

Supplemental Tables Executive Summary

The National and State Healthcare-Associated Infections (HAI) Progress Report includes data for inpatient rehabilitation facilities (IRFs) and long-term acute care hospitals (LTAC). The 2022 report includes summary of selected HAIs reported from pediatric and

The supplemental data includes infection-specific standardized infection ratios (SIR). The SIR is the ratio of the observed number of infections (events) to the number of patient-days. The SIR metrics are calculated using the 2015 national baseline and risk adjustment factors. For more information, see NHSN's Guide to the SIR: <https://www.cdc.gov/nhsn/pubs/guides/guide-to-the-sir/>

This report includes national data for the following HAI and facility types:

Oncology Hospitals	Oncology Locations	Pediatric Hospitals	Pediatric Locations
CLABSI	CLABSI	CLABSI	CLABSI
CAUTI	CAUTI	CAUTI	CAUTI
VAE	VAE	SSI*	
<i>C. difficile</i>		<i>C. difficile</i>	
MRSA bacteremia		MRSA bacteremia	
SSI-COLO and SSI-HYST		See Main Progress Report Table 2d	

*National SSI data includes 39 inpatient surgical procedure categories reported

[Please refer to the Executive Summary of the full report for the technical appendix.](#)

al and State HAI Progress Report

plemental Data Tables pediatric and Oncology Data

t provides a summary of select HAIs across four healthcare settings; acute care hospitals (ACHs), critical
(CHs). Data from CAHs are provided in the detailed technical tables but not in the report itself.
I oncology locations within ACHs as well as data from pediatric and oncology hospitals. These facility type

SIRs), which measure progress in reducing HAIs compared to the 2015 baseline time period.
r of predicted infections (events) for a summarized time period.
ment methodology. More information about these metrics can be found at:
ic.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf

to NHSN.

[dix of how the Progress Report data are generated.](#)

access hospitals (CAHs),

α-specific data provide national incidence data for 2022

HAI and Patient Population	No. of Oncology Hospitals Reporting ¹	Total Device Days ²
CLABSI, all ⁸	17	501,335
CAUTI, all ⁸	17	134,603
VAE, all ⁸	7	12,044
Hospital-onset MRSA bacteremia, facility-wide ⁹	17	
Hospital-onset <i>C. difficile</i> , facility-wide ⁹	17	
SSI-COLO, Colon surgery ⁶	12	
SSI-HYST, Abdominal hysterectomy ⁶	14	

1. The number of reporting facilities from oncology hospitals only included in the SIR calculation.
2. The number of device days included in the calculation of the SIR
3. Total patient days reported from all inpatient units, excluding counts from CMS-certified rehabilitation and psychi
4. Total inpatient admissions reported from all inpatient locations, excluding counts from CMS-certified rehabilitation
5. Community-onset events are defined as those that were identified in an inpatient location on the first, second, or
6. SSIs included are those classified as deep incisional or organ/space infections following inpatient procedures the
7. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted HAI in 2022. If a facility's
8. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. For VAE, pediatric lo
IVAC-plus includes those events identified as infection-related ventilator-associated condition (IVAC) and possib
9. Hospital-onset events are defined as those that were identified in an inpatient location on the 4th day (or later) at

Table 1a. National standardized infection ratios (SIRs) and facility-specific standardized infection ratios (FSIRs) for Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), and Clostridioides difficile (C. diff)

Total Patient Days ³	Total Inpatient Admissions ⁴	Inpatient Community-onset events ⁵	Number of Procedures ⁶	No. of Infections (Events)	
				Observed	Predicted
850,269				491	547.114
844,661				136	141.290
31,631				61	36.658
866,252	128,890	55		67	107.818
857,717	125,402	303		648	1,167.643
			4,001	150	157.346
			2,900	34	27.840

pediatric locations. Patient days for *C. difficile* further excludes counts from NICUs and well-baby units. Admissions for *C. difficile* further excludes counts from NICUs and well-baby units. For *C. difficile*, this excluded events in which the patient was received at occurred in 2022 with a primary or other than primary skin closure technique, detected during the same admission. If a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included in the distribution. Pediatric and neonatal locations are excluded from SIR since pediatric and neonatal locations are excluded from VAE surveillance. Total \nventilator-associated pneumonia (pVAP). IVAC-plus events are a subset of the total VAE, meaning the IVAC-plus events occur after admission to the facility.



specific summary SIRs using HAI data reported to NHSN during 2022 by Oncology Hospitals, HAI, and primary tract infections (CAUTIs), ventilator-associated events (VAEs), methicillin-resistant *Staphylococcus aureus* (MRSA) and surgical site infection (SSIs) colon surgery and abdominal hysterectomy

