the news media, dentists and the public concerning the events unfolding in Tulsa, Oklahoma. The public documents relevant to the Board's actions are posted below.

- Statement of Complaint (pdf, 4 pp, 2.2 MB)
- Agreed Order of Temporary Suspension (pdf, 3 pp, 735 KB)

For questions involving renewals or continuing education (CE), please send an email to Britany Parrott
For media inquiries, please send an email to Susan Rogers

NEWSOK

How to file a complaint with Oklahoma Board of Dentistry

Published April 1, 2013

Did you know?
How to file a complaint

Under current state law, the state Board of Dentistry cannot investigate a dentist until a complaint has been filed. To file a complaint against a dentist, download the dentistry board's complaint form at www.ok.gov/dentistry. The complaint form is on the "Application to Form" page.

- WHY DID OK D.O.H. COME LOOKING?**
- "INDEX PATIENT" w + HIV and Hep C Tests
- Had No Known Risk Factors
(See N. Mexico case later)
- Eventually only Hep C confirmed*
- *Sept 2013 confirmed as pt-to-pt

- WHAT IS ALLEGED?**
- IC ISSUES
- ☐ 2 separate sets of instruments with separate "cleaning method" (Known Infectious Disease v. Not Known)
 - ☐ Suspected "Rust" on Instruments (for "Disease" Patients)
 - ☐ No Autoclave Spore Test in 6 Years (Manufacturer rec "monthly"/CDC rec "weekly")
 - ☐ Instruments Improperly Stored (WRAP/OPEN/TRAY BIB)

INFECTION CONTROL

WHAT IS ALLEGED?
IC ISSUES

- Multi-Dose Drug Vials/Multiple Patients (Re: insert same needle whenever necessary)
- NO Infection Control Policies/Procedures
- No Post-Exposure Plan (NEEDLESTICKS, ETC. BUT THE POLICY WAS TO SOON THE INJURY IN BLEEDING)
- Regarding Sterilization & Drugs: "They Take Care of That, I Don't" (DR. STATES REFERRING TO DNA)

CONSEQUENCES FOR THE ACCUSED DENTIST

- ◆ 3.28.13: 30 Day License Suspension (gives anesthesia permit as well as federal and state drug permits)
- ◆ 4.12.13: Dentist Waives Hearing, License Revocation Hearing 8.16.13
- ◆ ULTIMATE SANCTIONS: No Action to License Revocation.

7,000+ Patients Offered Testing

- ◆ 4,018 tested as of June 6, 2013 (Hep B, C & HIV)
- ◆ 73 Hep C+
- ◆ 5 Hep B+
- ◆ At Least 3 HIV+
- ◆ Where Patients Exposed is Uncertain (Nucleic Acid Sequencing May Reveal: C=HIV, B=DNA)

*updated numbers compared to handout

One Confirmed Hep C Transmission Case CDC Sept 19, 2013



*** 3.29.13**

Infection Control — Resources for Patient Communication

As you are probably aware, there is widespread www.cdc.gov mocking the investigation of an Oklahoma oral surgeon for allegedly poor infection control practices and delegation of dental procedures. The ADA is monitoring this developing story closely.

As a result of this story, the ADA's federal numerous media inquiries about infection control and health practices in US dental offices. Below are links to resources that may be helpful to you.

Policy Statement on Bloodborne Pathogens, Infection Control and the Practice of Dentistry
 Statement on Infection Control in Dentistry
 CDC Guidelines for Infection Control in Dental Health-Care Settings (2003)

Should your patients express concern, here are some suggested talking points:

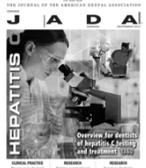
- I'm glad you asked me about this because I want to assure you that in my dental practice, we follow stringent infection control procedures.
- Also, as your doctor, I would only delegate procedures to my staff that they are licensed or qualified to perform per state regulations. I care about my patients and your health and safety are my foremost priorities.
- Studies show that following proper infection control procedures greatly reduces risk to patients to the point of an extremely remote possibility.
- The Centers for Disease Control and Prevention has developed special recommendations for use in dental offices.

*** 3.28.13**

- Let me describe just a few of the things that we do in my practice in terms of infection control.
 - All dental staff involved in patient care scrub their hands before each and every patient and use appropriate protective gear such as gloves, masks, gowns and eyewear.
 - A new set of gloves and masks are used for each patient.
 - Before you enter the exam room, all surfaces, such as the dental chair, instrument tray, dental light, dispenser handles and countertops, have been cleaned and decontaminated.
 - Non-disposable dental instruments are cleaned and sterilized between patients. In my office we sterilize instruments using [describe whether you use an autoclave which involves steam under pressure, dry heat or chemical sterilization. If you wash, you could offer to show your patients your sterilization or set-up area].
 - Disposable items like needles or gauze are placed in special bags or containers for special, monitored disposal.
 - Your well being is important to me and my staff, which is why we follow stringent infection control procedures and comply with all state regulations for the protection of patients.
 - You can visit the American Dental Association's website at www.ada.org and use the search term "infection control" to see a www.ada.org/2013/03/28. The website has a lot of information to help you take care of your oral health, too.

Your patients may also ask if your office is regularly inspected. Inspection requirements:

*** JADA DEC. 2013**



OTHER RECENT CASES

- ◆ Rhode Island
- ◆ Pennsylvania
- ◆ D.C.
- ◆ Maine ('Whistleblower')*

*see 'press release' 12/5/2013!



RHODE ISLAND CASE
 Office Closed March 22, 2013 by DOH

- ◆ No Written (IC) Program
- ◆ No HIV Vaccine Records
- ◆ No BIP Training Records
- ◆ No Post Exposure Protocols in Place
- ◆ Overfilled Sharps Containers
- ◆ No "Red Bags"
- ◆ No Utility Gloves (Instr. Cleaning)
- ◆ Inadequate Eye Protection ("own glasses")
- ◆ Metal Alginates Trays "Hanging on Wall"
- ◆ Inadequate Sterilization Monitoring & Record Keeping
- ◆ Manufacturers Inst. For sterilizer not available
- ◆ Packages overfilled
- ◆ No EPA-Registered disinfecting products available
- ◆ Suction Devices Visibly Spilled
- ◆ Switches and Light handles not Barrier-Protected*



RI CASE

- ◆ A week Later Reinstated
- ◆ BUT New Inspections Scheduled in 2 weeks, 30 days, 6 Months and 12 Months.



