High-fidelity Burn-specific Skills Validation: Boosting Confidence through Competence

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8:15 – 8:30 am

Author and Co-authors:

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Objective:

Upon completion of the lecture, attendees should be better prepared to:
- Identify two (2) goals of the Burn Specific SDD
- Discuss two (2) BNC domains incorporated into our SDD

Abstract:

Introduction: Assessing nursing competency is an essential function of every hospital. Assessing burn-specific competencies may be overlooked, despite the fact that burn and wound management is a specialized form of care. Last year on our unit, <25% of the nursing staff attended hospital-wide skills validation training due to staffing constraints, and the nurses that did attend reported inadequate, non-specific training when applying the concepts to burn management. Studies have shown that positive staff relationships and higher levels of teamwork improve resiliency and nursing satisfaction and optimize the quality of care provided to patients. A plethora of Joint Commission-related requirements, upcoming unit-based changes, and plan for new burn-specific nursing skills validation necessitated the formation of a skills-based Staff Development Day (SDD). The objective was to gain maximum participation of nursing staff through a series of high-fidelity burn-specific scenarios utilizing the newly-released Burn Nurse Competencies (BNC) produced by the American Burn Association (ABA) earlier this year.

Methods: All burn intensive care unit (BICU) nursing staff members were scheduled for a 12-hour SDD in April - May 2018. Morning sessions included interactive Team Strategies and Tools to Enhance Performance and Patient SafetyTM (TeamSTEPPS) training and hospital-specific required training. Afternoon sessions in the hospital simulation center involved high-fidelity simulation scenarios to validate burn-specific competencies. Teams consisted of 4-5 nurses of varying expertise. They were instructed to treat each scenario as realistically as possible utilizing supplies and equipment that would normally be present. Scenarios covered the BNC domains for initial burn management; pain, agitation and delirium management; wound management as well as all hospital-mandated skills. Team work, communication, and empowerment of all members were emphasized. Concluding the training day, each staff member was given a 5-point Likert Scale survey to rate each session; descriptive statistics were performed.

Results: SDD was attended by 55 out of 69 BICU staff nurses (80%). Completed surveys were received by 89% of attendees (n=49). The Wound Care and Validation

Stations tied for the highest score of 4.9 (SD 0.31, 0.36). Hospital-specific required training sessions scored the lowest with an average of 4.6 (SD 0.68). The top recommendation for future SDD's was a shorter training day (n=15, 27%) followed by adding a night shift SDD (n=3, 5%). The most popular future topic recommendations were additional wound care (n= 10, 18%) and continuous renal replacement therapy (n=4, 7%). Under additional comments, staff reported enjoying the hands-on aspects, "comradery," small group sizes, and interacting with staff members from different shifts. Many surveys stated the best aspect was relatability to job-specific validation (n=13, 24%). One noteworthy comment stated, "I didn't feel alone." An overwhelming 86% reported they agreed or strongly agreed with the statement (n=17, 31% and 25, 45%, respectively) "I believe BICU Skills Validation effectively validated my competencies as a burn nurse."

Conclusions: Overall, burn unit-based skills validation is highly desired by our nursing BICU staff and utilization of high-fidelity simulation in conjunction with team building produced a tremendously successful validation experience. Sustainment planning is underway, and in light of the upcoming ABA Burn Nurse Certification, future sessions will not only be geared at continuing burn-specific mandated skills validation, but also incorporating more BNC domains to ensure staff are working at the peak of their skillset to provide optimal care for our patients. Competence inspires confidence as we strive for high reliability in health care.

References and Resources:

Burn Nurse Competencies. http://ameriburn.org/wp-content/uploads/2017/05/bnci-competency-document-february-2017-final.pdf

Reeves, P. T., Borgman, M. A., Caldwell, N. W., Patel, L., Aden, J., Duggan, J. P., Serio-Melvin, M. L., Mann-Salinas, E. A. (2016). Bridging burn care education with modern technology, an integration with high fidelity human patient simulation. Burns (in press).