SIR	95% CI for SIR		Facility-specific SIRs No. Facilities with ≥1 Predicted Infection (Event)	5%	10%	15%	20%
	Lower	Upper					
0.897	0.821	0.980	17	.	.	.	.
0.963	0.811	1.135	11	.	.	.	.
1.664	1.284	2.123	5	.	.	.	.
0.621	0.485	0.784	11	.	.	.	.
0.555	0.513	0.599	17	.	.	.	.
0.953	0.810	1.115	11	.	.	.	.
1.221	0.859	1.687	8	.	.	.	.

ently discharged from the reporting facility in the previous 4 weeks.

ion as the surgical procedure or upon readmission to the same facility.

of facility-specific SIRs.

/AE includes IVAC-plus events.

plus events are included in the total VAE SIR as well.

75%

80%

85%

90%

95%

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HAI and Patient Population	No. of Acute Care Hospitals Reporting from Oncology Locations ¹
CLABSI, all³ ICUs⁴ Wards⁵	 488 20 487
CAUTI, all³	 478 20 476
VAE, all³	 23 11 12

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may
2. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted HAI in 2022. If $<$
3. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. For VAE, pediatric IVAC-plus includes those events identified as infection-related ventilator-associated condition (IVAC) and
4. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs. For VAE, pediatric
5. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/oncology]

NOTE: Risk factors used in the calculation of the number of predicted device-associated infections are list

Table 1b. National standardized infection ratios (SIRs) and facility-specific Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract in

Total Patient Days	Total Device Days	No. of Infections (Events)		SIR	95% CI for SIR	
		Observed	Predicted		Lower	Upper
5,602,624	2,865,758	2,739	3,536.100	0.775	0.746	0.804
81,654	51,648	55	53.240	1.033	0.786	1.335
5,520,970	2,814,110	2,684	3,482.860	0.771	0.742	0.800
5,381,128	600,571	712	851.791	0.836	0.776	0.899
81,543	42,618	36	42.843	0.840	0.597	1.151
5,299,585	557,953	676	808.948	0.836	0.774	0.900
89,769	21,197	114	73.257	1.556	1.290	1.862
45,240	16,314	106	59.727	1.775	1.460	2.138
44,529	4,883	8	13.530	0.591	0.275	1.123

may be different from the numbers shown in Table 1. These tables contain data from acute care hospitals; as such, if a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included in the report. Pediatric locations are excluded from SIR since pediatric and neonatal locations are excluded from VAE surveillance (including possible ventilator-associated pneumonia (pVAP)). IVAC-plus events are a subset of the total VAE, near the end of the report. Pediatric locations are excluded from SIR since pediatric locations are excluded from VAE surveillance (including radiology/oncology, bone marrow transplant). For VAE, pediatric locations are excluded from SIR since pediatric locations are excluded from VAE surveillance (including radiology/oncology, bone marrow transplant).

See Appendix A of Acute Care Hospitals' report.

fic summary SIRs using HAI data reported to NHSN during 2022 by facility type, HAI, and patient populati
infections (CAUTIs), and ventilator-associated events (VAEs) in oncology locations across facility types in

Facility-specific SIRs								
No. Facilities with ≥1								
Predicted Infection (Event)		5%	10%	15%	20%	25%	30%	35%
429		0.000	0.000	0.000	0.278	0.342	0.401	0.470
15		.	.	.	.	.	.	.
429		0.000	0.000	0.000	0.274	0.344	0.401	0.470
277		0.000	0.000	0.000	0.000	0.000	0.000	0.358
12		.	.	.	.	.	.	.
276		0.000	0.000	0.000	0.000	0.000	0.000	0.401
10		.	.	.	.	.	.	.
9		.	.	.	.	.	.	.
1		.	.	.	.	.	.	.

such, they exclude data from LTACHs, IRFs, and CAHs.
the distribution of facility-specific SIRs.
veillance. Total VAE includes IVAC-plus events.
ing the IVAC-plus events are included in the total VAE SIR as well.
ce.
diatric and neonatal locations are excluded from VAE surveillance.

90%	95%
1.378	1.627
.	.
1.378	1.627
1.811	2.093
.	.
1.850	2.118
.	.
.	.
.	.

