SCORING FIRE RISK FOR SURGICAL PATIENTS

Firesintheoperatingroomareariskthatrequiresprevention, vigilance,andquickactiontopreventpatientinjury.Toheighten awareness,theChristianaCareHealthSystem(CCHS)inNewark, Del.,addedaSurgicalFireRiskAssessmentScoretoits PatientIdentificationandSurgicalSitedocumentationform.

Aligningpracticewithpolicytoimprovepatientcare

"Whatbroughtthisissuetoourattentionweretwosurgicalfires.Oneoccurredintheelectrophysiologylaband theotherintheORwithapatienthavingacarotid endarterectomy.Bothcasesinvolvedahighconcentration ofoxygen,surgeryabovethexiphoid,andaheatsource," JudithTownsley,RN,MSN,CPAN,directorofclinical operationsforperioperativeservices,told *ORManager*.

Thechairmanoftheanesthesiologydepartment,Kenneth Silverstein,MD,developedthefireriskassessmentscore after the fires were investigated by ECRI Institute (www.ecri.org),anot-for-profitorganizationthat researcheshealthservicesandtechnology,andRussell Phillips&Associates(www.phillipsllc.com),consultantsin fire,codecomplianceandemergencymanagement.

Assigningafireriskscore

Thefireriskassessmentisperformedbytheentiresurgical team(anesthesiaprovider,surgeonandnurse)beforethe incisionismadeandisdocumentedbythecirculating nurse,notedDeniseDennison,RN,BSN,CNOR,staff developmentspecialist.

Theassessmentrequiresthesurgicalteamtoidentifythe threekeyelementsthatarenecessaryforafiretostart– thefiretriangle:

- •Heat
- •Fuel
- •Oxygen

IntheOR,threekeyrisksare:

- •Surgicalsiteorincisionabovethexiphoid
- •Openoxygensource(i.e.,patientreceiving supplementaloxygenviafacemaskornasalcannula)
- •Availableignitionsource(i.e.,electrosurgeryunit,laser orfiberopticlightsource)

ThesurgicalteamatChristianaCareHealthServicesin Newark,Del.,followsasurgicalsafetychecklistastheyperformapre-incisionteambriefing.Thechecklistismountedon theoppositewallandincludesthecomponentsofthesurgical timeoutandthefireriskassessmentscore.Pictured,lefttoright: scrubnurseJudySaunders,CST;anesthesiaproviderRon Castaldo,CRNA;surgeonMikeConway,MD;assistantPaul Aguilon(medicalstudent)andcirculatorKellySaunders,RN.

Score3=Highrisk.
Allthreecomponentsofthefiretrianglearepresent.
Score2=Lowriskwithpotentialtoconvert tohighrisk.
Thisscoreisgivenwhentheprocedureisinthe thoraciccavity,theignitionsourceisremotefroman openoxygensource,theignitionsourceisclosetoa closedoxygensource,ornosupplementaloxygen isused.
Score1=Lowrisk.
Onlysupplementaloxygenisbeingused.

Eachriskscorehasafireprotocolassignedtomaximize patientsafety.Thedocumentationformallowsthecirculatingnursetoindicatethatthehigh-riskprotocolwas initiated.Italsoallowsfordocumentationthatsufficient timewasallowedforfumestodissipatewhenanalcohol-basedprepsolutionisused.

Surgical site fire risk assessment guide

Alcohol-based prep solution had sufficient time for fumes to dissipate. ❑ Yes ❑ No ❑ NA			Verified by: (Circulating RN signature) Print name ❑ High Risk Fire Protocol initiated
(Circle appropriate option)	Y	N	
*Surgical site or incision above the xiphoid	1	0	
*Open oxygen source (patient receiving supplemental oxygen via any variety of face mask or nasal cannula)	1	0	
*Available ignition source (ie, electrosurgery unit, laser, fiberoptic light source)	1	0	
Total score			
Scoring: 3 = High risk 2 = Low risk w/potential to convert to high risk 1 = Low risk			
Complete this section if risk score increases to 3 during procedure ❑ High Risk Fire Protocol Initiated Signature/title _____ Print name _____ Time _____			

Note: This is a section of a form entitled Identification of Patient, Procedure and Surgical Side/Sites, and Fire Risk Assessment.
Source: Christiana Care, Newark, Del.

ThesurgicalsitefireriskassessmentguideMD,anesthesiologistandchairofthe(above)wasdevelopedbyKennethSilverstein, anesthesiologydepartmentatChristiana CareHealthServices.Hedevelopedthe guidetohelppreventsurgicalfiresat thehospital.

Communicationheightensawareness

SinceaddingthefireriskassessmenttotheORdocumentation,communicationamongthesurgicalteammembersaswellasidentificationofthefirerisktrianglehave vastlyimproved,notedDennison.

"Thesecrettosuccessofthisprocessisthatthisformal communicationanddocumentationmakeseveryone involvedawareofthepotentialriskofafire,"Townsley said."Enhancingcommunicationbetweenprovidershas strengthenedourfocusonprovidingclinicalexcellencefor ourpatients."

References

BruleyME.Surgicalfires:Perioperativecommunicationisessentialtopreventthisrare butdevastatingcomplication. *QualSafHealthCare*. December2004;13:467-471.

MeltzerHS,GranvilleR,AryanHE,etal.Gel-basedsurgicalpreparationresultingin anoperatingroomfireduringaneurosurgicalprocedure:Casereport. *Neurosurg.* April2005;102:347-349.

PaughDH,WhiteKW.Fireintheoperatingroomduringtracheostomy:Acasereport. *AANA* J.April2005;73:97-100.

Fire Risk Protocols

Score 3 = High risk
The circulating nurse and anesthesia provider take these precautions.

Circulating nurse

- Verifies fire triangle, including verbal confirmation of the oxygen percentage
- Ensures appropriate draping techniques to minimize oxygen concentration under the drapes
- Minimizes ESU setting
- Assesses that enough time has been allowed for fumes of alcohol-based prep solutions to dissipate (minimum of 3 minutes)
- Encourages use of wet sponges
- Ensures a basin of sterile saline and bulb syringe are available for fire suppression

Anesthesia provider

- Ensures that a syringe full of saline is in reach for procedures conducted within the oral cavity
- Documents oxygen concentrations and flows
- Uses the MAC circuit for oxygen administration initially at FiO_2 of .30 using fresh gas flows of at least 12 L/min.

Score 2 = Low risk with potential to convert to high risk
Standard fire safety precautions are followed with the potential to convert to high-risk precautions if necessary.

Standard precautions are to:

- Observe alcohol-based prep drying times (minimum of 3 minutes)
- Protect heat sources (e.g., using the ESU pencil holster)
- Use standard draping procedure

Score 1 = Low risk
Standard fire safety precautions are followed.