Disclosure:

Alexandra J. Helms – No Relevant Financial Relationships to Disclose
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Cesar Tenorio – No Relevant Financial Relationships to Disclose
Nizar Boodhwani – No Relevant Financial Relationships to Disclose
Sarah Shingleton – No Relevant Financial Relationships to Disclose
Ashley Parham – No Relevant Financial Relationships to Disclose

Table 1. Average concentration of EPA TO-15 detected compounds (in ppbv), ranked from highest to lowest average concentration level. Number of locations (out of 8) with positive detection.

Average			No. of Times Appeared (8 rooms in total)		
Rank	Chemical	Average	Day 1	Day 2	Day 3
1	Isopropyl Alcohol	126.33	8	8	8
2	Ethanol	48.46	8	8	8
3	Sevoflurane	41.33	4	1	1
4	Acetone	16.79	8	8	8
5	Acetonitrile	11.55	2	0	0
6	Isoflurane	11.33	8	1	7
7	Unknown Compound	5.3	0	0	1
8	Toluene	3.86	5	4	3
9	Methyl Ethyl Ketone	2.91	8	8	8
10	Methylene Chloride	2.2	1	0	0
10	m & p-xylene	2.2	1	0	0
12	Ethyl Acetate	2.01	8	6	6
13	Chloromethane	1.15	1	1	2
14	Heptane	1.2	1	0	0
15	Freon-12	1.1	1	0	1
15	Freon-11	1.1	1	0	1

Table 2. Maximum concentrations (in ppbv) of EPA TO-15 detected compounds out of all samples collected

Maximum				
Rank	Chemical	Average	Which Day	Which Room
1	Isopropyl Alcohol	390	Day 2	OR
2	Sevoflurane	110	Day 1	SR
3	Ethanol	92	Day 1	PR
4	Isoflurane	27	Day 3	ICU
5	Acetone	26	Day 2	SR/ICU
6	Toluene	19	Day 1	NS
7	Acetonitrile	18	Day 1	HW
8	Methyl Ethyl Ketone	13	Day 1	HW
9	Ethyl Acetate	5.7	Day 1	HW
10	Unknown Compound	5.3	Day 3	PR
11	m & p-xylene	2.2	Day 1	NS
11	Methylene Chloride	2.2	Day 1	HW
13	Chloromethane	1.2	Day 1/2	SR/OR
13	Heptane	1.2	Day 1	NS
13	Freon-11	1.2	Day 1	SR
16	Freon-12	1.1	Day 1/3	SR