HAI and Patient Population	No. of Pediatric Hospitals	
	113	1,511,591
	99	188,819
	85	
Hospital-onset <i>C. difficile</i>, facility-wide⁹	83	
	613	
	39	

1. The number of reporting facilities from pediatric hospitals only included in the SIR calculation.
2. The number of device days included in the calculation of the SIR

6. SSIs included are those classified as deep incisional or organ/space infections following inpatient procedures the
7. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted HAI in 2022. If a facility's
8. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs.
9. Hospital-onset events are defined as those that were identified in an inpatient location on the 4th day (or later) at

**Table 1c. National standardized infection ratios (SIRs)
Central line-associated bloodstream infections (CABIs)
*Clostridioides difficile***

				No. of Infections Observed
4,931,200				1,652
2,954,164				232
4,201,528	692,831	134		176
2,989,278	619,572	824		1,009
			6,421	120
			50	0

at occurred in 2022 with a primary or other than primary skin closure technique, detected during the
s predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included in th
fter admission to the facility.



) and facility-specific summary SIRs using HAI data reported to NHSN during 2022 by Pediatric Ho CLABSIs), catheter-associated urinary tract infections (CAUTIs), methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile* (*C. difficile*), and surgical site infection (SSIs) colon surgery and abdominal hysterectomy

Predicted	SIR	95% CI for SIR		Facility-specific SIRs No. Facilities with ≥1 Predicted Infection (Event)	5%	10%
		Lower	Upper			
2,062.560	0.801	0.763	0.840	83	0.216	0.347
236.248	0.982	0.862	1.115	60	0.000	0.000
161.145	1.092	0.940	1.263	49	0.000	0.000
1,329.683	0.759	0.713	0.807	66	0.000	0.036
156.733	0.766	0.638	0.912	36	0.000	0.000
0.960	.	.	.	0	.	.

same admission as the surgical procedure or upon readmission to the same facility.
ie distribution of facility-specific SIRs.

**Hospitals, HAI, and patient population:
Staphylococcus aureus (MRSA) bacteremia,**

15%	20%	25%	30%	35%	40%	45%	Median 50%	55%	60%
0.464	0.513	0.617	0.660	0.702	0.718	0.757	0.791	0.842	0.881
0.000	0.311	0.484	0.532	0.595	0.784	0.829	0.918	0.951	0.995
0.000	0.176	0.358	0.602	0.730	0.770	0.788	0.906	0.969	1.385
0.200	0.257	0.345	0.388	0.437	0.506	0.580	0.626	0.676	0.717
0.000	0.000	0.000	0.000	0.000	0.366	0.506	0.669	0.775	0.805

65%	70%	75%	80%	85%	90%	95%
0.924	0.976	1.004	1.089	1.171	1.321	1.894
1.051	1.156	1.285	1.634	1.704	2.463	2.652
1.480	1.611	1.671	1.904	1.926	2.251	2.511
0.774	0.793	0.882	1.048	1.179	1.275	1.541
0.903	1.118	1.285	1.351	1.654	1.944	3.257

HAI and Patient Population	No. of Acute Care Hospitals Reporting from Pediatric Locations ¹
	587
	320
	571
	593
	318
	572

1. The number of reporting facilities included in the SIR calculation. Due to SIR exclusion criteria, this may
2. Facility-specific percentiles are only calculated if at least 20 facilities had ≥ 1.0 predicted HAI in 2022. If \geq
3. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs.
4. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs.
5. Data from all wards (for this table wards also include step-down and specialty care areas [including hem

NOTE: Risk factors used in the calculation of the number of predicted device-associated infections are list

Table 1d. National standardized infection ratios (SIRs) and facility-specific Central line-associated bloodstream infections (CLABSIs) and catheter-ass

Total Patient Days	Total Device Days	No. of Infections (Events)		SIR	95% CI for SIR	
		Observed	Predicted		Lower	Upper
6,088,577	1,777,144	1,974	2,319.910	0.851	0.814	0.889
1,489,831	701,946	892	1,072.470	0.832	0.778	0.888
4,598,746	1,075,198	1,082	1,247.440	0.867	0.817	0.920
5,261,729	312,579	390	412.331	0.946	0.855	1.043
1,477,703	206,436	295	316.268	0.933	0.831	1.044
3,784,026	106,143	95	96.063	0.989	0.805	1.203

be different from the numbers shown in Table 1. These tables contain data from acute care hospitals; as a facility's predicted number of HAIs was <1.0, a facility-specific SIR was neither calculated nor included in

iatology/oncology, bone marrow transplant]).

ed in Appendix A of Acute Care Hospitals' report.

Facility-specific summary SIRs using HAI data reported to NHSN during 2022 by facility type, HAI, and patient population. Associated urinary tract infections (CAUTIs) in pediatric locations across facility types in the acute care hospitals.

