



**2017 National Survey of Canadian Nurses:
Use of Digital Health Technology in Practice**
Final Executive Report

ENVIRONICS
RESEARCH

May, 2017



Table of contents

Section Heading	Page Number
Background, methodology and sample profile	3
Key Findings	9
Current state of electronic system use and impact on practice	14
Confidence in use, engagement, implementation, training and ongoing learning and development	42
Benefits and Barriers	54



Background, methodology and sample profile

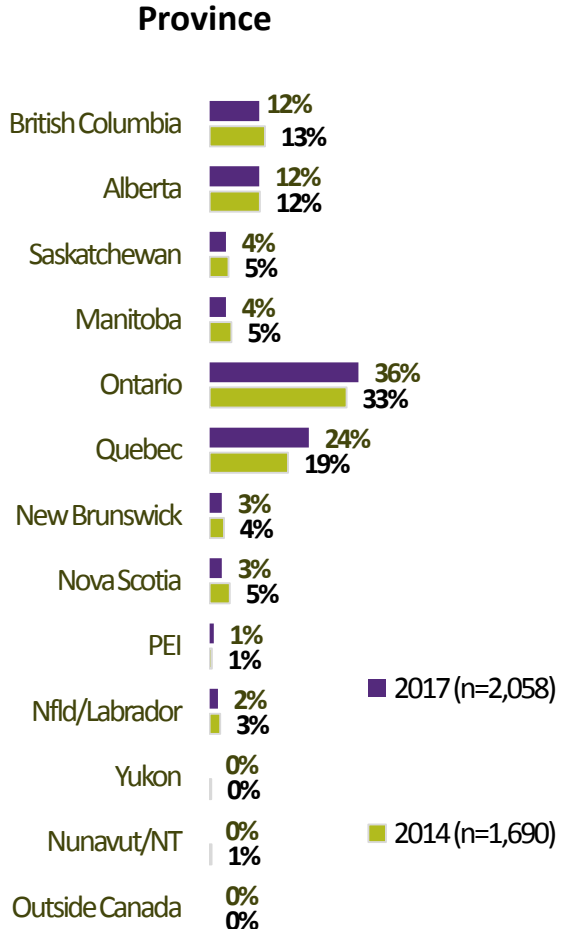
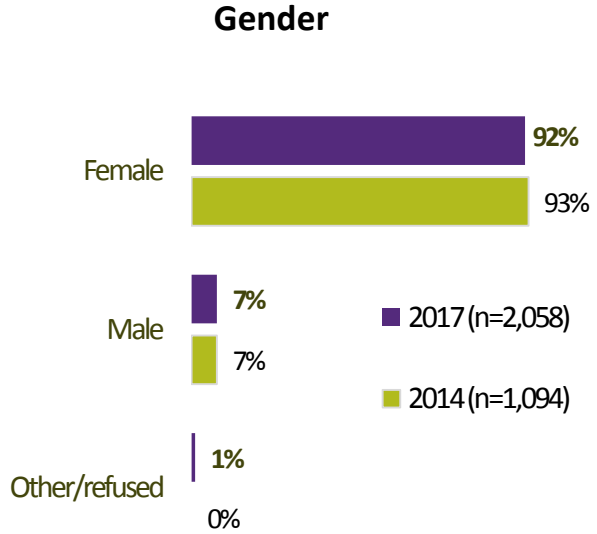
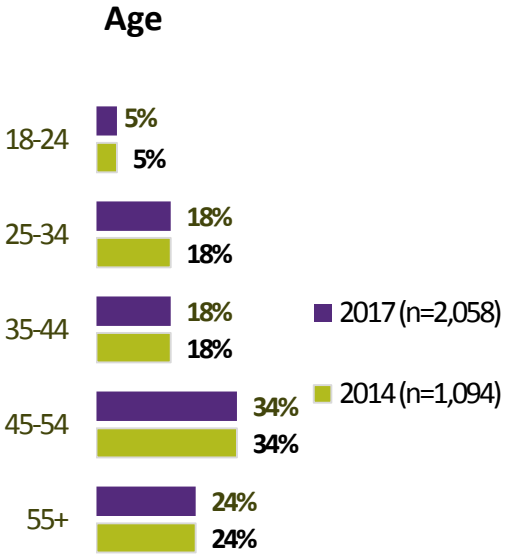
Background and Methodology

- In partnership with the Canadian Nurses Association (CNA) and the Canadian Nursing Informatics Association (CNIA), Canada Health Infoway sought to understand the current use of electronic record/clinical information systems by nurses in Canada across clinical practice settings. The study compares progress to the first national survey of nurses conducted in 2014. The 2017 survey also explored attitudes and perceptions related to access, implementation and the impact of use of digital health technologies in practice.
- An online survey in both French (n=336) and English (n=1,772) was conducted between January 6 to March 19, 2017.
- A multi-method promotion and recruitment strategy was launched in January, 2017:
 - Direct e-mail invitations in English and French with the live survey URL-link were sent from CNA and the CNIA to their registered members with a current email address. Both organizations also communicated the survey invitation in their monthly electronic newsletters; and provided a link to the survey through social media postings and on their websites. The CNIA also included the survey invitation in bi-weekly electronic 'news' blasts to members with an active e-mail address.
 - The CNA also coordinated with all provincial nursing associations in Canada to promote the survey. Provincial nursing associations either sent e-mail invitations to their membership with a current e-mail address and/or promoted the survey in electronic newsletters sent to members monthly.
 - Canada Health Infoway also promoted the survey invitation nationally to clinical engagement networks across Canada, via Infoway's national electronic newsletter and via social media postings throughout the field period.
 - For nurses in Canada without access to email/online promotions, an advertisement was printed in the January 2017 issue of Canadian Nurse with the study URL www.2017nursesurvey.ca in English and French provided. Over 20,000 nurses subscribe/receive the national magazine.
 - To ensure national representativeness invitations were also sent in March, 2017 to nurses who subscribe to Rogers Communications research lists. In total 2, 863 English invitations were disseminated via this method and 2,256 French language invitations were disseminated.
 - Lastly, a small set of Canadian nurses registered to mdBriefCase's online education platform (n=78) were also invited to participate in March, 2017 to ensure representative samples were achieved from the provinces of: Alberta, Nova Scotia, New Brunswick, Newfoundland and Quebec.

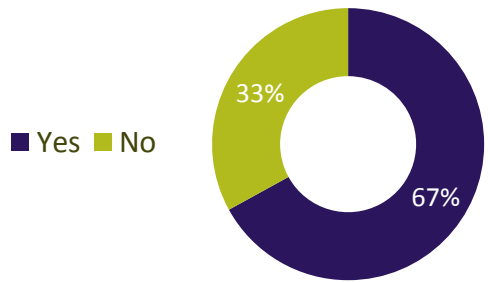
Background and Methodology

- The data are statistically weighted by 2016 Canadian Institute for Health Information (CIHI) workforce data with regard to nurses providing direct patient care in each province to ensure the final sample accurately reflects the nursing population according to this most recent Canadian Census.
- The graphs on the following pages highlight the weighted sample profile of the results presented in this report.
- In this report, results are expressed as percentages unless otherwise noted. Results may not add to 100% due to rounding or multiple responses.
- This report presents the results of a survey conducted with 2,058 nurses from January 6 to March 19, 2017. The majority of results presented in this report focus on Canadian nurses providing direct care to patients (n=1,342).
- Note that differences described in this report are statistically significant. Therefore, where “more likely” or “less likely” are written, these differences are statistically significant at the 95% confidence level.

Sample profile (weighted)



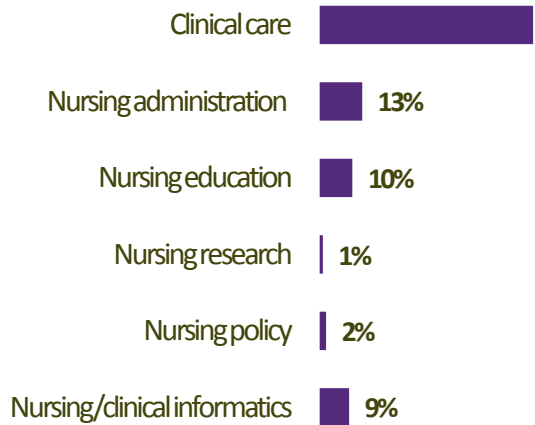
Provide direct care to patients



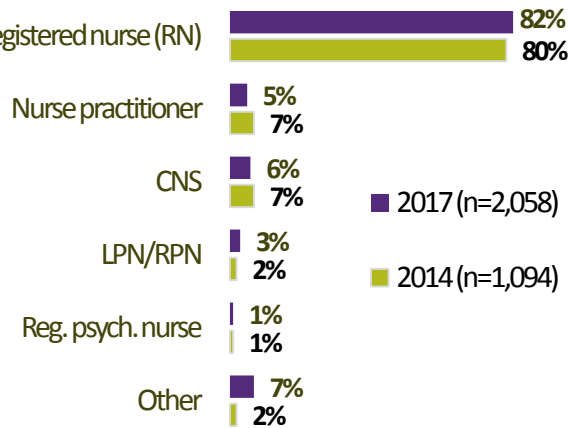
Base: All respondents (n=2,058)

Sample profile (weighted)