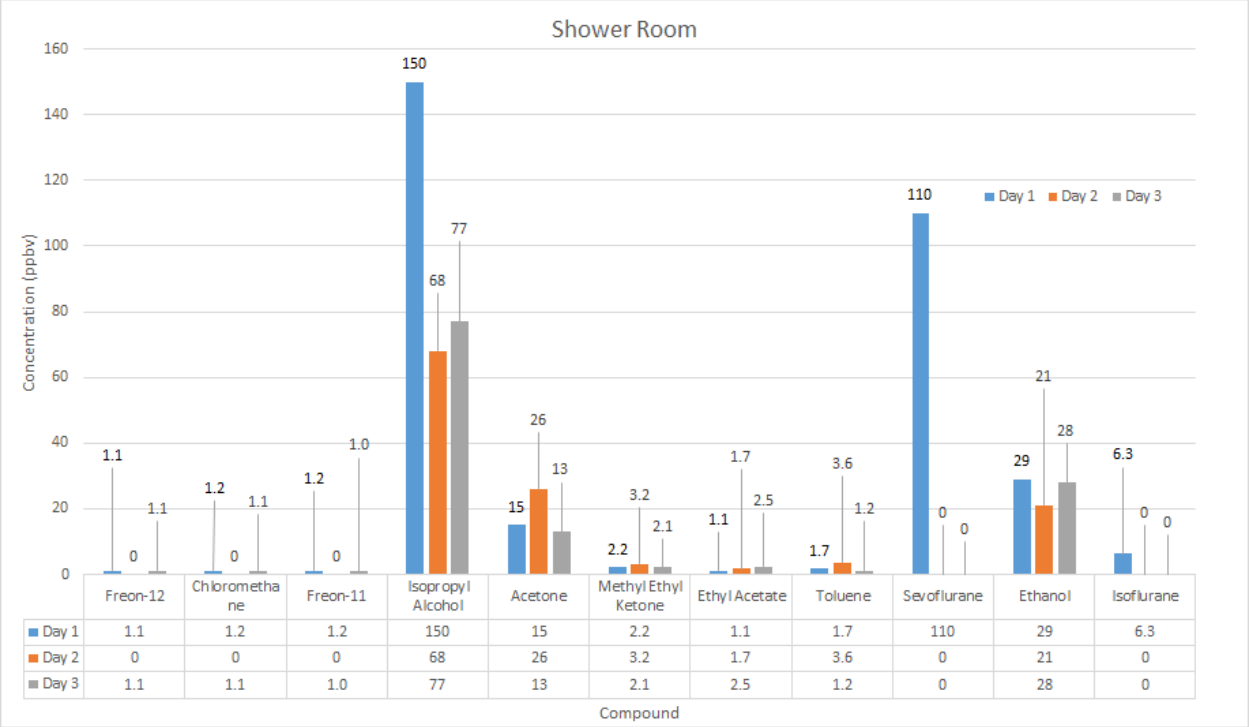

Figure 1. Shower Room Compound Concentration Chart

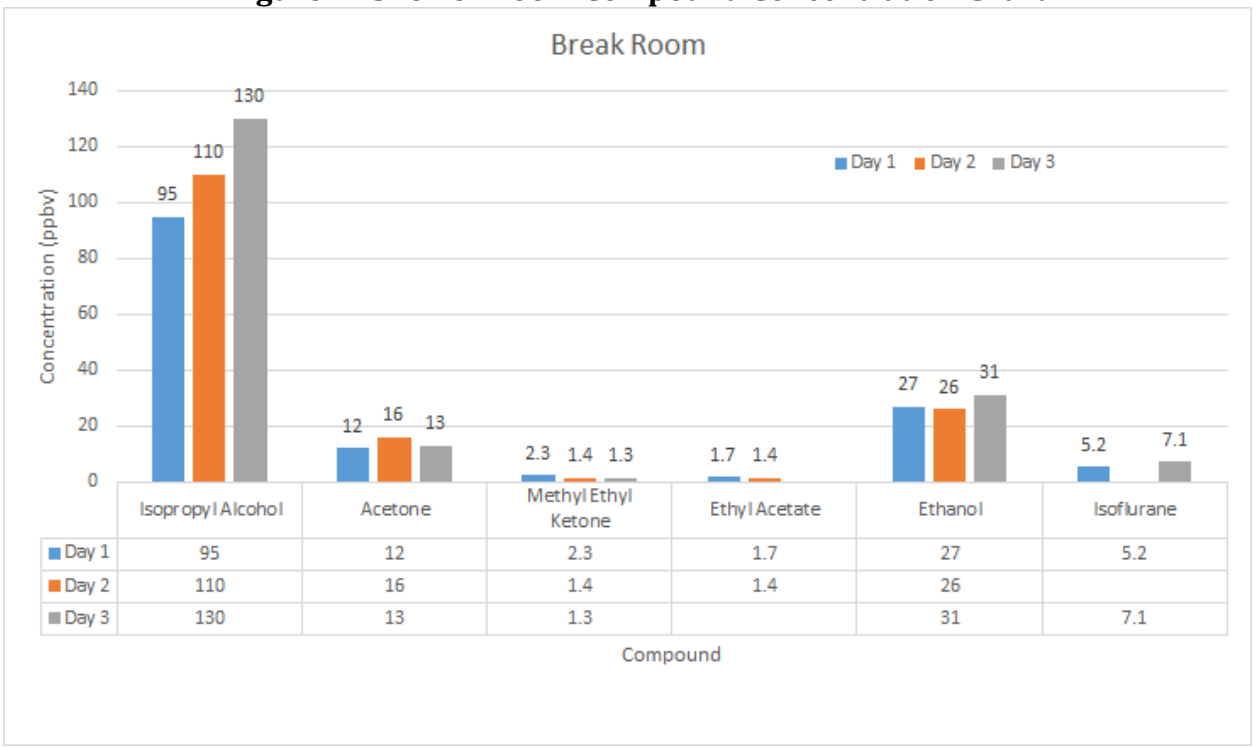

Figure 2. Break Room Compound Concentration Chart

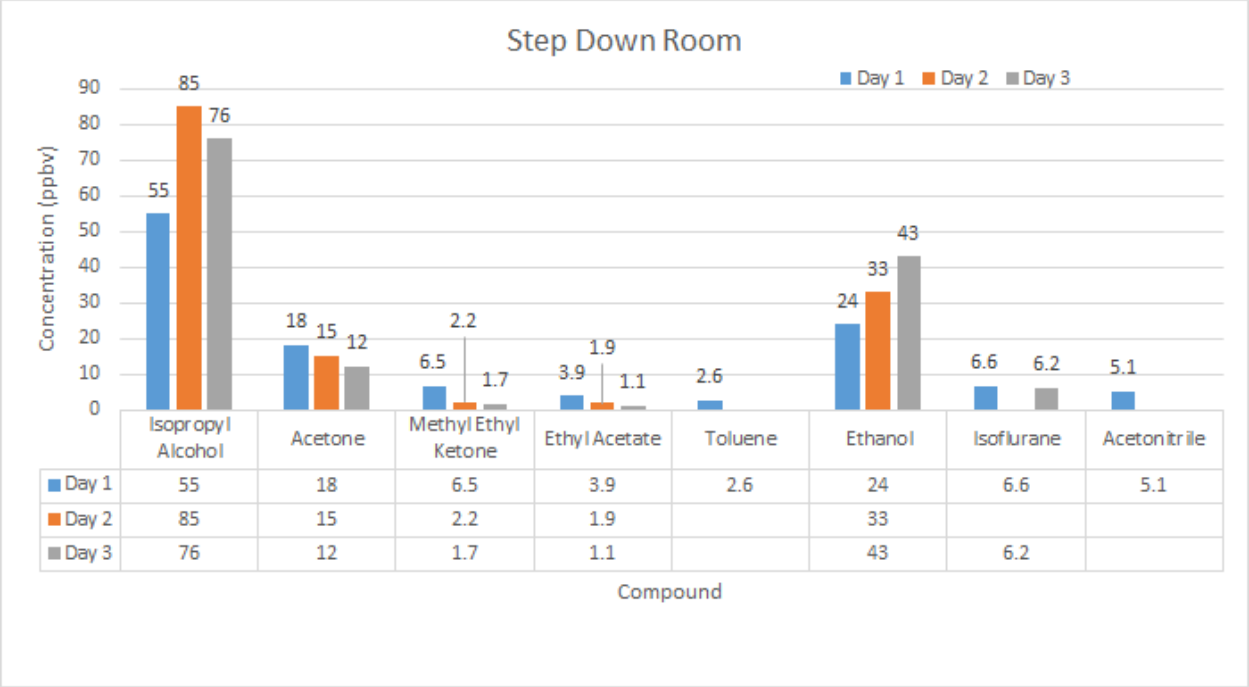

