The Hands-free Technique

A safe surgical work practice to help prevent the occupational transmission of blood-borne pathogens

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Background

Surgery related transmission of blood-borne HCV, HBV, HIV, well documented

Occupational transmission (larger problem) and patient transmission (prevent occupational exposure)

One suggested method along with re-designing sharps (blunted sutures), double gloves etc.

Primary Objective

- Assess the risk of injury/contamination/glove tears during surgical procedures when the HFT was used and when the HFT was not used.

Secondary Objectives

- Assess the risk of injury/contamination/glove tears:
- 1. Noisier
- 2. At different times of day
- 3. When different numbers of personnel present in the OR

Hands-free Technique (HFT)

- The indirect transfer of surgical instruments during which only one person touches a sharp item at one time.
- No simultaneous transfer of sharp instruments.

Potential Confounders

- Blood loss
- Sugery length
- Noise
- # Personnel present
  75% of surgical time
- Surgery type
- Emergency status
- Time of day

Methods

- 300 bed Seattle hospital where HFT was policy
- Prospective Study
- Main and Same Day Surgery Ors
- All surgeries in which a full time circulating nurses was present
- Injuries/contaminations/tears in all physicians, nurses, technicians, assistannts, students providing surgical care

Methods continued 1

- Circulating nurses/Scrub Techs trained to fill in questionnaire/estimate use of HFT
- Reporting explained and emphasized by Head Nurses/Clinical Instructor/Head surgeon

Methods Continued 2

- Questionnaire part of routine paperwork
- Questionnaire completed at the end of surgery, section if incident occurred
- Quantification of HFT Circulating/Scrub Personnel

Methods: Reliability Study

			Circulating Nurse
		No HFT	HFT
Researcher	No HFT	44	**8**
	HFT	0	16
	Total	44	24

K=0.72 (95% CI 0.54-0.90)

Excellent Concordance

Methods: Effect Modification

- HFT*Blood-loss (<100 cc/> 100cc): when more than 100 cc bloodloss, slipperier ???
- HFT*Surgery Type(4 groups): different sharp tools used in ortho vs CVT/different depths cutting ???
- HFT* Surgery length (3 groups): is HFT more protective when more tired???

Results

- 70% of eligible surgeries included
- 144 incidents/3, 765 surgeries= 3.9%
- injuries, contaminations, glove tears

Results: Number of surgeries in each proportion of HFT use

HFT Use	0%	25%	50%	**75%**	**100%**
	HFT	Not	used	**HFT**	**Used**
# surgeries	285	476	1392	**850**	**695**
% total	7.6%	12.6%	37.0%	**22.6%**	**18.5%**

Crude Odds Ratio

	Incident	No Incident	Total
HFT	33	1512	1545
HFT not used	110	2043	2153
	143	3555	3698

33/1545=0.02 and 110/2153=0.05

0.02/0.05=**0.40**

OR= **0.41** (95% CI 0.30-0.60)

Odds Ratios for HFT Use (logistic regression)

HFT	**Bloodloss < 100cc**	**Bloodloss > 100cc**
Not Used (0-50%)	1.00 (reference)	1.00 (reference)
Used (75-100%)	0.99 (0.49-1.98)	**0.41** (0.23-0.72)

Adjusted for all potential confounders

Potential Bias

- Uncontrolled confounding- surgeons/personnel
- HFT classification affected by Incident
- Poor quality exposure measurement

Next Step

- Cluster Randomization Trial
- Intervention video, hands-on training etc.
- 80 hospitals carrying out similar surgery