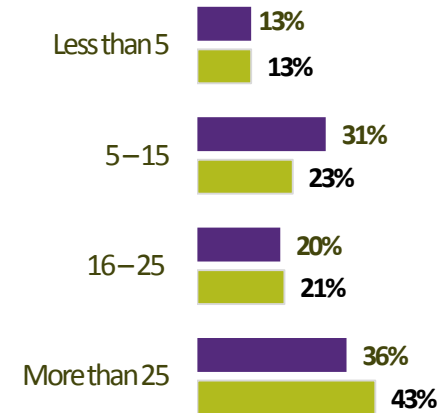
Primary practice domain



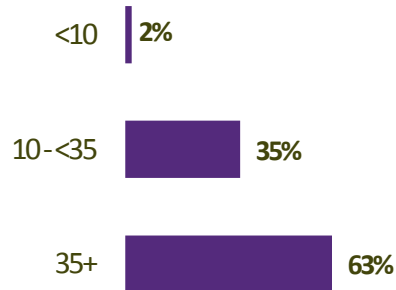
Current designation



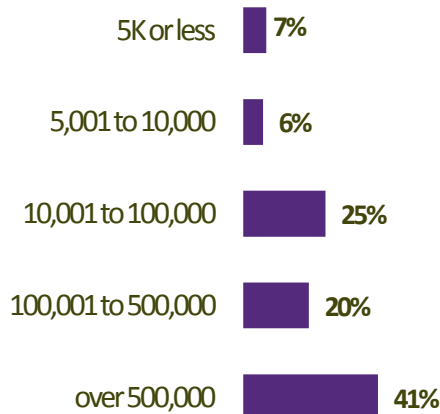
Years in Nursing



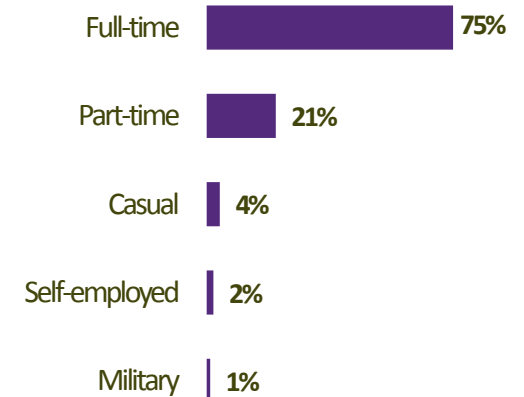
Average hours/week main setting



Community size



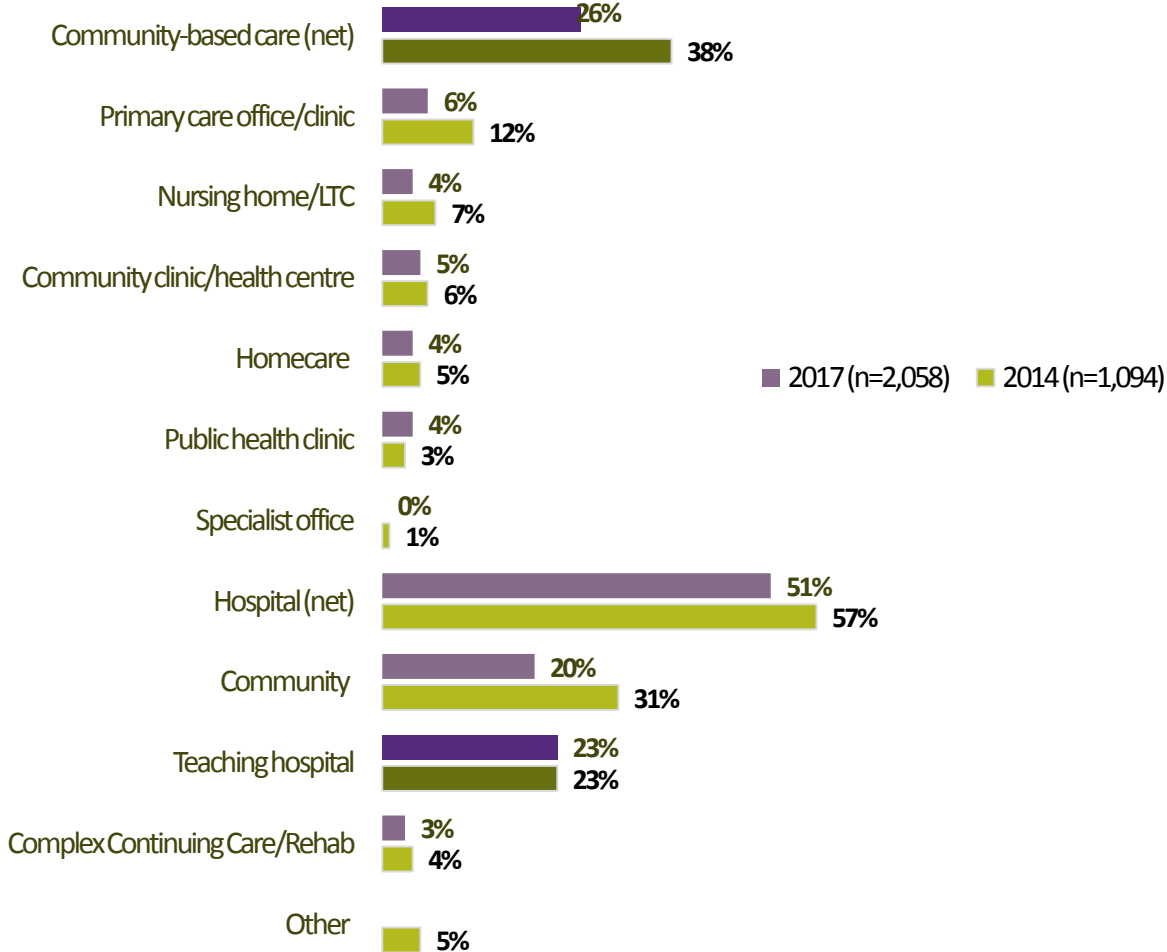
Employment status



Base: All respondents (n=2,058)

Sample profile (weighted)

Work setting



Base: All respondents (n=2,058)



Key Findings

Key Findings: use of digital health technologies in practice

- Responses in 2017 show that a majority of nurses providing direct patient care in Canada are using a combination of paper and electronic tools as their main record keeping system to enter/retrieve clinical patient information.
- The findings indicate that the length of time using specific electronic functions vary. 23% of Nurses have recently received access to enter clinical information (within the past year) whereas 11% have been able to view or retrieve patient information for less than one year.
- Responses suggest positive momentum from 2014 on the perception of nurses on the impact of electronic records on the quality of care nurses provide and their practice productivity.
- There continues to be multiple log-ins required for users of multiple systems, most often two to three log-ins are needed to support a patient encounter.
- Nurses reported use of specific functionalities in 2017 has increased compared to the 2014. Communication tools and clinical documentation tools are the most common tools currently in use. Nurses primarily access electronic functionalities on stationary desktop/laptop computers – access on mobile devices is currently very limited.
- Nurses continue to have limited use of tools that interface with systems outside of their organization or with external health care professionals, suggesting limited progress on interoperability across the system.

Key Findings: use of digital health technologies in practice

- Four in ten nurses say they have access to provincial/territorial EHR systems and this access varies considerably across provinces due to the current availability and access to EHR assets in each province/territory and respective clinical practice settings.
- There is a stronger sense in 2017 that current systems are meeting the needs of nurses in their role (adequate for their role). Having said that, there are still four in ten who do not feel that this is the case. Moreover, there has been an increase in nurses who report that they are *satisfied* with their current electronic / clinical information system(s). Nurses who are satisfied are more likely to say they have adequate tools.
- Nurses in 2017 express higher degrees of confidence in using electronic tools; those who are new to using electronic tools display lower levels of confidence, suggesting that they are still on a learning curve.
- Nurses have a higher level of satisfaction with the initial training than with ongoing learning that is available.
- While the proportion of nurses providing direct patient care who feel they were consulted about the decision to introduce electronic records remains low, more nurses in 2017 believe they have input on the use of these systems.

Key Findings: use of digital health technologies in practice

- Irrespective of the 10 aspects of nurses engagement on electronic/clinical information system design or implementation we assessed, the majority of nurses providing direct patient care feel that they were not consulted at all on any of these areas.
- Nurses in a supervisory role report a relatively high degree of use of clinical and/or administrative data from electronic sources. This group is also more apt to feel that they were consulted at the implementation stage as well as have the ability to provide input in the use of systems, in comparison to nurses providing direct patient care without supervisory duties.
- Moreover, this group of nurses is more likely than those not in a supervisory role to feel that they were consulted in a number of areas related to electronic tools in the overall design and implementation process.
- Nurses point to specific areas of use that have had a positive impact on the quality of nursing care, most notably:
 - Improving continuity of patient care
 - Improving care team communications
- For nurses in a supervisory role: Patient safety reporting and continuous quality improvement tools are the leading ways in which electronic tools support nurses in a supervisory role.