Figure 3. Step Down Room Compound Concentration Chart

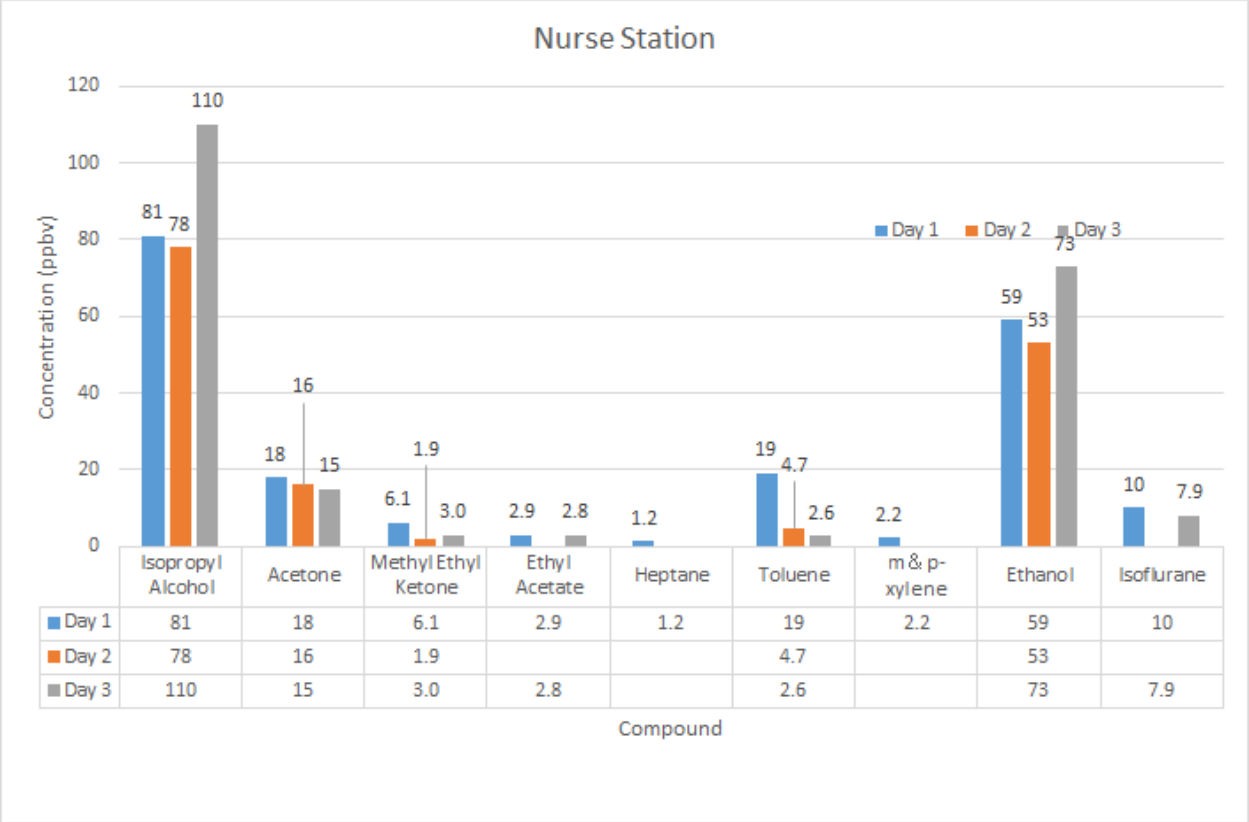

Figure 4. Nurse Station Compound Concentration Compound Chart

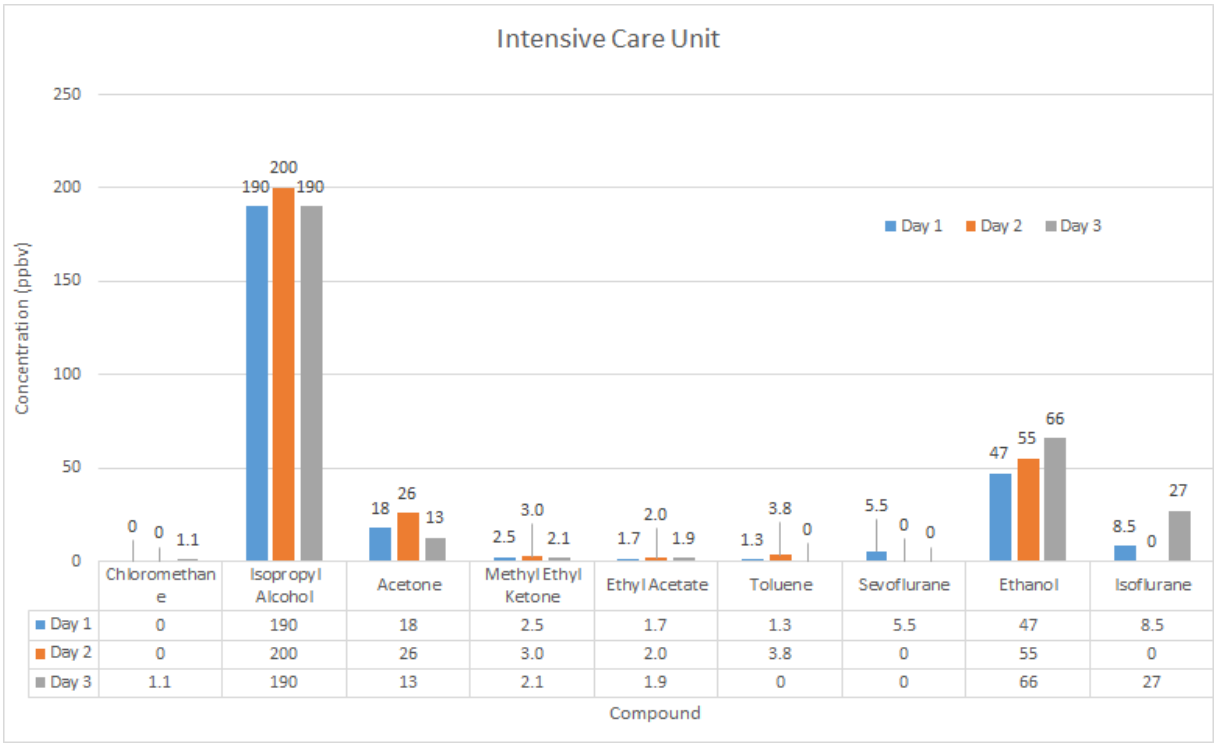