INFECTION CONTROL

PA. CASE



- ◆ License suspended 4/29/13
- ◆ Did not properly clean, disinfect, sterilize devices
- ◆ DOH rec Hep-B,-C, HIV testing for pts.
- ◆ Advised staff to lie (sterilization practices)
- ◆ 2 Counts DUI Dec 2012/Failed to Report on dental license Renewal 1/2013
- ◆ No previous legal/professional issues

PA Case

Reinstated but

- ◆ Hire IC Consultant
- ◆ Monthly Inspections by DOH for 1 year and every other month for 4 more years!
- ◆ Monitoring by a fellow dentist

DC CASE (a 'dental center')~July 16, 2013



- ◆ 26 "Serious Violations"
- ◆ No Exposure Control Plan(BBP)
- ◆ No Training
- ◆ Lack of Proper Eye Protection (for 'sanitizing chemicals')
- ◆ Failure to offer hep B Vaccine within 10 days
- ◆ \$61,600 Penalties proposed

MAINE 2.7.2013

- ◆ \$72,00 Fine
- ◆ 2 Hygienists: failed to resolve IC lapses "in-house".
- ◆ 1 filed OSHA complaint
- ◆ 1 fired/Placed other on Probation
- ◆ Other requirements imposed
- ◆ "Whistleblower" Provisions of OSHA Act and 21 other statutes cited




MARYLAND WHISTLEBLOWER MOSH

Information Program

OSHA conducts a variety of real and effective information programs that include inspecting workplaces and issuing citations and penalties for violations of health and safety standards. Penalties for inspectors include reports of imminent danger, fatalities, catastrophes, accidents and employee complaints. Investigation of whistleblower activities referred from other government agencies and targeted areas of concern.

Discrimination: Maryland Occupational Safety and Health (MOSH)

The MOSH Act is designed to regulate employment conditions relating to occupational safety and health. The Act provides for a wide range of administrative and procedural rights for employees and representatives of employees. The Act also empowers the affected employees and their representatives to file complaints with the agency in large violation cases. The Act also empowers employees and their representatives to file complaints with the agency in large violation cases. The Act also empowers employees and their representatives to file complaints with the agency in large violation cases.

Whistleblowers are protected: An employer or other person may not discharge or otherwise discriminate against an employee because the employee:

- (1) Files a complaint under or related to this title;
- (2) Files an action under this title or a proceeding under or related to this title or causes the action or proceeding to be commenced;
- (3) Testifies or is called to testify in an action under this title or a proceeding under or related to this title;
- (4) Consents to the employer or another party under this title.

Complaints by employees:

- (1) An employee who believes that an employer or other person has discharged or otherwise discriminated against the employee in violation of section 20-201 of this title may file a complaint with the Commissioner or another complainant that alleges the discrimination and that includes the signature of that employee.
- (2) An employer shall be liable for a complaint under this subsection unless it files with the alleged discrimination action.

"Oversight governmental agency" may include such acts as public hearings, reduced pay, failure to pay pay increases, or harassment.



THE WHISTLEBLOWER PROTECTION PROGRAMS

OSHA News Release: OSHA News Release 23-1899 (2023)
 OSHA News Release 23-1899 (2023)

POTENTIAL CONSEQUENCES FOR US

- ◆ Increased Questions From Patients
- ◆ Potential for Increased Vigilance/ Inspections by OSHA, State Boards and State Health Departments
- ◆ Hopefully: Increased Awareness/Action by us to "Do the Right Things"

How Should We React to Patients' Concerns and Questions?

Infection Control Program Goals



- ◆ Provide a safe working environment
 - Reduce health care-associated infections
 - Reduce occupational exposures

INFECTION CONTROL

* **ADA COMPLIANCE AIDS**



www.adacatalog.org

OBJECTIVES



- ◆ Satisfy 6 CORE ELEMENTS of NYS Infection Control Training
- ◆ Understand OSHA Standards & Requirements
- ◆ Understand CDC Recommendations
- ◆ How to Comply with Requirements in a Practical Way as Possible
- ◆ Provide a Safe Working & Treatment Environment

* It is our responsibility to adhere to scientifically accepted principles and practices of infection control and to monitor the performance of those for whom we (the professional) are responsible



NY CORE #1

* We must understand modes & mechanisms of transmission of pathogenic organisms in the healthcare setting and implement strategies for prevention and control

NY CORE #2



* We must utilize engineering and work practice controls to reduce the opportunity for patient and healthcare worker contact with potentially infectious material or bloodborne pathogens

NY CORE #3



* We must be able to select & use barriers and/or personal protective equipment for preventing patient & healthcare worker contact with potentially infectious material

NY CORE #4



* We need to create and maintain a safe environment for patient care through application of infection control principles and practices for cleaning, disinfection and sterilization

NY CORE #5



* We must discuss prevention & management of infectious or communicable diseases in healthcare workers

NY CORE #6



* **Infection control training is mandated every four (4) years for dentists and dental hygienists licensed in New York State.**



INFECTION CONTROL



OSHA STANDARDS

- ◆ Bloodborne Pathogens, 1991
- ◆ Hazard Communication Standard
- ◆ Others



DISTINCTION

State law adds patient protections where OSHA regulations center on employee protections



OSHA Poster 3165

- ◆ [WWW.OSHA.GOV/](http://www.osha.gov/) PUBLICATIONS/ POSTER
- ◆ Or just "Google" "OSHA Poster" and you'll see a link to 3165 poster
- ◆ Replaces older versions as 2203 which DO NOT need to be replaced

Infection Control Checklist as required by OSHA BB Pathogens Standard

- ◆ Exposure Control Plan and Other Written Documents
- ◆ Training of the Office Staff
- ◆ Hepatitis B Vaccination
- ◆ Postexposure Medical Evaluation & Follow-Up
- ◆ General Methods and Aseptic Techniques



OSHA Checklist Continued (BB Pathogens)

- ◆ Protective Barriers
- ◆ Management of Regulated Waste
- ◆ Decontamination
- ◆ Instrument Processing
- ◆ Laboratory Asepsis
- ◆ Radiographic Asepsis
- ◆ Record Keeping



Components of OSHA HazCom Standard

- Hazard Determination
- Written Hazard Communication Program
- Inventory & List Hazardous Chemicals
- Labels & Other Forms of Warning
- MSDS
- Employee Information & Training



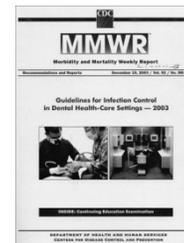
■ **New Rules Roll Out between 12.1.13 and 6.1.16**

Guidelines for Infection Control in Dental Health-Care Settings 2003



CDC. MMWR 2003;52(No. RR-17)
<http://www.cdc.gov/oralhealth/infectioncontrol/guidelines/index.htm>

*



INFECTION CONTROL

SUMMARY
CDC 2003 Recommendations

- ◆ Personnel Health Elements
- ◆ Prevention of Transmission of BB Pathogens
- ◆ Prevention of Exposures to Blood & Other Potentially Infectious Material
- ◆ Hand Hygiene
- ◆ PPE
- ◆ Contact Dermatitis & Latex Hypersensitivity