Key Findings: digital health use, access and value across nursing domains

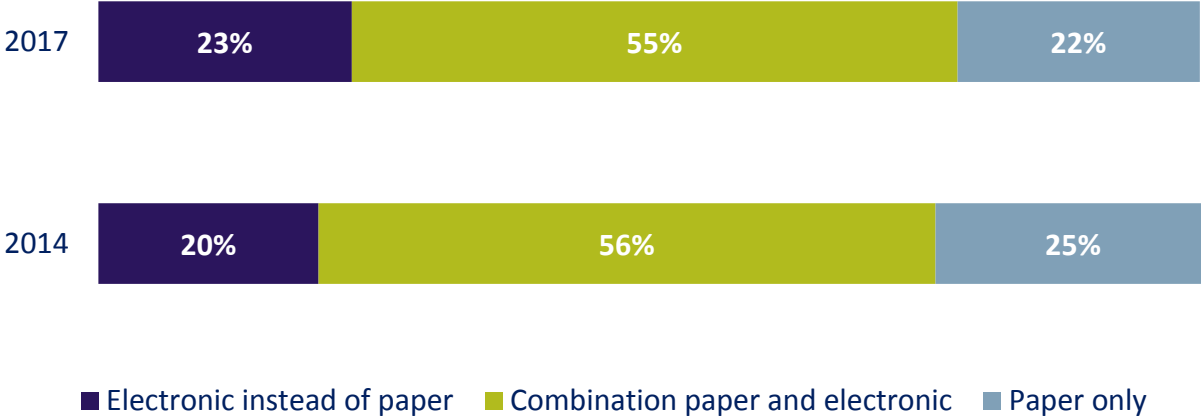
- The biggest barriers to accessing or realizing the full value of electronic systems continue to be:
 - Using both paper and electronic systems
 - Multiple log-ins required
- For nurses in a supervisory role using both paper and electronic systems is the biggest barrier to realizing value for this group. Integration with other systems is the second biggest barrier, followed by budget availability. Multiple login requirements are also a barrier.
- Lastly, there appears to be a gap in familiarity with specific tools. Nurses are most familiar with and most often use the Nursing Informatics Entry-to-Practice Competencies for RNs.



Current state of electronic system use and impact on practice

Patient record keeping systems in use by nurses providing direct patient care

Main record-keeping system used

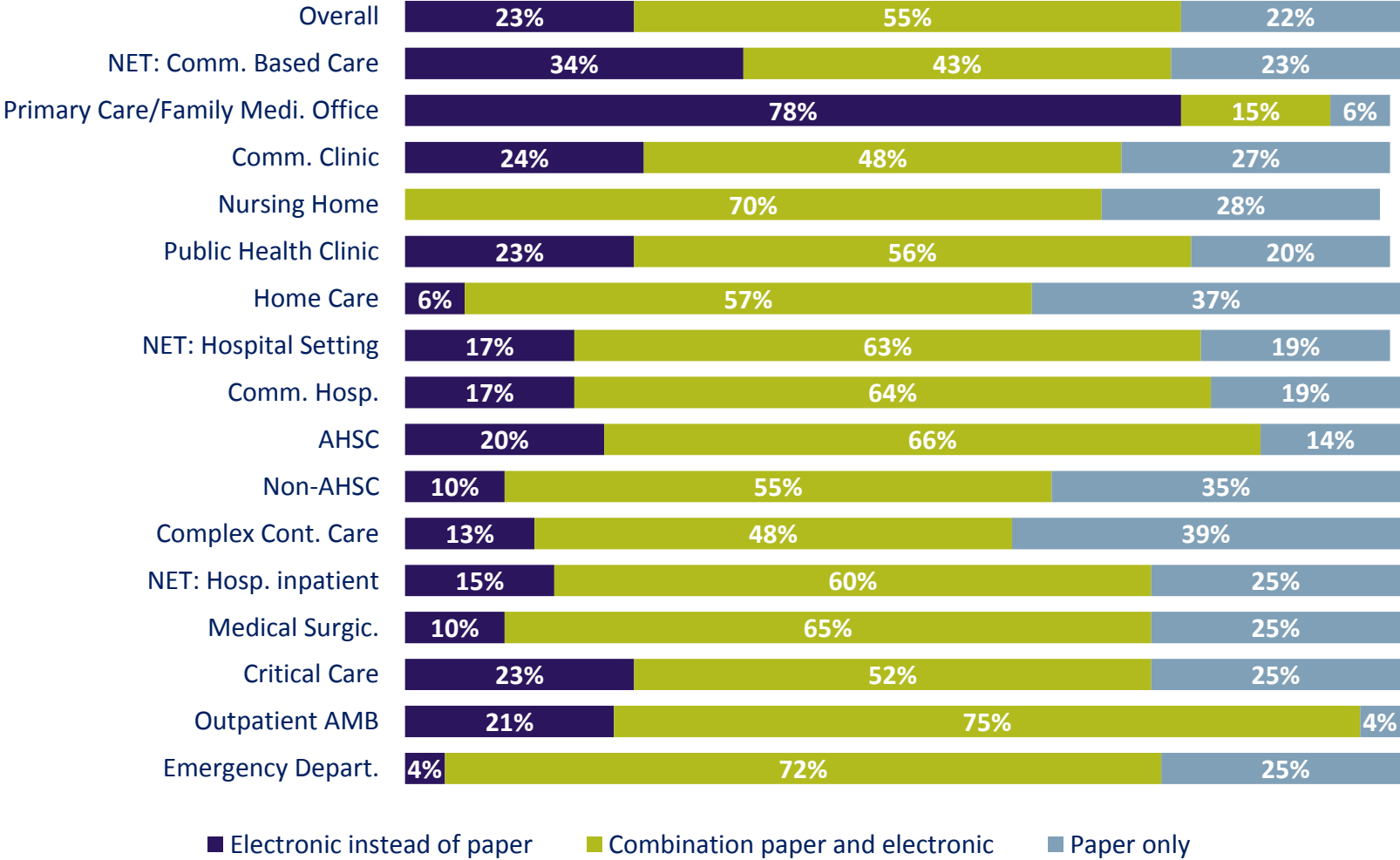


- Overall, nurses in Canada providing direct patient care continue to report that the main record keeping system for patients is a combination of paper and electronic systems. Nurses in community-based care settings (34%) are more likely to report their main record keeping system is electronic compared to nurses practicing in a hospital setting, who report their main record keeping system is a combination of paper and electronic record keeping systems (63%).

Q12. Thinking about the MAIN care setting of your nursing practice, which of these describes the patient record keeping system that you use?
2014: Thinking about your MAIN patient care setting, which of these describes the patient record keeping system that you use?
BASE: Nurses providing direct care to patients (n=1,342)

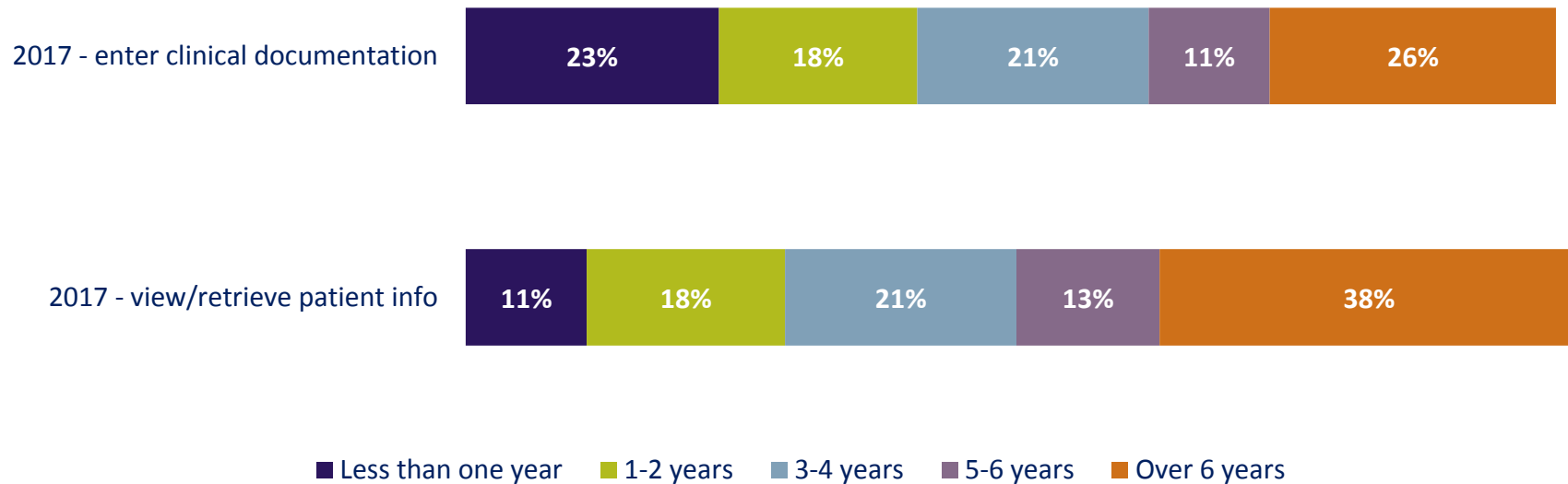
Patient record keeping systems in use by nurses providing direct patient care