Figure 5. Intensive Care Unit Compound Concentration Chart

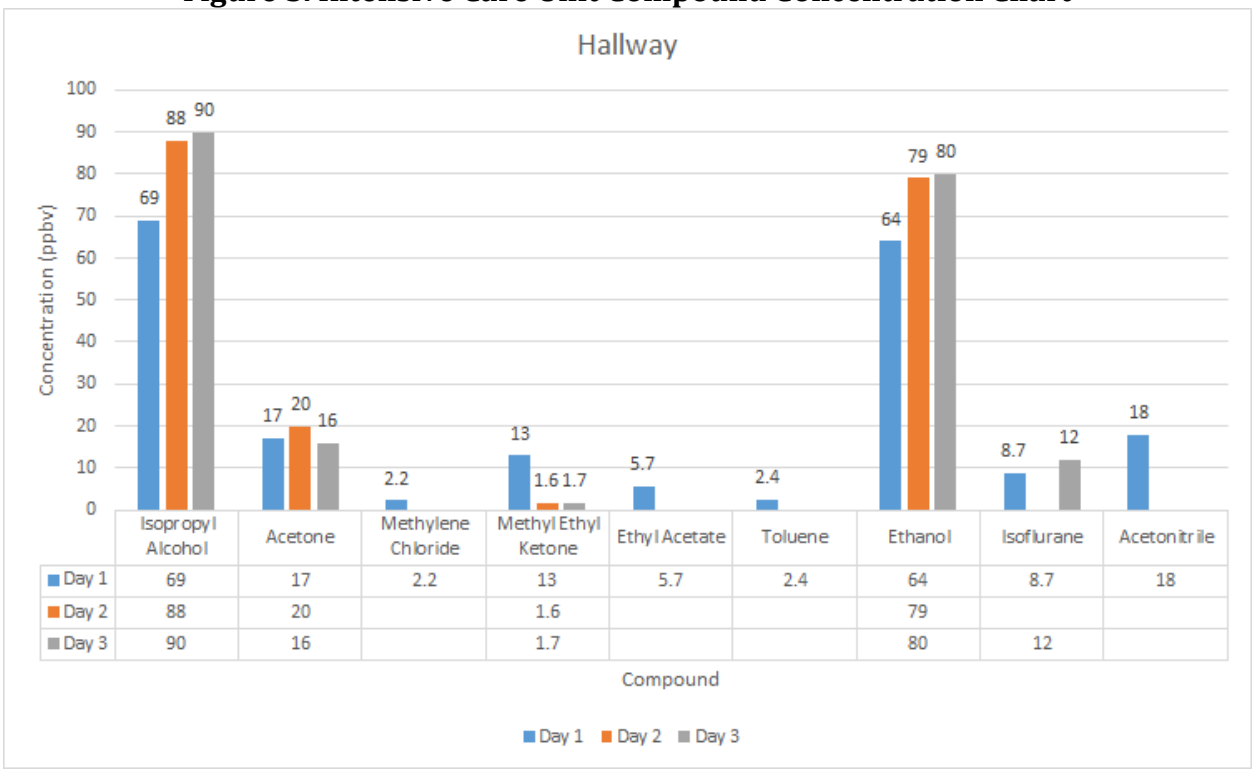

Figure 6. Hallway Compound Concentration Chart

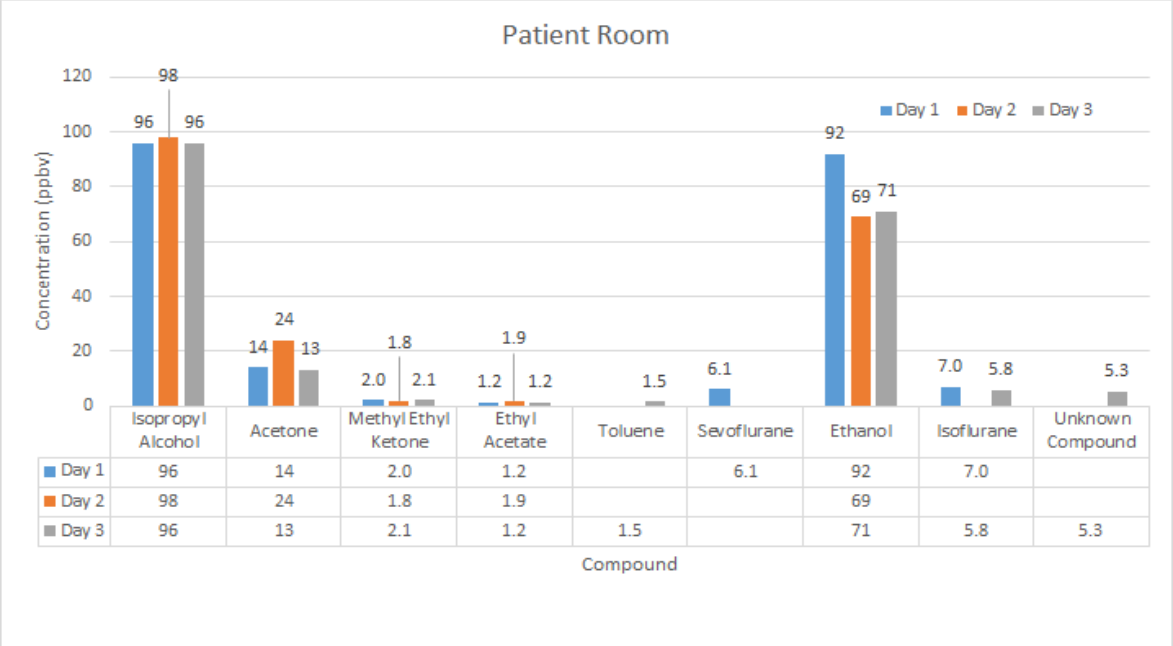

Figure 7. Patient Room Compound Concentration Chart