CDC Recommendations Cont'd

- ◆ Sterilization & Disinfection of Patient Care Items
- ◆ Environmental Infection Control
- ◆ Dental Unit Waterlines (DUWL), Biofilm and Water Quality
- ◆ Boil-Water Notices
- ◆ Dental Handpieces & Other Devices Attached to Air & Water Lines




CDC Recommendations Cont'd

- Dental Radiology
- Aseptic Technique for Parenteral Medications
- Single-Use (Disposable) Devices
- Oral Surgical Procedures
- Handling of Extracted Teeth
- Dental Lab
- TB
- Program Evaluation




* **ALTERNATE SOURCE**
JADA January 2004




GUIDELINES FOR INFECTION CONTROL IN DENTAL HEALTHCARE SETTINGS-2003

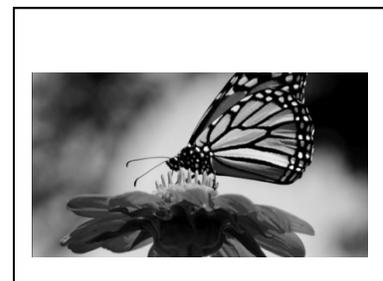
"CDC believes that dental offices that follow these new recommendations will strengthen an already admirable record of safe dental practice"

Infection Control in Dental Health-Care Settings: An Overview

- ◆ Background
- ◆ Personnel Health Elements
- ◆ Bloodborne Pathogens
- ◆ Hand Hygiene
- ◆ Personal Protective Equipment
- ◆ Latex Hypersensitivity/Contact Dermatitis
- ◆ Sterilization and Disinfection
- ◆ Environmental Infection Control
- ◆ Dental Unit Waterlines
- ◆ Special Considerations
- ◆ Program Evaluation



Guidelines for Infection Control in Dental Health-Care Settings—2003. MMWR 2003; Vol. 52, No. RR-17.



Why Is Infection Control Important in Dentistry?



- ◆ Both patients and dental health care personnel (DHCP) can be exposed to pathogens
- ◆ Contact with blood, oral and respiratory secretions, and contaminated equipment occurs
- ◆ Proper procedures can prevent transmission of infections among patients and DHCP

Modes of Transmission

- ◆ Direct contact with blood or body fluids
- ◆ Indirect contact with a contaminated instrument or surface
- ◆ Contact of mucosa of the eyes, nose, or mouth with droplets or spatter
- ◆ Inhalation of airborne microorganisms

PATHOGENS



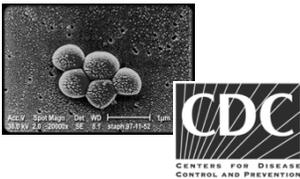
Pathogens are microorganisms that can cause disease in human

EXAMPLES:

- ◆ Virus: Hepatitis, HSV, HIV, Influenza
- ◆ Bacteria: Anthrax, Staph, Strep, ANUG, TB, Lyme Disease
- ◆ Fungi: Candidiasis, Ringworm

INFECTION CONTROL

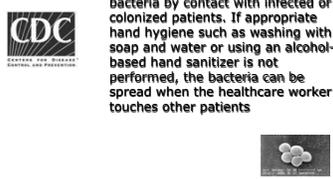
* **MRSA**



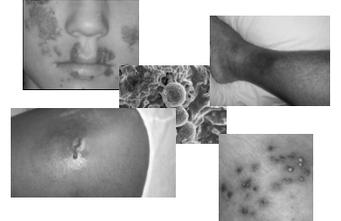
ACCV 30th Meet. Sat. 19D
13 Nov. 14, 2009. 08:31 [http://www.cdc.gov](#)

CDC
CENTERS FOR DISEASE
CONTROL AND PREVENTION

* The main mode of transmission to other patients is through human hands, especially healthcare workers' hands. Hands may become contaminated with MRSA bacteria by contact with infected or colonized patients. If appropriate hand hygiene such as washing with soap and water or using an alcohol-based hand sanitizer is not performed, the bacteria can be spread when the healthcare worker touches other patients



* **MRSA Infections**



* **Some MRSA Meds**

- ◆ TMP/SMS(Trimethoprim/Sulfamethoxazole)-Bactrim or Septra
- ◆ Clindamycin*
- ◆ Gentamycin
- ◆ Tetracycline*
- ◆ Vancomycin (IV)

*resistance developing

* **Some Educational Targets**



skin infections passed between athletes

...to prevent the spread of MRSA infections

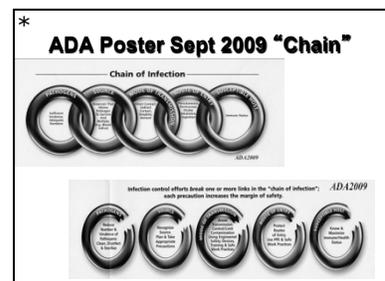
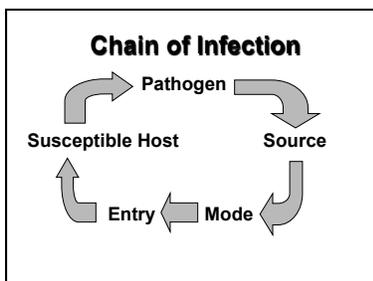
Personal MRSA Avoidance

■ Common Sense:

- Personal Hygiene
- Sharing Items
- Wound Care/Bandaging
- Vigilance
- Seek Care When in Doubt

Don't Panic Over MRSA

Some drug factories, including MRSA, are resistant to antibiotics. MRSA has been a long time in health care settings. A new antibiotic called mupirocin is available to use in a hospital setting or skin care unit in the U.S. It's important to use it correctly. Prevent MRSA by following good hygiene. Wash your hands frequently. Cover wounds with a bandage. Use a clean bandage and avoid reusing it. Wash your hands before and after you change a bandage. Clean the area for another 24 hours. Other...
www.cdc.gov/mrsa



INFECTION CONTROL

PORTALS OF EXIT

- ◆ Coughing
- ◆ Sneeze
- ◆ Oral Draining Lesion
- ◆ Draining Skin Lesion



MODES OF TRANSMISSION

- ◆ Air
- ◆ Bloodborne
- ◆ Ingestion
- ◆ Direct Contact
- ◆ Indirect Contact

Standard Precautions

- ◆ Apply to all patients
- ◆ Integrate and expand Universal Precautions to include organisms spread by blood and also
 - Body fluids, secretions, and excretions except sweat, whether or not they contain blood
 - Non-intact (broken) skin
 - Mucous membranes

Elements of Standard Precautions

- Handwashing
- Use of gloves, masks, eye protection, and gowns
- Patient care equipment
- Environmental surfaces
- Injury prevention