Facility-specific SIRs								
No. Facilities with ≥ 1								
Predicted Infection (Event)	5%	10%	15%	20%	25%	30%	35%	
199	0.000	0.213	0.357	0.477	0.560	0.628	0.681	
149	0.000	0.000	0.273	0.403	0.464	0.499	0.554	
161	0.000	0.200	0.278	0.482	0.526	0.620	0.675	
118	0.000	0.000	0.000	0.303	0.462	0.527	0.583	
99	0.000	0.000	0.000	0.000	0.353	0.494	0.586	
25	0.000	0.000	0.000	0.000	0.089	0.456	0.629	

As such, they exclude data from LTACHs, IRFs, and CAHs. This table shows the distribution of facility-specific SIRs.

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	Median									
	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%
	0.710	0.735	0.774	0.840	0.903	0.962	1.026	1.101	1.213	1.365
	0.632	0.676	0.777	0.820	0.887	0.965	1.098	1.194	1.299	1.489
	0.729	0.779	0.848	0.901	0.957	1.002	1.071	1.140	1.278	1.424
	0.647	0.798	0.875	0.927	1.009	1.127	1.208	1.324	1.492	1.687
	0.646	0.689	0.739	0.844	0.944	1.068	1.171	1.305	1.576	1.733
	0.714	0.744	0.828	0.891	0.910	1.001	1.141	1.363	1.526	1.647

90%

95%

1.593

1.922

1.639

1.837

1.646

2.220

1.846

2.588

2.071

3.022

1.773

1.808

Table 2a. Changes in national standardized infection ratios (SIRs) using HAI data reported from all NHSN Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia, *Clostridioides difficile* (*C. difficile*) and surgical site i

	2021				No. of Oncology Hospitals Reporting
	No. of Oncology Hospitals Reporting	Observed	Predicted	SIR	
CLABSI, all ¹	20	437	542.110	0.806	17
CAUTI, all ¹	19	158	148.779	1.062	17
VAE, all ¹	9	65	39.845	1.631	7
Hospital-onset MRSA bacteremia, facility-wide ²	19	64	101.661	0.630	17
Hospital-onset <i>C. difficile</i> , facility-wide ²	19	689	1200.405	0.574	17
SSI-COLO, Colon surgery ³	14	140	158.592	0.883	12
SSI-HYST, Abdominal hysterectomy ³	15	36	30.614	1.176	14

*Statistically significant, $p < 0.0500$. Statistical significance based on two-tailed p -value < 0.05 , reflected in the relative percent change in mag

1. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. For VAE, pediatric locations are excluded from : IVAC-plus events. IVAC-plus includes those events identified as infection-related ventilator-associated condition (IVAC) and possible ventilat IVAC-plus events are included in the total VAE SIR as well.

2. Hospital-onset events are defined as those that were identified in an inpatient location on the 4th day (or later) after admission to the facility

3. Includes SSIs that were classified as deep incisional or organ/space, and were detected upon admission or readmission.

**oncology Hospitals reporting during 2022 by HAI and patient population:
infections (CAUTIs), ventilator-associated events (VAEs),
infection (SSIs) colon surgery and abdominal hysterectomy, 2021 compared to 2022**

2022					
Observed	Predicted	SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
491	547.114	0.897	11%	No change	0.1026
136	141.290	0.963	9%	No change	0.4015
61	36.658	1.664	2%	No change	0.9108
67	107.818	0.621	1%	No change	0.9403
648	1,167.643	0.555	3%	No change	0.5385
150	157.346	0.953	8%	No change	0.5136
34	27.840	1.221	4%	No change	0.8739

itude.

SIR since pediatric and neonatal locations are excluded from VAE surveillance. Total VAE includes or-associated pneumonia (pVAP). IVAC-plus events are a subset of the total VAE, meaning the

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**Table 2b. Changes in national standardized infection ratios (SIRs) using HAI data reported from all NHSN oncology locations and
Central line-associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAI**

HAI and Patient Population	No. of Acute Care Hospitals Reporting from Oncology Locations	2021			No. of Acute Care Hospitals Reporting from Oncology Locations
		Observed	Predicted	SIR	
	496	2,430	3,448.796	0.705	488
ICUs ²	26	54	51.200	1.055	20
Wards ³	493	2,376	3,397.596	0.699	487
	489	650	854.499	0.761	478
	26	35	43.563	0.803	20
	486	486	810.937	0.758	476
	21	92	55.470	1.659	23
	12	81	52.006	1.558	11
	9	11	3.464	3.176	12

*Statistically significant, $p < 0.0500$. Statistical significance based on two-tailed p -value < 0.05 , reflected in the relative percent change in magn

1. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs. For VAE, pediatric locations are excluded from S IVAC-plus events. IVAC-plus includes those events identified as infection-related ventilator-associated condition (IVAC) and possible ventilator IVAC-plus events are included in the total VAE SIR as well.

2. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs. For VAE, pediatric locations are excluded from SIR sir

3. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/oncology, bone marrow tran are excluded from VAE surveillance.

Across facility types in the acute care hospitals during 2022 by HAI and patient population: UTIs), and ventilator-associated events (VAEs), 2021 compared to 2022

2022					
Observed	Predicted	SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
2,739	3,536.100	0.775	10%	Increase	0.0007
55	53.240	1.033	2%	No change	0.9138
2,684	3,482.860	0.771	10%	Increase	0.0006
712	851.791	0.836	10%	No change	0.0822
36	42.843	0.840	5%	No change	0.8511
676	808.948	0.836	39%	Increase	0.0000
114	73.257	1.556	6%	No change	0.6484
106	59.727	1.775	14%	No change	0.3775
8	13.530	0.591	81%	Decrease	0.0004

itude.

IR since pediatric and neonatal locations are excluded from VAE surveillance. Total VAE includes r-associated pneumonia (pVAP). IVAC-plus events are a subset of the total VAE, meaning the

nce pediatric and neonatal locations are excluded from VAE surveillance.

splant]). For VAE, pediatric locations are excluded from SIR since pediatric and neonatal locations

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Table 2c. Changes in national standardized infection ratios (SIRs) using HAI data reported from all NHSN Pediatric

***Clostridioides difficile (C. difficile)* and surgical site infections (SSIs) colon surgery and ab**

	2021				No. of Pediatric Hospitals Reporting
	No. of Pediatric Hospitals Reporting	Observed	Predicted	SIR	
	108	1,352	1,980.403	0.683	113
	99	214	229.348	0.933	99
	82	178	148.308	1.200	85
	81	923	1,157.843	0.797	83
	620	127	167.641	0.758	613
	51	0	1.075	0.000	39

*Statistically significant, $p < 0.0500$. Statistical significance based on two-tailed p -value < 0.05 , reflected in the relative percent change in magnitude

1. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs.
2. Hospital-onset events are defined as those that were identified in an inpatient location on the 4th day (or later) after admission to the facility.
3. Includes SSIs that were classified as deep incisional or organ/space, and were detected upon admission or readmission.

atric Hospitals reporting during 2022 by HAI and patient population:

dominal hysterectomy, 2021 compared to 2022

2022					
Observed	Predicted	SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
1,652	2,062.560	0.801	17%	Increase	0.0000
232	236.248	0.982	5%	No change	0.5902
176	161.145	1.092	9%	No change	0.3754
1,009	1,329.683	0.759	5%	No change	0.2792
120	156.733	0.766	1%	No change	0.9333
0	0.960	.	.	.	.

**Table 2d. Changes in national standardized infection ratios (SIRs) using HAI data reported from all NHSN pediatric locations a
Central line-associated bloodstream infections (CLABSIs) and catheter-associated urinary tract infections (CAUTIs)**

HAI and Patient Population	No. of Acute Care Hospitals Reporting from Oncology Locations	2021			No. of Acute Care Hospitals Reporting from Oncology Locations
		Observed	Predicted	SIR	
	594	1,544	2209.706	0.699	587
	324	733	1022.000	0.717	320
	578	811	1187.706	0.683	571
	620	403	418.512	0.963	593
	325	295	317.392	0.929	318
	594	108	101.120	1.068	572

*Statistically significant, $p < 0.0500$. Statistical significance based on two-tailed p -value < 0.05 , reflected in the relative percent change in magn

1. Data from all ICUs and wards (and other non-critical care locations). This excludes NICUs.
2. Data from all ICUs; excludes wards (and other non-critical care locations) and NICUs.
3. Data from all wards (for this table wards also include step-down and specialty care areas [including hematology/oncology, bone marrow tran:

**cross facility types in the acute care hospitals during 2022 by HAI and patient population:
 ury tract infections (CAUTIs), 2021 compared to 2022**

2022					
Observed	Predicted	SIR	Percent Change	Direction of Change, Based on Statistical Significance	p-value
1,974	2,319.910	0.851	22%	Increase	0.0000
892	1,072.470	0.832	16%	Increase	0.0029
1,082	1,247.440	0.867	27%	Increase	0.0000
390	412.331	0.946	2%	No change	0.8011
295	316.268	0.933	0%	No change	0.9657
95	96.063	0.989	7%	No change	0.5856

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