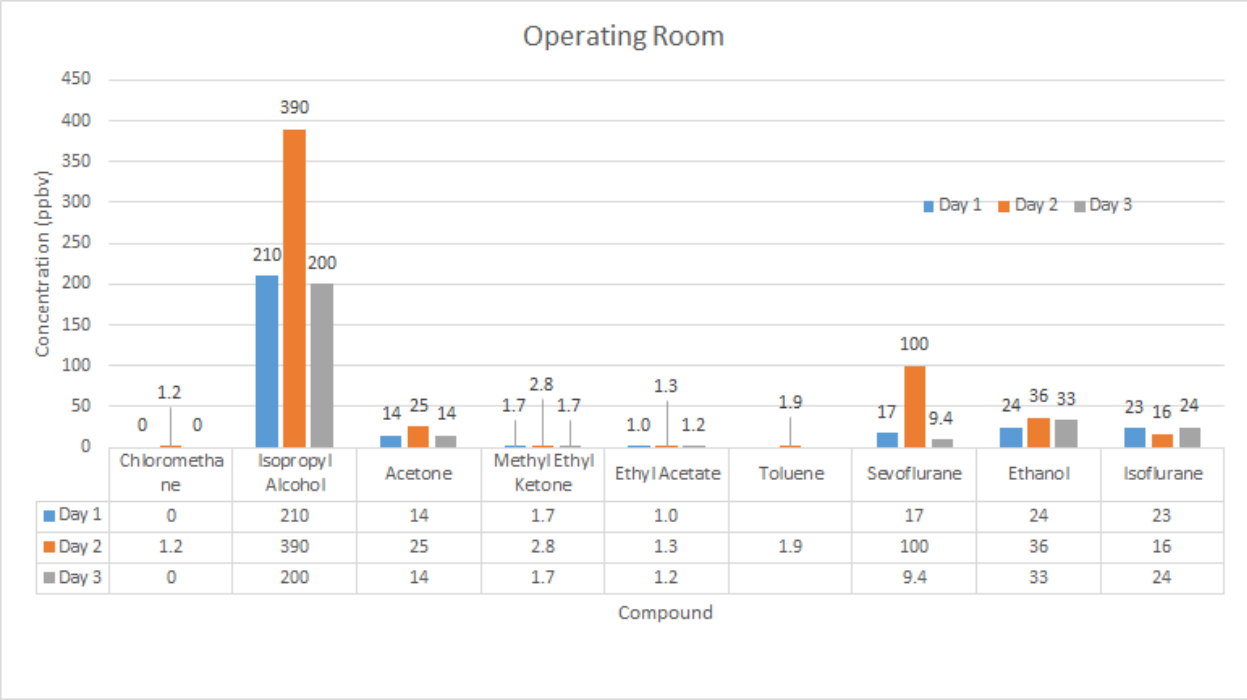

Figure 8. Operating Room Compound Concentration Chart

The real time total VOC concentrations are provided in Table 3. These real time results are comparable to the average sum of the EPA TO-15 results provided in Table 4.

Table 3. Average total VOC concentrations measured by PID in the 8 sample locations.

PID Total VOC measurement	
Room Code	Average of 6 trials (ppb)

SR	172.6
BR	132.2
SDR	121.2
NS	211.8
ICU	372.6
HW	152.75
PR	135.4
OR	188

Total* VOC Gas Chromatography Average	
Room Code	Average of 3 days (ppb)
SR	189.8
BR	160.1
SDR	132.9
NS	189.1
ICU	288.5
HW	196.1
PR	203
OR	382.7