Personnel Health Elements



Personnel Health Elements of an Infection Control Program

- ◆ Education and training
- ◆ Immunizations
- ◆ Exposure prevention and postexposure management
- ◆ Medical condition management and work-related illnesses and restrictions
- ◆ Health record maintenance

* IMMUNIZATIONS

For Example:

- ◆ NY Public Health Law requires health workers with patient contact to be immunized for Measles and German Measles (Rubella)



TB

- ◆ Dental HC Provider with (+)TB Mantoux Test requires a Chest x-ray
- ◆ If (+), MD consult required for possible drug therapy
- ◆ If (-), repeat chest x-rays not needed

Bloodborne Pathogens

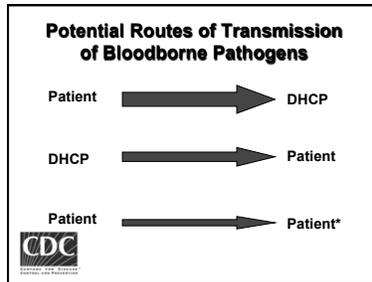


INFECTION CONTROL

Preventing Transmission of Bloodborne Pathogens

Bloodborne viruses such as hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV)

- Are transmissible in health care settings
- Can produce chronic infection
- Are often carried by persons unaware of infection

Factors Influencing Occupational Risk of Bloodborne Virus Infection

- Frequency of infection among patients
- Risk of transmission after a blood exposure (i.e., type of virus)
- Type and frequency of blood contact




Average Risk of Bloodborne Virus Transmission after Needlestick

Source	Risk
HBV	
HBsAg* and HBeAg*	22.0%-31.0% clinical hepatitis; 37%-62% serological evidence of HBV infection
HBsAg* and HBeAg*	1.0%-6.0% clinical hepatitis; 23%-37% serological evidence of HBV infection
HCV	1.8% (0%-7% range)
HIV	0.3% (0.2%-0.5% range)



PATIENT-TO-PATIENT Hepatitis-B Transmission 2002

Journal of Infectious Diseases

2007;195:1311-1314

(21 March, 2007)

2 multiple-Exo Pts. Treated 161 min. apart

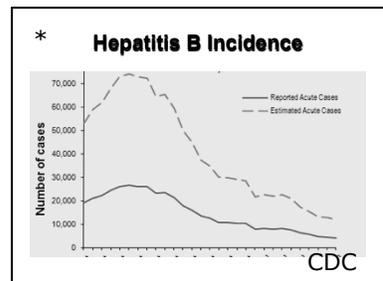
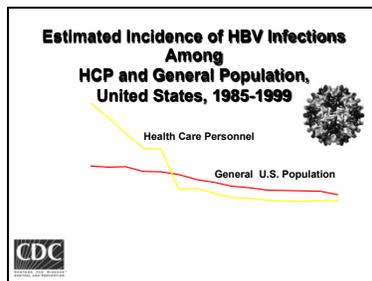
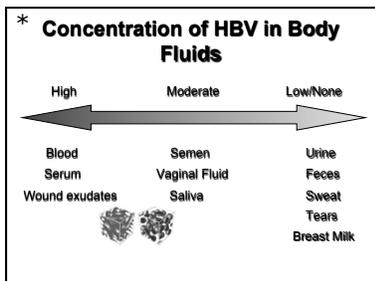


2009

W.V. Dept. Public Health

JADA OCTOBER 2013

Transmission of HBV to 3 patients and 2 volunteers in a portable dental clinic setting (None had been vaccinated)

INFECTION CONTROL

Hepatitis B Vaccine



- Vaccinate all DHCP who are at risk of exposure to blood (must offer within 10 days of initial assignment at no cost)
- Provide access to qualified health care professionals for administration and follow-up testing
- Test for anti-HBs 1 to 2 months after 3rd dose



DECLINATION

Employees refusing Hepatitis B vaccination must sign a declination form

Employee must still be provided vaccination at no cost if decide in future that they want it after declination



* HEP B VACCINE Declination Form

OSHA Bloodborne Pathogens Standard (29CFR 1910.1030) Hepatitis B Vaccine Declination

I understand that due to my occupational exposure to blood and other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials, and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee signature _____ Date _____
 Witness signature _____ Date _____

Transmission of HBV from Infected DHCP to Patients

- Nine clusters of transmission from dentists and oral surgeons to patients, 1970-1987
- Eight dentists tested for HBeAg were positive
- Lack of documented transmissions since 1987 may reflect increased use of gloves and vaccine
- One case of patient-to-patient transmission, 2003 and recent report of 2009 W.V. case(5)

Occupational Risk of HCV Transmission among HCP



- Inefficiently transmitted by occupational exposures
- Three reports of transmission from blood splash to the eye
- Report of simultaneous transmission of HIV and HCV after non-intact skin exposure
- 1st Dental Transmission 2013

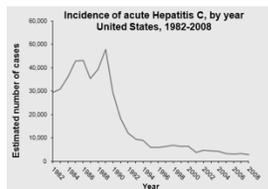


HCV Infection in Dental Health Care Settings

- Prevalence of HCV infection among dentists similar to that of general population (~1%-2%)
- No reports of HCV transmission from infected DHCP to patients or from patient to patient
- Risk of HCV transmission appears very low (2%)



* Incidence of Hepatitis C



Incidence of acute Hepatitis C, by year United States, 1982-2008

Estimated number of cases

Year



Transmission of HIV from Infected Dentists to Patients



- Only one documented case of HIV transmission from an infected dentist to patients
- No transmissions documented in the investigation of 63 HIV infected HCP (including 33 dentists or dental students)



Health Care Workers with Documented and Possible Occupationally Acquired HIV/AIDS

Healthcare Personnel with Documented and Possible Occupationally Acquired HIV Infection, by Occupation, 1981-2010



Occupation	Documented	Possible
Nurse	24	16
Laboratory worker, clinical	16	17
Physician, nonemergency	6	13
Laboratory technician, nonclinical	3	3
Insulator/maintenance worker	2	14
Technician, surgical	2	2
Endothoracic surgeon technician	1	2
Health administrator	1	1
Respiratory therapist	1	2
Technician, esthetic	1	3
Dental worker, including dentist	-	6
Emergency medical technician/paramedic	-	12
Physician, surgical	-	6
Other technician/therapist	-	9
Other healthcare occupation	-	6
Total	57	143

This graph is from the article by Do AN et al. Occupationally acquired HIV infection: national case surveillance estimates during 20 years of the HIV epidemic in the U.S. *Infect Control Hosp Epidemiol* 2002;24:88-96.

NOTE: CDC Report Update from Handout(2002 v. 2010)

INFECTION CONTROL

Risk Factors for HIV Transmission after Percutaneous Exposure to HIV-infected Blood
CDC Case-Control Study




- ◆ Deep injury
- ◆ Visible blood on device
- ◆ Needle placed in artery or vein
- ◆ Terminal illness in source patient

Source: Cardo, et al., *N England J Medicine* 1997;337:1485-90.