Main record-keeping system used



Q12. Thinking about the MAIN care setting of your nursing practice, which of these describes the patient record keeping system that you use?
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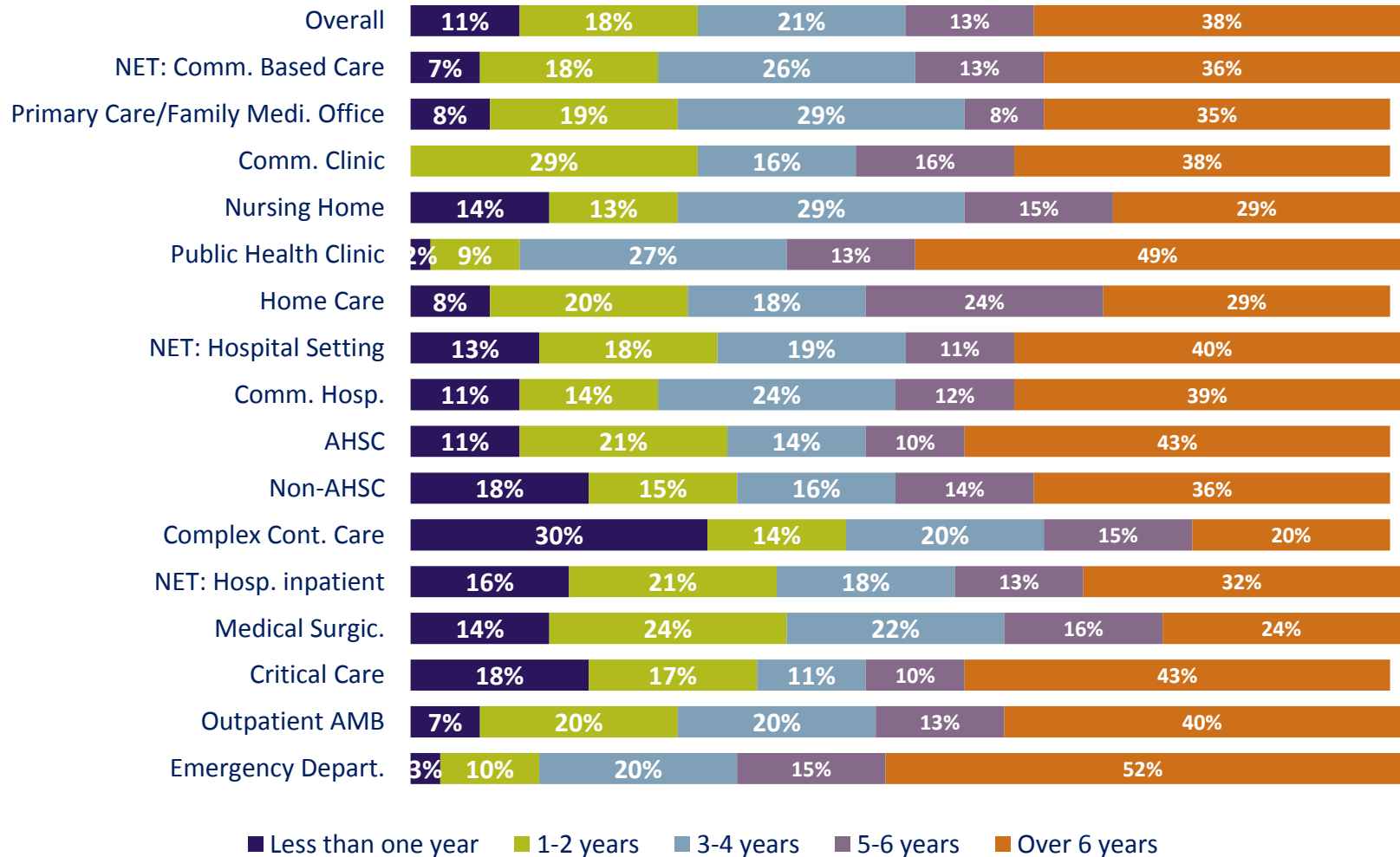
Length of time using electronic record-keeping in main patient care setting



Q13. How long have you been using electronic record /clinical information systems to view or retrieve patient information in your MAIN care setting?
Q14. How long have you been using electronic record /clinical information systems to enter clinical documentation on patient encounters in your MAIN care setting?
BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Adoption and duration of electronic/ clinical information systems use to view/retrieve

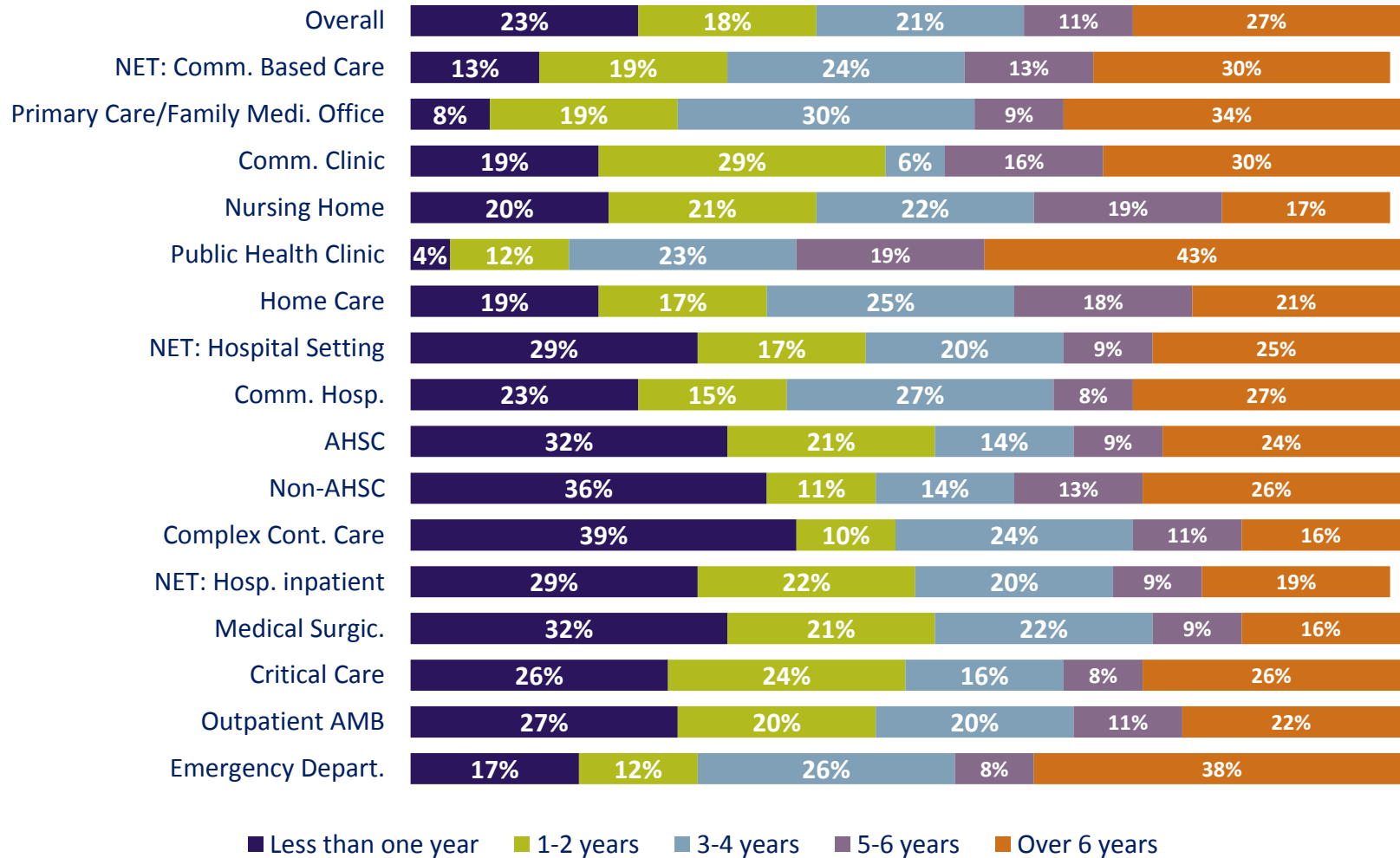
Length of time using electronic record-keeping in main patient care setting



Q13. How long have you been using electronic record /clinical information systems to view or retrieve patient information in your MAIN care setting?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Adoption and duration of electronic/ clinical information systems use to enter clinical documentation

Length of time using electronic record-keeping in main patient care setting

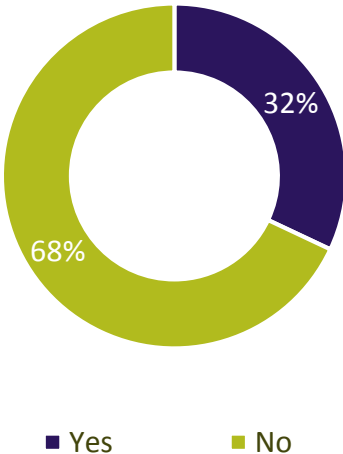


Q14. How long have you been using electronic record /clinical information systems to enter clinical documentation on patient encounters in your MAIN care setting?

