

prior to the voice reminder being turned on to 6 months after the voice reminder was turned on. **Conclusions:** The HAI data from both phases were aggregated, and there was a statistically significant reduction in MDROs by 90%, CAUTIs by 60%, and *C. difficile* by 64%. This resulted in annual savings >\$1 million in direct costs of nonreimbursed HAIs.

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A Descriptive Analysis of Infection Present at Time of Surgery (PATOS) in NHSN Surgical Site Infection (SSI) Data, 2015–2018

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Background: In 2015, the CDC NHSN introduced infection present at time of surgery (PATOS) as a required data element for reporting surgical site infections (SSIs). PATOS is the documented observation that infection was visualized during the operative procedure and at the same tissue level of subsequent SSI. PATOS SSIs are excluded from CDC calculations of SSI summary measures, the standardized infection ratios (SIRs), including the SSI SIRs used by CMS public reporting and payment programs. The characteristics of PATOS SSIs have not been assessed since its introduction, prompting interest in the review of these SSIs. This study describes PATOS SSI surveillance for 2015–2018, with specific focus on infections following colon surgery (COLO), the

NHSN operative procedure category with highest reported incidence of PATOS. **Methods:** We analyzed all procedures and SSIs reported to the NHSN. Using measures of frequency, we quantified the proportion of SSI and PATOS SSI attributed to all procedures and to COLO specifically. The mid-*p* method was used for proportion comparison. Procedure and SSI data were described by year and characteristics. **Results:** Between 2015 and 2018, 12,046,033 procedures and 188,770 SSIs (2%) were reported. Of these SSIs, 22,096 (12%) were PATOS SSIs (Fig. 1). COLO accounted for 11% of all procedures reported, for a total of 1,328,852 procedures with 72,891 (5%) resulting in SSI. COLO accounted for 64% of PATOS SSIs. The proportion of SSIs reported as PATOS SSIs resulting from COLO increased from 18% in 2015 to 22% by 2018 (Fig. 2). The proportion of COLO PATOS SSIs was statistically different from the proportion of PATOS SSIs for all other procedures each year (*P* < .0001). Organ-space (OS) SSIs accounted for 76% of COLO PATOS SSIs (10,558 of 13,911), and most of these SSIs were SSI intra-abdominal infections (IABs) (91%). The proportion of COLO PATOS SSI superficial incisional primary (SIP) was statistically different from non-COLO PATOS SSI SIP (*P* = .0105) (Fig. 2). Of COLOs linked to PATOS SSIs, 53% were assigned dirty or infected wound classification. **Conclusions:** The increase in PATOS SSIs linked to COLO procedures underscores the importance of monitoring PATOS SSIs at the facility level. Focused validation of PATOS data is needed to identify reasons for this increase, which may include misapplication or misunderstanding of PATOS determinations. Validation may highlight the potential need for prevention strategies or interventions related to PATOS.

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Figure 1. Summary of Procedure/SSI Data for All NHSN Operative Procedures, NHSN 2015-2018

Year	Total Number of Procedures Reported to NHSN	Number of SSI Events Resulting from Procedures Reported to NHSN	Number of SSIs Reported as PATOS	Proportion of SSI Events reported as PATOS to Total Events Reported to NHSN
2015	2,772,398	44,934	4,970	11%
2016	2,964,526	45,845	5,083	11%
2017	3,124,157	47,926	5,630	12%
2018	3,184,952	50,065	6,413	13%
2015-2018	12,046,033	188,770	22,096	12%

Fig. 1.

Figure 2. Summary of Procedure/SSI Data for COLO, NHSN 2015-2018

Year	Number of COLO Procedures Reported by Year	Number of SSIs resulting from COLO Procedures	Number of non-COLO SSIs that are PATOS	Number of COLO SSIs Reported as PATOS	Proportion of All COLO SSIs that are reported as PATOS	Number (%) of non-COLO PATOS SSIs by SIP Specific Event	Number (%) of COLO PATOS SSIs by Specific Events Classification				Statistical Significance Test of the Difference in Proportion of COLO PATOS SSI-SIP vs. non-COLO PATOS SSI-SIP	Number (%) of PATOS SSIs Linked to Procedures by Procedure Surgical Wound Classification		
							SIP	DIP	IAB	OS*		CC	CO	D
2015	319,397	18,133	1,795	3,175	18%	278 (15%)	575 (18%)	401 (13%)	2,053 (65%)	146 (5%)	0.0180	983 (31%)	640 (20%)	1,552 (49%)
2016	333,869	17,968	1,876	3,207	18%	255 (14%)	505 (16%)	367 (11%)	2,137 (67%)	198 (6%)	0.0370	929 (29%)	615 (19%)	1,663 (52%)
2017	336,123	18,140	2,177	3,453	19%	287 (13%)	468 (13%)	327 (9%)	2,377 (69%)	283 (8%)	0.7391	841 (24%)	659 (19%)	1,953 (57%)
2018	339,463	18,650	2,337	4,076	22%	247 (11%)	438 (11%)	274 (7%)	2,991 (73%)	373 (9%)	0.8279	1,072 (26%)	757 (19%)	2,247 (55%)
2015-2018	1,328,852	72,891	8,185	13,911	19%	1,067 (13%)	1,884 (14%)	1,369 (10%)	9,558 (69%)	1,000 (7%)	0.0105	3,825 (27%)	2,671 (19%)	7,415 (53%)

Fig. 2.