Guarding Against Percutaneous Injuries




JADA
Feb 2007

Characteristics of Percutaneous Injuries Among DHCP

- ◆ Reported frequency among general dentists has declined
- ◆ Caused by burs, syringe needles, other sharps
- ◆ Occur outside the patient's mouth
- ◆ Involve small amounts of blood
- ◆ Among oral surgeons, occur more frequently during fracture reductions and procedures involving wire



Exposure Prevention Strategies



- ◆ Engineering controls
- ◆ Work practice controls
- ◆ Administrative controls

Engineering Controls

- ◆ Isolate or remove the hazard
- ◆ Examples:
 - Sharps container
 - Medical devices with injury protection features (e.g., self-sheathing needles)




Work Practice Controls

- ◆ Change the manner of performing tasks
- ◆ Examples include:
 - Using instruments instead of fingers to retract or palpate tissue
 - One-handed needle recapping



Administrative Controls



- ◆ Policies, procedures, and enforcement measures
- ◆ Placement in the hierarchy varies by the problem being addressed
 - Placed before engineering controls for airborne precautions (e.g., TB)

OSHA BB PATHOGENS STANDARD Compliance Steps



- Review the Standard
- Prepare Written Exposure Control Plan
- Train Employees
- Maintain Records
- Provide Employees for Compliance:
 - Hep B Vaccination
 - PPE & Engineering Controls
 - Establish Work Practices & Decontamination Procedures
 - Post Exposure Plan
 - Provide Biohazard Communication

EXPOSURE CONTROL PLAN

- ◆ OSHA requires exposure determination by employee position (High v. Low Risk)
- ◆ The Plan is available to employees and OSHA
- ◆ Plan includes documented annual (and new employee) training



INFECTION CONTROL

WRITTEN EXPOSURE CONTROL PLAN

1. Exposure Determination/Who is Covered
2. Schedule of Implementation (How/When)
 - Communication of Hazards to Employees
 - Hep B Vaccination
 - Post Exposure Evaluation & Follow Up
 - Record Keeping
 - Methods of Compliance (Engineering, Work Practice Controls, PPE, Housekeeping)



EXP CONTROL PLAN (cont' d)




3. Evaluation of Exposure Incidents
4. Prevention of Sharps Injuries
 - Describe how newer devices that may reduce exposure will be ID'd and considered for use
 - Describe methods to evaluate the devices & results of the evaluations
 - Describe justification as to why/why not a device is selected for use
 - Describe how those directly involved in patient care are involved in this ID, evaluation & selection process

Post-exposure Management



- ◆ Wound management
- ◆ Exposure reporting
- ◆ Assessment of infection risk
 - Type and severity of exposure
 - Bloodborne status of source person
 - Susceptibility of exposed person

HIV Postexposure Prophylaxis



JADA
Dec 2002

* **PEP**

OSHA also advertised "New-Guidelines" Sept 2013(Simplified) - PEPline Quick Guide for Occupational Exposures

Updated: August 06, 2013

These PEPline recommendations are a Quick Guide to assist in urgent decision-making for occupational exposures to HIV and hepatitis B and C. Consultation can be obtained from Occupational Health or Employee Services, local experts, or the PEPline.

The PEPline (888-448-4911) is available daily from 9 am - 2 am EST (6 am - 11 pm PST).

For a comprehensive description of HIV post-exposure management, please see the National U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis.

☎ 800-933-3413
☎ 888-448-4911
☎ 888-448-6765

Quick Links
with Postexposure Prophylaxis

◆ **NY STATE PEP line ('google')**

1-888-448-4911

*

Hand Hygiene



Germ Frens
Scrub 'em!

* **Why Is Hand Hygiene Important?**

- Hands are the most common mode of pathogen transmission
- Reduce spread of antimicrobial resistance
- Prevent health care-associated infections




Hands Need to be Cleaned When:

- ◆ Visibly dirty
- ◆ After touching contaminated objects with bare hands
- ◆ Before and after patient treatment (before glove placement and after glove removal)



* **Personal Protective Equipment**





PERSONAL PROTECTIVE EQUIPMENT



- A major component of Standard Precautions
- Protects the skin and mucous membranes from exposure to infectious materials in spray or spatter
- Should be removed when leaving treatment areas
- No cost to employee

Masks, Protective Eyewear, Face Shields

- ◆ Wear a surgical mask and either eye protection with solid side shields or a face shield to protect mucous membranes of the eyes, nose, and mouth
- ◆ Change masks between patients
- ◆ Clean reusable face protection between patients; if visibly soiled, clean and disinfect

Protective Clothing

- ◆ Wear gowns, lab coats, or uniforms that cover skin and personal clothing likely to become soiled with blood, saliva, or infectious material
- ◆ Change if visibly soiled
- ◆ Remove all barriers before leaving the work area



Gloves

- Minimize the risk of health care personnel acquiring infections from patients
- Prevent microbial flora from being transmitted from health care personnel to patients
- Reduce contamination of the hands of health care personnel by microbial flora that can be transmitted from one patient to another
- Are not a substitute for handwashing!




Recommendations for Gloving

- Wear gloves when contact with blood, saliva, and mucous membranes is possible
- Remove gloves after patient care
- Wear a new pair of gloves for each patient



* **Recommendations for Gloving**

Remove gloves that are torn, cut or punctured




Do not wash, disinfect or sterilize gloves for reuse



Latex Hypersensitivity and Contact Dermatitis



Latex Allergy

- ◆ Type I hypersensitivity to natural rubber latex proteins
- ◆ Reactions may include nose, eye, and skin reactions
- ◆ More serious reactions may include respiratory distress--rarely shock or death




INFECTION CONTROL

Contact Dermatitis

- ◆ Irritant contact dermatitis
 - Not an allergy
 - Dry, itchy, irritated areas
- ◆ Allergic contact dermatitis
 - Type IV delayed hypersensitivity
 - May result from allergy to chemicals used in glove manufacturing



General Recommendations Contact Dermatitis and Latex Allergy



- ◆ Educate DHCP about reactions associated with frequent hand hygiene and glove use
- ◆ Get a medical diagnosis
- ◆ Screen patients for latex allergy
- ◆ Ensure a latex-safe environment
- ◆ Have latex-free kits available (dental and emergency)

JADA April 2005 Curtis Hamann, MD, et al



OCCUPATIONAL ALLERGIES IN DENTISTRY
pp.500-510

* Hamann, et al JADA 4/2005

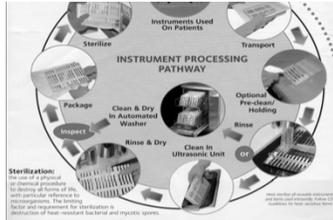
Skin Testing:
"Prick"/
Type I
v.
"Patch"/
Type IV



Sterilization and Disinfection of Patient Care Items




INSTRUMENT PROCESSING PATHWAY



Sterilization: The use of a physical or chemical process to destroy all forms of microbial life, with particular reference to microorganisms that are highly resistant to destruction. Factors and measures for sterilization include selection of heat-resistant bacterial and spore strains.