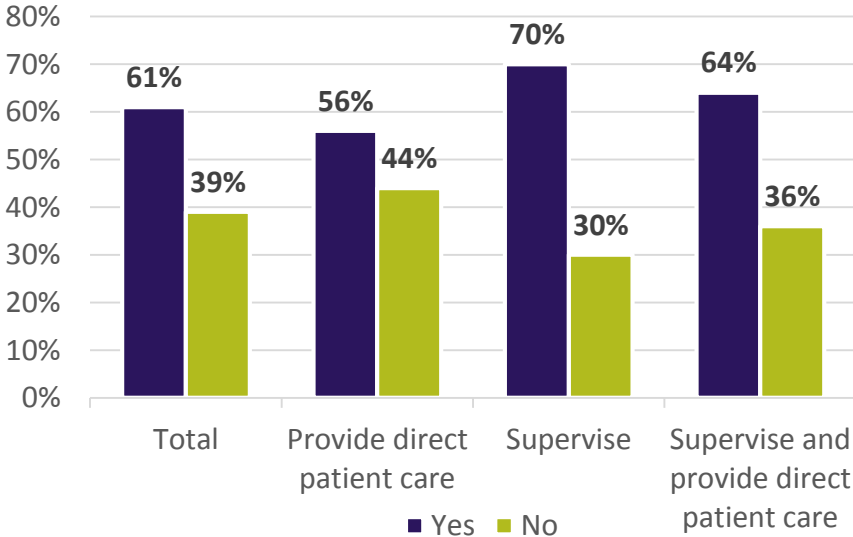
BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses in supervisory roles more likely to use clinical and admin data from electronic sources

Currently supervise nursing staff that provide direct care to patients



Currently use clinical and/or admin data from electronic sources from direct patient care



Q47. Do you currently supervise nursing staff that provide direct care to patients

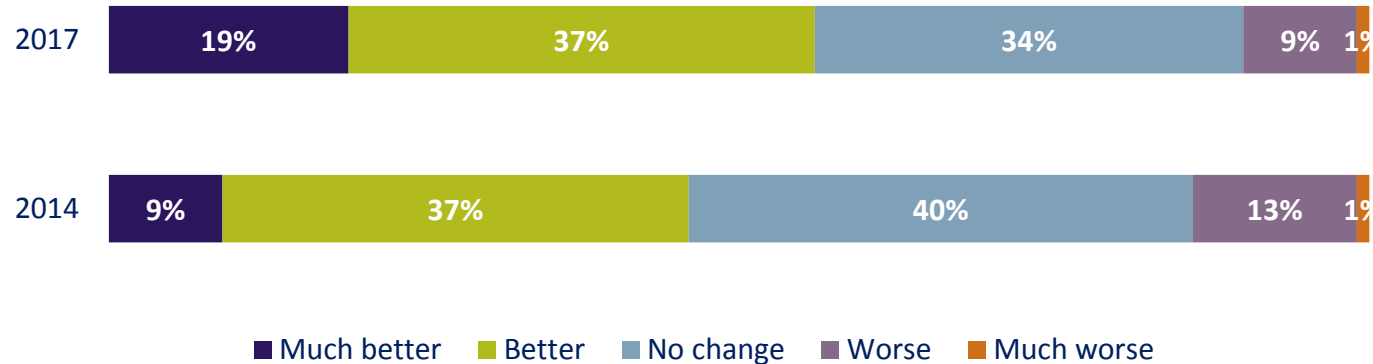
BASE: All respondents (n=2,058)

Q48. In your role, do you currently use clinical and/or administrative data captured from electronic record/ clinical information systems as a result of direct patient care?

BASE: All respondents (n=2,058)

Impact of electronic record use on the quality of patient care; an increase from 2014

Change in quality of patient care since implementation of electronic record keeping

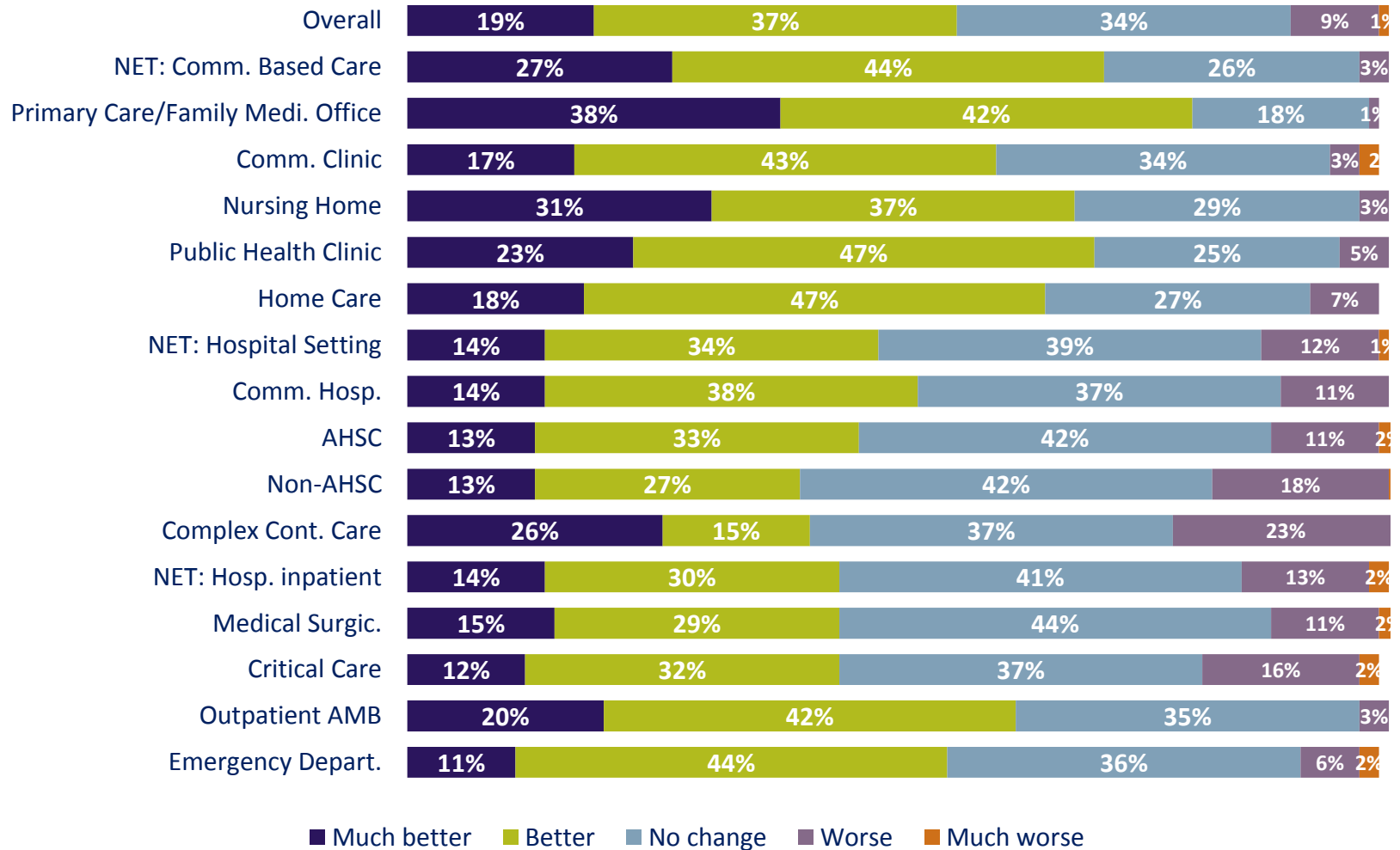


- Nurses exclusively using electronic record keeping systems are more likely to notice improved patient care since implementing electronic systems than nurses using a combination of electronic and paper systems (64% vs. 54%).
- Nurses who are new to the use of electronic systems (<1 year) are less likely to think the quality of patient care has gotten 'better or much better' since the implementation of electronic systems, whereas nurses with a history of use perceive a positive impact on the quality of care they provide.

Q15. Because of your use of electronic record /clinical information systems, the quality of the patient care you provide is:
2014: How has the quality of the patient care you provide changed since electronic records were implemented?
BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Impact of electronic record use on the quality of patient care; an increase from 2014 (cont'd)

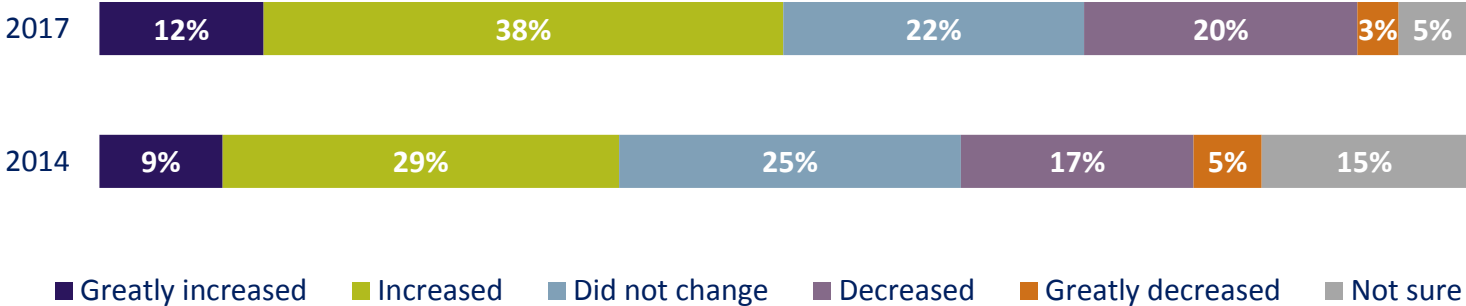
Change in quality of patient care since implementation of electronic record keeping



Q15. Because of your use of electronic record /clinical information systems, the quality of the patient care you provide is:
 2014: How has the quality of the patient care you provide changed since electronic records were implemented?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Impact of electronic record use on practice productivity; an increase from 2014.