Considerations for Instrument Reprocessing and Preparation for Heat Sterilization

Critical Instruments

- ◆ Penetrate mucous membranes or contact bone, the bloodstream, or other normally sterile tissues (of the mouth)
- ◆ Heat sterilize between uses or use sterile single-use, disposable devices
- ◆ Examples include surgical instruments, scalpel blades, periodontal scalers, and surgical dental burs



Semi-critical Instruments

- ◆ Contact mucous membranes but do not penetrate soft tissue
- ◆ Heat sterilize or high-level disinfect
- ◆ Examples: Dental mouth mirrors, amalgam condensers, and dental handpieces



Noncritical Instruments and Devices



- ◆ Contact intact skin
- ◆ Clean and disinfect using a low to intermediate level disinfectant
- ◆ Examples: X-ray heads, facebows, pulse oximeter, blood pressure cuff

INFECTION CONTROL

Instrument Processing Area

- Use a designated processing area to control quality and ensure safety
- Divide processing area into work areas
 - Receiving, cleaning, and decontamination
 - Preparation and packaging
 - Sterilization
 - Storage



Automated Cleaning

- Ultrasonic cleaner
- Instrument washer
- Washer-disinfector




Manual Cleaning

- Soak until ready to clean
- Wear heavy-duty utility gloves, mask, eyewear, and protective clothing




VERY NEW-FDA-July 2014

Multiple-Use Dental Dispenser Devices

Definition
Multiple-use dental dispensers, also called dental "syringes" are devices used to deliver various dental products including impression materials, adhesives, dental composites, and endodontic root canal irrigants to a treatment site in the mouth. Multiple-use dental dispensers do not include disposable syringes or dental needles. Expendable syringes for injection of anesthetics.

Importance of Infection Control
Manufacturers typically supply multiple-use dental dispensers as pre-filled syringes with disposable tips. The tips are intended to be discarded after each patient use, but the dispensers containing the remaining dental material are stored for reuse.



Multiple-Use Dental Dispenser Devices

Definition
Multiple-use dental dispensers, also called dental "syringes" are devices used to deliver various dental products including impression materials, adhesives, dental composites, and endodontic (root canal) materials to a treatment site in the mouth. Multiple-use dental dispensers do not include disposable syringes or dental needles. Expendable syringes for injection of anesthetics.

Importance of Infection Control
Manufacturers typically supply multiple-use dental dispensers as pre-filled syringes with disposable tips. The tips are intended to be discarded after each patient use, but the dispensers containing the remaining dental material are stored for reuse.

Preparation and Packaging

- ◆ Critical and semi-critical items that will be stored should be wrapped or placed in containers before heat sterilization
- ◆ Hinged instruments opened and unlocked
- ◆ Place a chemical indicator inside the pack
- ◆ Wear heavy-duty, puncture-resistant utility gloves



Heat-Based Sterilization



- ◆ Steam under pressure (autoclaving)
 - Gravity displacement
 - Pre-vacuum
- ◆ Dry heat
- ◆ Unsaturated chemical vapor

Liquid Chemical Sterilant/Disinfectants

- Only for heat-sensitive critical and semi-critical devices
- Powerful, toxic chemicals raise safety concerns
- Heat tolerant or disposable alternatives are available




Sterilization Monitoring Types of Indicators



- Mechanical
 - Measure time, temperature, pressure
- Chemical
 - Change in color when physical parameter is reached
- Biological (spore tests)
 - Use biological spores to assess the sterilization process directly



INFECTION CONTROL

Storage of Sterile and Clean Items and Supplies

- ◆ Use date- or event-related shelf-life practices
- ◆ Examine wrapped items carefully prior to use
- ◆ When packaging of sterile items is damaged, re-clean, re-wrap, and re-sterilize
- ◆ Store clean items in dry, closed, or covered containment



* Environmental Infection Control



Environmental Surfaces

- ◆ May become contaminated
- ◆ Not directly involved in infectious disease transmission
- ◆ Do not require as stringent decontamination procedures



Categories of Environmental Surfaces

- ◆ Clinical contact surfaces
 - High potential for direct contamination from spray or spatter or by contact with DHCP's gloved hand
- ◆ Housekeeping surfaces
 - Do not come into contact with patients or devices
 - Limited risk of disease transmission



OSAP Surface Disinfectant Reference Chart - 2005 *

Disinfectant	Brand	Active Ingredient	Concentration	Use	Surface	Material	Color	Volume	Weight	Temperature	Time	Notes
Accelerated Hydrogen Peroxide	Optrex 2X TB	Hydrogen Peroxide	10%	10 min	Hard	Plastic	Blue	1.0L	1.0kg	20°C	10 min	Use on hard surfaces only
Phenolics (Deadly Water-Based)	Phenol	Phenol	1%	10 min	Hard	Plastic	Yellow	1.0L	1.0kg	20°C	10 min	Use on hard surfaces only
Quaternary Ammonium	Quaternary	Quaternary Ammonium	0.1%	10 min	Hard	Plastic	Clear	1.0L	1.0kg	20°C	10 min	Use on hard surfaces only

OSAP Surface Disinfectant Reference Chart - 2011 *

Disinfectant	Brand	Active Ingredient	Concentration	Use	Surface	Material	Color	Volume	Weight	Temperature	Time	Notes
Accelerated Hydrogen Peroxide	Optrex 2X TB	Hydrogen Peroxide	10%	10 min	Hard	Plastic	Blue	1.0L	1.0kg	20°C	10 min	Use on hard surfaces only
Phenolics (Deadly Water-Based)	Phenol	Phenol	1%	10 min	Hard	Plastic	Yellow	1.0L	1.0kg	20°C	10 min	Use on hard surfaces only
Quaternary Ammonium	Quaternary	Quaternary Ammonium	0.1%	10 min	Hard	Plastic	Clear	1.0L	1.0kg	20°C	10 min	Use on hard surfaces only

CONTACT TIME

Clinical Contact Surfaces



Housekeeping Surfaces



Intermediate Level Disinfectants



QUAT+ALCOHOL



PHENOL

INFECTION CONTROL

General Cleaning Recommendations

- ◆ Use barrier precautions (e.g., heavy-duty utility gloves, masks, protective eyewear) when cleaning and disinfecting environmental surfaces
- ◆ Physical removal of microorganisms by cleaning is as important as the disinfection process
- ◆ Follow manufacturer's instructions for proper use of EPA-registered hospital disinfectants
- ◆ Do not use sterilant/high-level disinfectants on environmental surfaces

Cleaning Clinical Contact Surfaces

- ◆ Risk of transmitting infections greater than for housekeeping surfaces
 - ◆ Surface barriers can be used and changed between patients
- OR**
- ◆ Clean then disinfect using an EPA-registered low- (HIV/HBV claim) to intermediate-level (tuberculocidal claim) hospital disinfectant



Cleaning Housekeeping Surfaces



- Routinely clean with soap and water or an EPA-registered detergent/hospital disinfectant routinely
- Clean mops and cloths and allow to dry thoroughly before re-using
- Prepare fresh cleaning and disinfecting solutions daily and per manufacturer recommendations

FOOD & DRINK

Eating, Drinking, Application of Make-up & Handling of Contact Lenses is Prohibited in areas where there is a reasonable likelihood of Occupational Exposure

- Direct from OSHA BB Pathogens Standard
- Cited violation on clinic inspections



Medical Waste

- ◆ **Medical Waste:** Not considered infectious, thus can be discarded in regular trash
- ◆ **Regulated Medical Waste:** Poses a potential risk of infection during handling and disposal

REGULATED WASTE

- ◆ Liquid or Semi-Liquid Blood or OPIM
- ◆ Contaminated Items that would Release Blood or OPIM if Compressed
- ◆ Items Caked with Dried Blood/OPIM
- ◆ Contaminated Sharps
- ◆ Extracted Teeth/Tissues



Regulated Medical Waste Management

- ◆ Properly labeled containment to prevent injuries and leakage
- ◆ Medical wastes are "treated" in accordance with state and local EPA regulations
- ◆ Processes for regulated waste include autoclaving and incineration



Dental Unit Waterlines, Biofilm, and Water Quality



ADA Advice

Dental Waterline Management



Dental Unit Waterlines and Biofilm



- ◆ Microbial biofilms form in small bore tubing of dental units
- ◆ Biofilms serve as a microbial reservoir
- ◆ Primary source of microorganisms is municipal water supply




Dental Unit Water Quality




- CDC: Using water of uncertain quality is inconsistent with infection control principles (See NYS CORE ELEMENT #1)
- Colony counts in water from untreated systems can exceed 1,000,000 CFU/mL
- CFU=colony forming unit
- Untreated dental units cannot reliably produce water that meets drinking water standards

Dental Water Quality



For routine dental treatment, meet regulatory standards for drinking water.*




* <500 CFU/mL of heterotrophic water bacteria

Available DUWL Technology





- ◆ Independent reservoirs
- ◆ Chemical treatment
- ◆ Filtration
- ◆ Combinations
- ◆ Sterile water delivery systems

* •Disconnect from municipal water
•Air pressure drives water from bottle




Monitoring Options




- ◆ Water testing laboratory
- ◆ In-office testing with self-contained kits
- ◆ Follow recommendations provided by the manufacturer of the dental unit or waterline treatment product for monitoring water quality

DENTAL UNIT WATERLINES

JADA, Jan. '04 p.46




ALSO: ADA.org
'Dental Unit Water Quality'
•Products
•Testing services

* **UB/SDM BACTERIAL WATER CULTURES 12/2009**

- ◆ 1A1 12,000*
- ◆ 1B1 198,000
- ◆ 1C1 180,000
- ◆ 1D1 70,000
- ◆ 1E1 170,000
- ◆ AVG: 126,000*



*CFUs (Colony Forming Units)
Drinking Water < 500 CFUs

* **UB: Self Contained Water with Continuous Treatment**

- ◆ ICX Tablets (Adec)*
- Sodium Percarbonate
- N-Alkyl dimethyl benzyl ammonium chloride
- N-Alkyl dimethyl ethylbenzyl ammonium chloride
- Silver Nitrate




*Sterilex Ultra (Sterilex Corp.)
'SHOCK' recommended if water quality inadequate at start

INFECTION CONTROL

* **STERILEX ULTRA**

- Liquid or Powder
- Contents:
 - Hydrogen Peroxide
 - N-Alkyl dimethyl benzyl ammonium chloride
 - N-Alkyl dimethyl ethylbenzyl ammonium chloride



* **3 TEST PROTOCOLS***

- ◆ I. Daily Treatment Chemical
Only (ICX)- 'CONTROLS'
- ◆ II. 1-Day Shock Treatment plus Daily Treatment
- ◆ III. 3-Day Shock Treatment plus Daily Treatment




2-Week Treatment Period (15 Days)

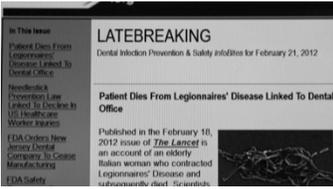
* **RESULTS**

ICX-Only	3 Units *	Avg 19,333 cfu (Range 12,000-29,000)
3-Day Shock	4 Units	0 cfu
1-Day Shock	3 Units	0 cfu

* **SDM: Summer of 2010**

- ◆ Installation of 400+ Independent Reservoir Bottles
- ◆ 'Shock' X 1-Day
- ◆ Continuous Treatment (ICX)
- ◆ Follow-up Testing
- ◆ "Shock" Schedule

LANCET: February 2012



Sterile Irrigating Solutions

- Use sterile saline or sterile water as a coolant/irrigator when performing surgical procedures
- Use devices designed for delivery of sterile irrigating fluids




Special Considerations

- Dental handpieces and other devices attached to air and waterlines
- Dental radiology
- Aseptic technique for parenteral medications
- Single-use (disposable) Devices
- Preprocedural mouth rinses
- Oral surgical procedures
- Handling biopsy specimens
- Handling extracted teeth
- Laser/electrosurgery plumes or surgical smoke
- Dental laboratory
- Mycobacterium tuberculosis
- Creutzfeldt-Jacob Disease (CJD) and other prion-related diseases



Dental Handpieces and Other Devices Attached to Air and Waterlines



- ◆ Clean and heat sterilize intraoral devices that can be removed from air and waterlines
- ◆ Follow manufacturer's instructions for cleaning, lubrication, and sterilization
- ◆ Do not use liquid germicides or ethylene oxide

Components of Devices Permanently Attached to Air and Waterlines



- ◆ Do not enter patient's mouth but may become contaminated
- ◆ Use barriers and change between uses
- ◆ Clean and intermediate-level disinfect the surface of devices if visibly contaminated

Saliva Ejectors




- ◆ Previously suctioned fluids might be retracted into the patient's mouth when a seal is created
- ◆ Do not advise patients to close their lips tightly around the tip of the saliva ejector