Change in productivity since implementation of electronic record keeping

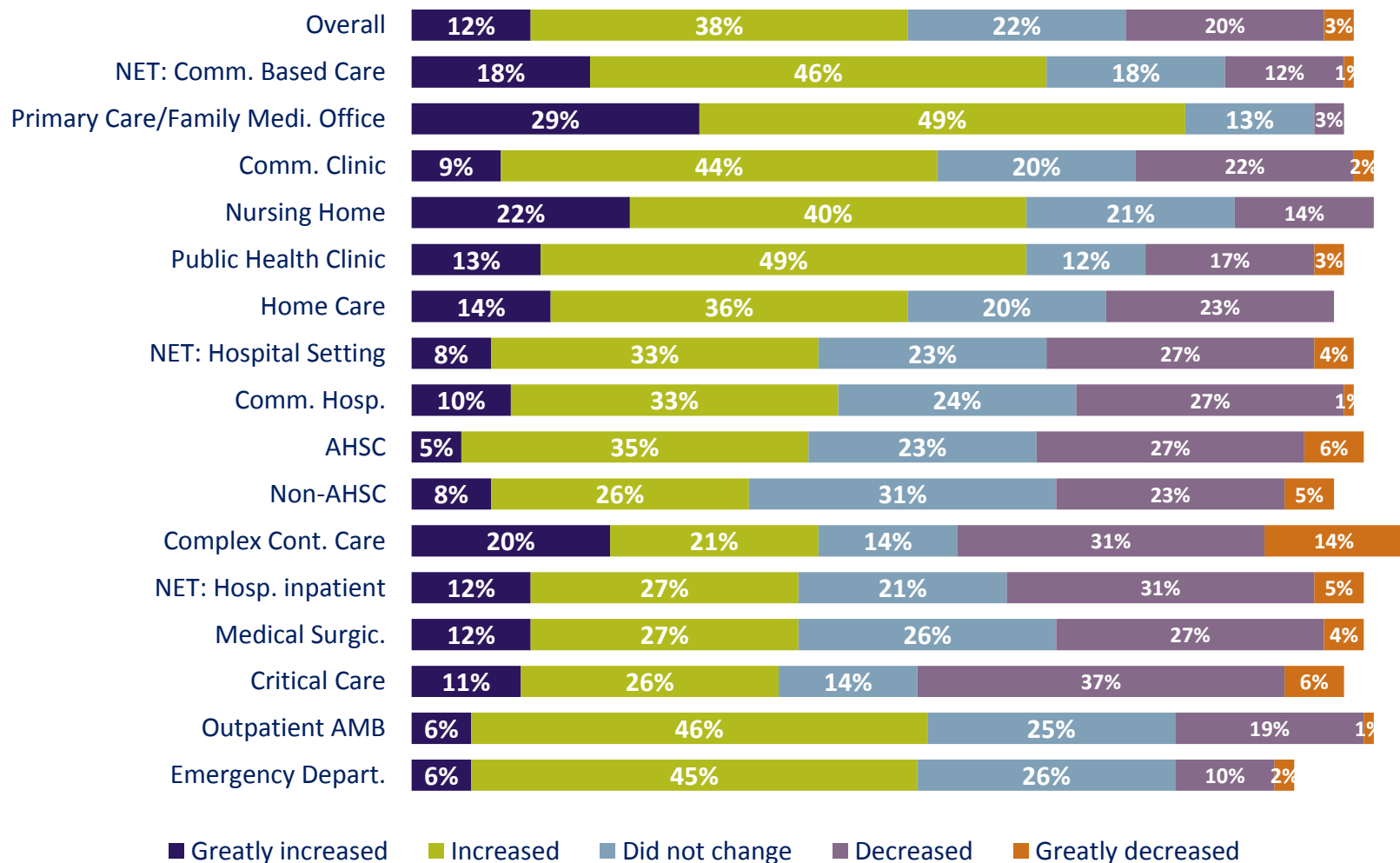


- Nurses exclusively using electronic record keeping systems are more likely to notice an increase in productivity since implementing electronic systems than nurses using a combination of electronic and paper systems (55% vs. 47%).
- Again, nurses who are new to the use of electronic systems (<1 year) are more likely to think their practice productivity has gotten worse since the implementation of electronic systems. This again suggests that there is a learning curve which may have a short term perceived negative impact on care before the full benefits are seen by nurses.

Q16. Because of your use of electronic records/clinical information systems, the productivity of your nursing practice has:
2014: Since electronic records were implemented, the productivity at your medical practice has:
BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Impact of electronic record use on practice productivity; an increase from 2014. (cont'd)

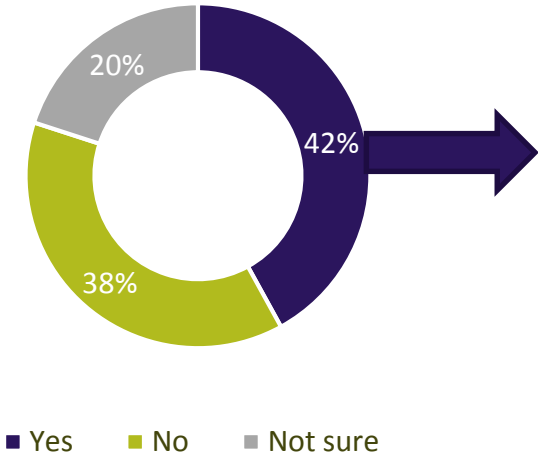
Change in productivity since implementation of electronic record keeping



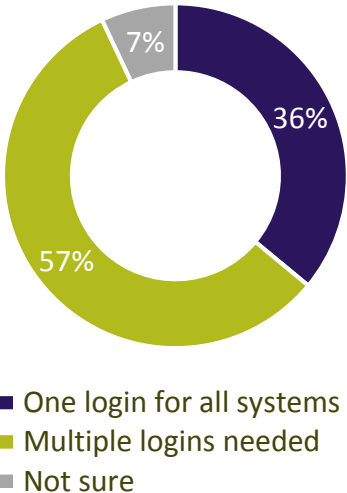
Q16. Because of your use of electronic records/clinical information systems, the productivity of your nursing practice has:
 2014: How has the quality of the patient care you provide changed since electronic records were implemented?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses access to provincial/territorial Electronic Health Record (EHR) patient information systems: e.g. Drug, Laboratory, or Diagnostic Imaging system

Have access to P/T patient information systems (EHR)



EHR logins required

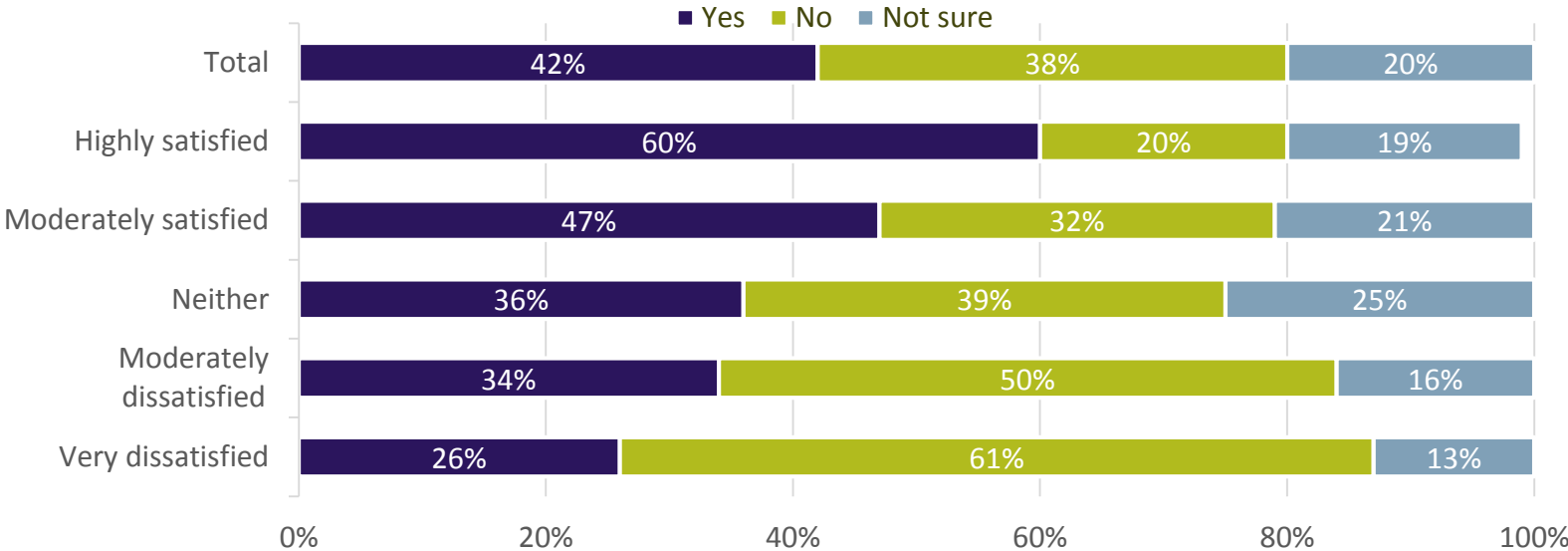


- Nurses in community care settings are more likely to say they have access to this system (52%).
- Meanwhile, Nurses who feel the electronic systems(s) they are using are adequate for their role are more apt to claim access to provincial/territorial EHR patient information systems (50%).
- Nurses new to electronic systems are less likely to say they have access to the EHR.