Dental Radiology




- ◆ Wear gloves and other appropriate personal protective equipment as necessary
- ◆ Heat sterilize heat-tolerant radiographic accessories
- ◆ Transport and handle exposed radiographs so that they will not become contaminated
- ◆ Avoid contamination of developing equipment
- ◆ "DUAL" Recommendation for Digital Sensors (44% failure if barriers alone)

RADIOLOGY

- ◆ Exposed films dried with gauze or paper towel before transport to processing area
- ◆ Equipment protected with surface barriers and changed for each patient



Parenteral Medications

- Definition: Medications that are injected into the body
- Cases of disease transmission have been reported
- Handle safely to prevent transmission of infections



Precautions for Parenteral Medications

- IV tubings, bags, connections, needles, and syringes are single-use, disposable
- Single dose vials
 - ◆ Do not administer to multiple patients even if the needle on the syringe is changed
 - ◆ Do not combine leftover contents for later use




Single-Use (Disposable) Devices



- Intended for use on one patient during a single procedure
- Usually not heat-tolerant
- Cannot be reliably cleaned
- Examples: Syringe needles, prophylaxis cups, and plastic orthodontic brackets

*** Preprocedural Mouth Rinses**



- ◆ Antimicrobial mouth rinses prior to a dental procedure
 - Reduce number of microorganisms in aerosols/spatter
 - Decrease the number of microorganisms introduced into the bloodstream
- ◆ Unresolved issue-no evidence that infections are prevented

Oral Surgical Procedures

- ◆ Present a risk for microorganisms to enter the body
- ◆ Involve the incision, excision, or reflection of tissue that exposes normally sterile areas of the oral cavity
- ◆ Examples:
 - Biopsy
 - Perio surgery
 - Implant surgery
 - Apical surgery
 - Surgical extractions




INFECTION CONTROL

Precautions for Surgical Procedures



Surgical Scrub 

Sterile Irrigating Solutions 

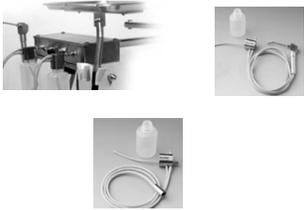
Sterile Surgeon's Gloves 

CDC Guidelines for IC in Dental Healthcare Settings-2003 (p29)

- ◆ Sterile solutions (sterile saline or sterile water) should be used as coolant/irrigation in the performance of oral surgical procedures.....

conventional dental units cannot reliably deliver sterile water even when equipped with independent water reservoirs

* **AquaSept**



* **AQUASEPT**



* **Handling Biopsy Specimens**

- ◆ Place biopsy in sturdy, leakproof container
- ◆ Avoid contaminating the outside of the container
- ◆ Label with a biohazard symbol



Extracted Teeth

- Considered regulated medical waste
 - Do not incinerate extracted teeth containing amalgam
 - Clean and disinfect before sending to lab for shade comparison
- Can be given back to patient




* 

AMALGAM SEPARATORS



- **JADA August 2003**
pp.1054-1065
Purchasing, Installing and Operating Dental Amalgam Separators. McManus, et al.
- **JADA July 2006**
pp.999-1005
Evaluating Amalgam Separators Using an International Standard. Batchu, et al.

* **Handling Extracted Teeth in Educational Settings**

- Remove visible blood and debris
- Maintain hydration
- Autoclave (teeth with no amalgam)
- Use Standard Precautions



*** Laser/Electrosurgery Plumes and Surgical Smoke**

- ◆ Destruction of tissue creates smoke that may contain harmful by-products
- ◆ Infectious materials (HSV, HPV) may contact mucous membranes of nose
- ◆ No evidence of HIV/HBV transmission
- ◆ Need further studies
- ◆ CDC has NOT made specific recommendations



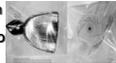
Dental Laboratory

- ◆ Dental prostheses, appliances, and items used in their making are potential sources of contamination
- ◆ Handle in a manner that protects patients and DHCP from exposure to microorganisms




Dental Laboratory

- Clean and disinfect prostheses and impressions
- Wear appropriate PPE until disinfection has been completed
- Clean and heat sterilize heat-tolerant items used in the mouth
- Communicate specific information about disinfection procedures

TB JADA Sept 2009




Transmission of *Mycobacterium tuberculosis*

- Spread by droplet nuclei (airborne)
- Highly contagious
- Immune system usually prevents spread (10% infected develop TB)
- Bacteria can remain alive in the lungs for many years (latent TB infection)




Risk of TB Transmission in Dentistry

- ◆ Risk in dental settings is low
- ◆ Only one documented case of transmission
- ◆ Tuberculin skin test conversions among DHP are rare
- ◆ New case report of transmission in dental setting??



Preventing Transmission of TB in Dental Settings

- ◆ Assess patients for history of TB
- ◆ Defer elective dental treatment
- ◆ If patient must be treated:
 - DHCP should wear N-95 face mask
 - Separate patient from others/mask/tissue
 - Refer to facility with proper TB infection control precautions



Creutzfeldt-Jakob Disease (CJD) and other Prion Diseases

- ◆ A type of a fatal degenerative disease of central nervous system
- ◆ Caused by abnormal "prion" protein
- ◆ Human and animal forms
- ◆ Long incubation period
- ◆ One case per million population worldwide

*** New Variant CJD (vCJD)**

- ◆ Variant CJD (vCJD) is the human version of Bovine Spongiform Encephalopathy (BSE)
- ◆ Case reports in the UK, Italy, France, Ireland, Hong Kong, Canada
- ◆ One case report in the United States – former UK resident

INFECTION CONTROL

Infection Control for Known CJD or vCJD Dental Patients



- ◆ Use single-use disposable items and equipment
- ◆ Consider items difficult to clean (e.g., endodontic files, broaches) as single-use disposable
- ◆ Keep instruments moist until cleaned
- ◆ Clean and autoclave at 134°C for 18 minutes
- ◆ Do not use flash sterilization

Program Evaluation

"Systematic way to improve (infection control) procedures so they are useful, feasible, ethical, and accurate"

- Develop standard operating procedures
- Evaluate infection control practices
- Document adverse outcomes
- Document work-related illnesses
- Monitor health care-associated infections

"Program evaluation provides an opportunity to identify and change inappropriate practices, thereby improving the effectiveness of your infection control program."

RESOURCES IC BIBLES



RESOURCES



- www.cdc.gov
- www.apic.org
- www.osha.gov
- www.fda.gov
- www.dec.state.ny.us
- www.biofilmsonline.com

RESOURCES



- www.ada.org
- www.adacatalog.org
- www.aami.org
- www.nysdental.org

OSAP



- ◆ www.osap.org
- ◆ "From Policy to Practice-OSAP's Guide to the Guidelines", 2004

ULTIMATE GOAL of DENTAL INFECTION CONTROL

".....strengthen an already admirable record of safe dental practice"

-CDC 2003



QUESTIONS