Q26. In your MAIN care setting, do you have access to provincial or territorial patient information systems (EHR)? For example, a provincial or territorial drug, laboratory, diagnostic imaging information system.
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)
 Q27. Does your access to the provincial or territorial patient information system have a single login process providing you direct access from the electronic record/ clinical information system you are using in your MAIN care setting?
 BASE: Nurses providing direct care to patients and using electronic record-keeping with P/T EHR access (n=454)

Nurses access to provincial/territorial Electronic Health Record (EHR) patient information systems and satisfaction with electronic systems in place

Have access to P/T patient information systems (EHR) by satisfaction with electronic systems



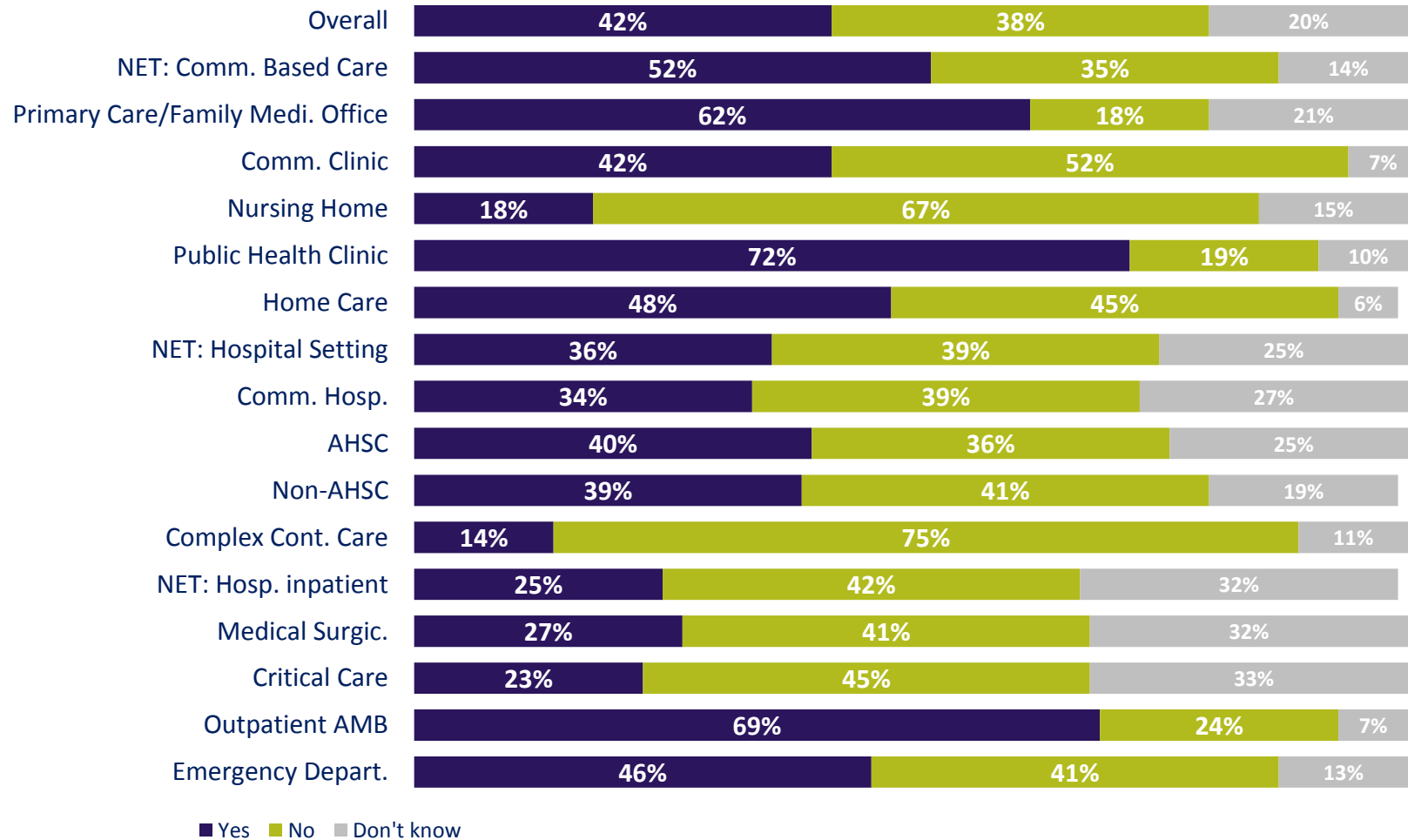
Q26. In your MAIN care setting, do you have access to provincial or territorial patient information systems (EHR)? For example, a provincial or territorial drug, laboratory, diagnostic imaging information system.

Q29. How satisfied are you with the electronic record/ clinical information systems that you currently use in your MAIN care setting?

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses access to provincial/territorial Electronic Health Record (EHR) patient information systems: e.g. Drug, Laboratory, or Diagnostic Imaging system (cont'd)

Have access to P/T patient information systems (EHR)

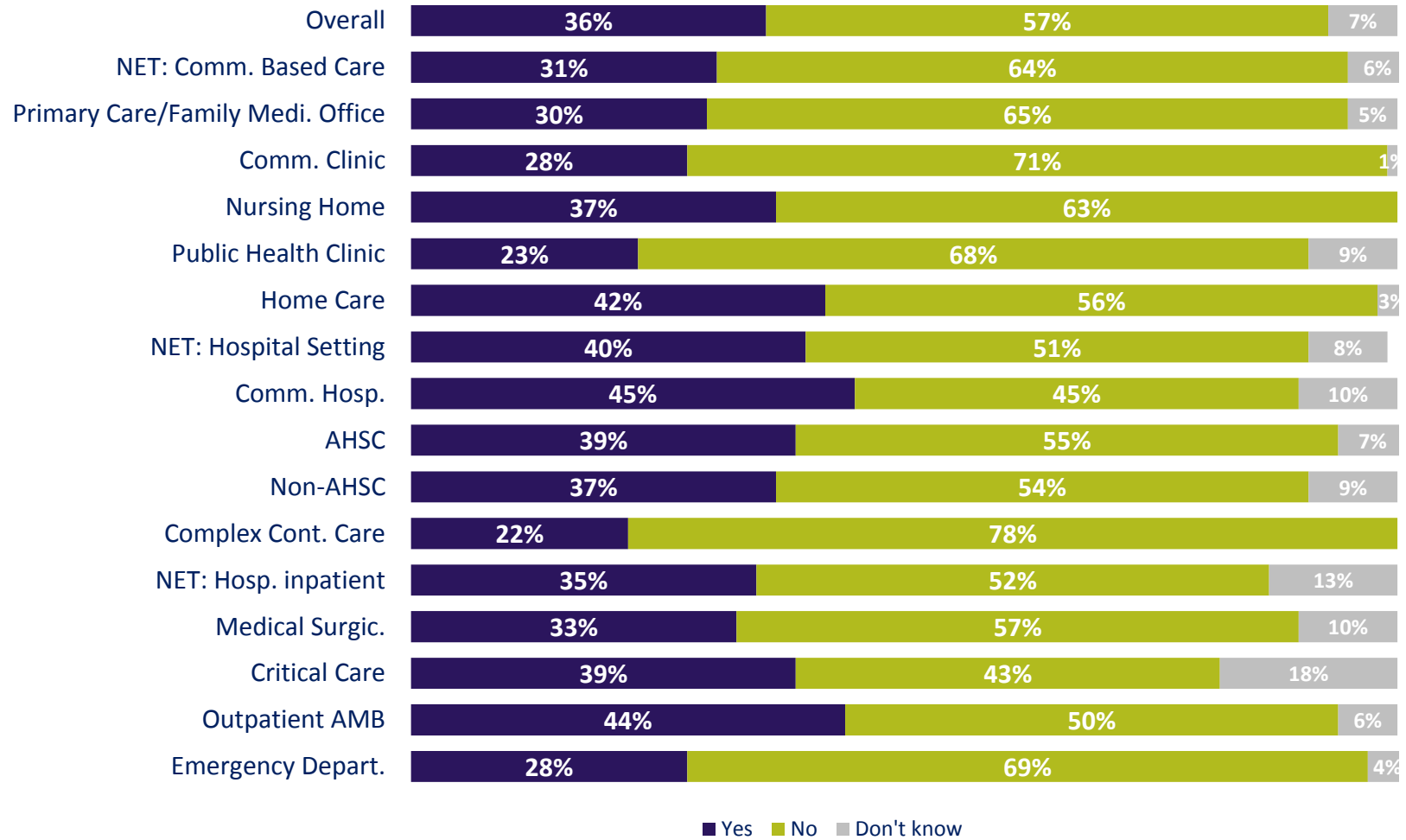


Q26. In your MAIN care setting, do you have access to provincial or territorial patient information systems (EHR)? For example, a provincial or territorial drug, laboratory, diagnostic imaging information system.

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses access to provincial/territorial Electronic Health Record (EHR) patient information systems: e.g. Drug, Laboratory, or Diagnostic Imaging system (cont'd)

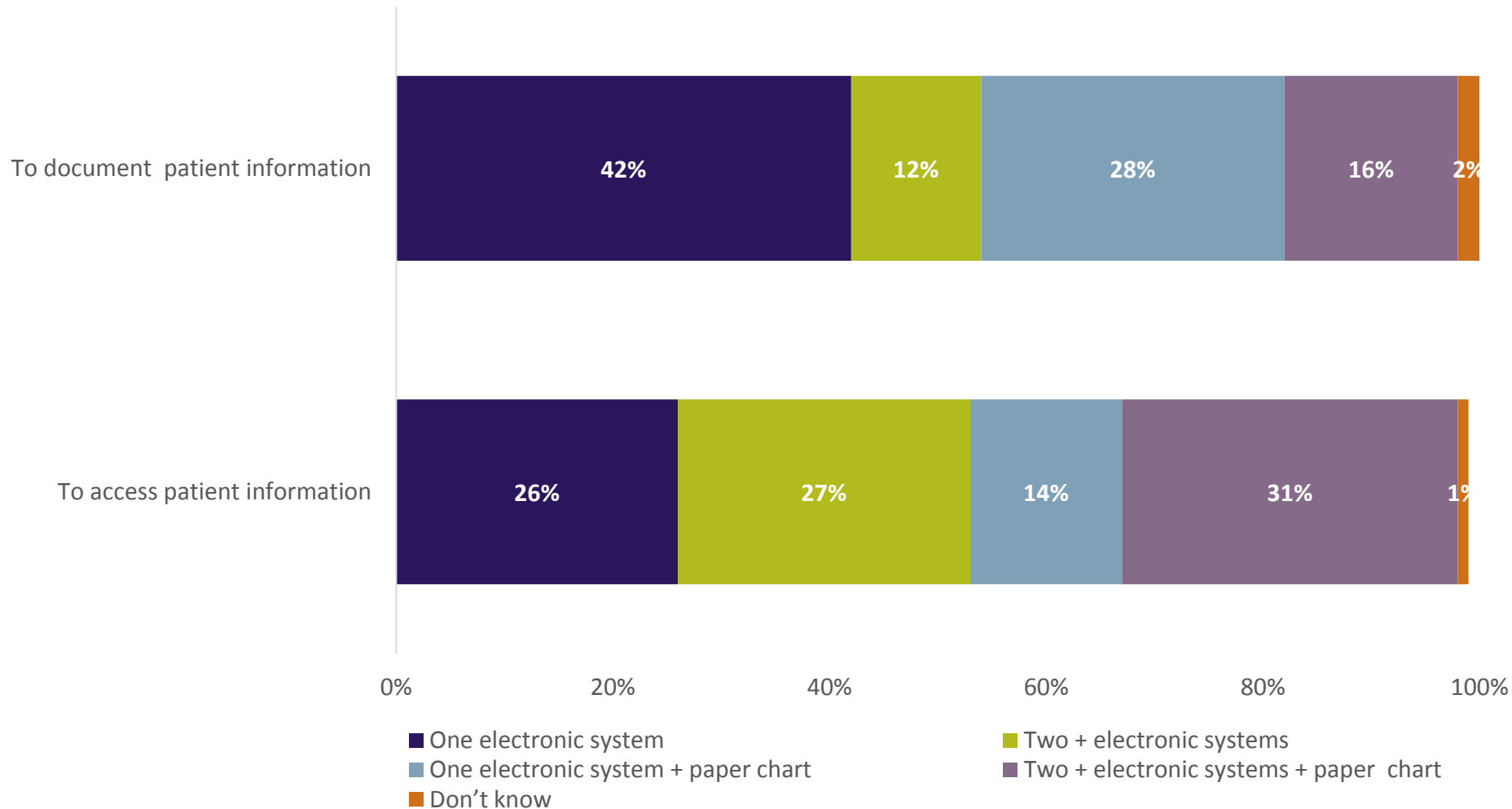
Single Sign On Access to EHR – Single login required



Q27. Does your access to the provincial or territorial patient information system have a single login process providing you direct access from the electronic record/clinical information system you are using in your MAIN care setting?

BASE: Nurses providing direct care to patients and using electronic record-keeping with P/T EHR access (n=454)

Variation in use of single vs. multiple electronic systems to access and document patient information during patient encounters



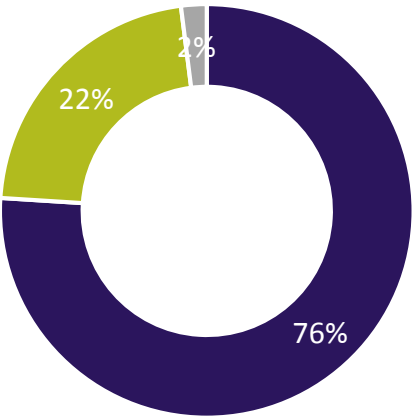
Q17. When accessing patient information in your MAIN care setting, how many electronic systems do you typically use to support a patient encounter? Electronic systems may include an EMR, Admission Discharge Transfer (ADT) system, lab viewer, drug profile viewer, or others.

Q18. When documenting patient information in your MAIN care setting, how many electronic and/or paper systems do you typically use for clinical documentation of a patient encounter? Electronic systems may include an EMR, Admission Discharge Transfer (ADT) system, lab viewer, drug profile viewer, or others

BASE: Nurses providing direct care to patients and using electronic record-keeping with multiple accounts (n=630)

Nurses use of multiple systems and login requirements

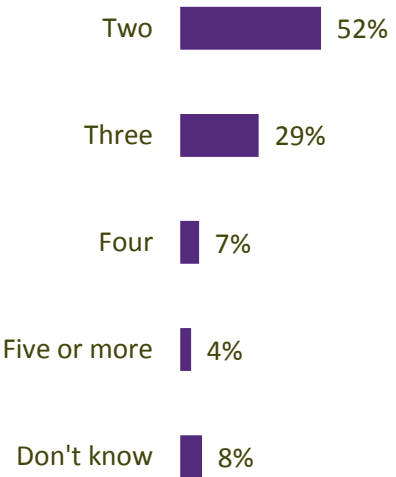
Use of multiple systems to support patient encounters: *Single vs. multiple logins*



- Multiple logins needed
- Only one login for all systems
- Don't know



Number of logins typically needed



Q22. Do all these electronic systems have a single login process?BASE: Those providing direct care to patients and using electronic record-keeping
BASE: Nurses providing direct care to patients and using electronic record-keeping with two or more systems (n=630)
Q23. How many logins are needed (to typically support a patient encounter)?
BASE: Nurses providing direct care to patients and using electronic record-keeping with two or more systems with multiple log-ins (n=487)

Access and use of specific electronic functionality

Please indicate which of the following you use in the care of your patients. <i>Check all that apply</i>	Use on stationary device		Use on mobile device	Available but do not have access	Not available
	2017	2014			
Electronic communication to other health professionals within my organization (e.g. secure e-mail or messaging)	76%	NA	7%	6%	7%
Electronic clinical documentation (e.g. assessments, progress notes)*	74%	63%*	3%	7%	10%
Electronic list of all medications taken by an individual patient	66%	53%	2%	11%	11%
Electronic ordering/order entry of laboratory tests	65%	53%	2%	13%	11%
Electronic access to provincial/territorial patient electronic health record systems (e.g. encounters, drug, laboratory, diagnostic images, discharge summaries)	60%	43%	2%	15%	10%
Electronic receipt of laboratory test results from external laboratory/diagnostic imaging	59%	45%	2%	11%	13%
Electronic ordering/order entry of diagnostic imaging tests (e.g. CT, mammogram, MRI)	54%	41%	1%	18%	13%
Electronic notification of hospital visit e.g. emergency, admission, discharge, death	51%	NA	2%	12%	14%
Electronic referral to other health care provider(s) (e.g. physician, physiotherapist, social worker, dietitian)	48%	35%	2%	12%	20%
Electronic patient care plans	48%	NA	2%	8%	20%
Electronic clinical decision support tool (e.g. dose calculator by weight, BMI calculator)	47%	41%	6%	8%	15%
Electronic medication reconciliation (includes Best Possible Medication History)	47%	NA	2%	14%	18%
Electronic communication to other health professionals outside my organization (e.g. secure e-mail or messaging)	47%	NA	7%	9%	17%

*denotes wording change from 2014: Electronic records to enter and retrieve clinical patient notes
 Q24. Please indicate which of the following you use in your MAIN care setting to support patient care.
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Access and use of specific electronic functionality, *continued*

Please indicate which of the following you use in the care of your patients. <i>Check all that apply</i>	Use on stationary device		Use on mobile device	Available but do not have access	Not available
	2017	2014			
Electronic ordering/order entry of patient care (e.g. turn and position every 2 hours)	43%	NA	1%	10%	20%
Electronic order entry/prescribing of patient medications	43%	NA	1%	22%	15%
Electronic reminders for recommended patient care following clinical practice guidelines e.g. due for mammogram, complete falls risk assessment	40%	29%	2%	8%	21%
Electronic warning for adverse prescribing and/or drug interactions	39%	25%	3%	11%	19%
Electronic transfer of patients' clinical health information securely to other health professionals	36%	24%	2%	12%	21%
Electronic flow sheet or checklist for management of patients with chronic disease. (e.g. clinical care pathway)	34%	21%	1%	9%	22%
Electronic communication with other health professionals outside my organization (e.g. virtual face-to-face e-consultation– e.g. telehealth consultation)	25%	NA	2%	18%	23%
Electronic interface to external pharmacy/pharmacist	24%	13%	1%	13%	25%

Q24. Please indicate which of the following you use in your MAIN care setting to support patient care.

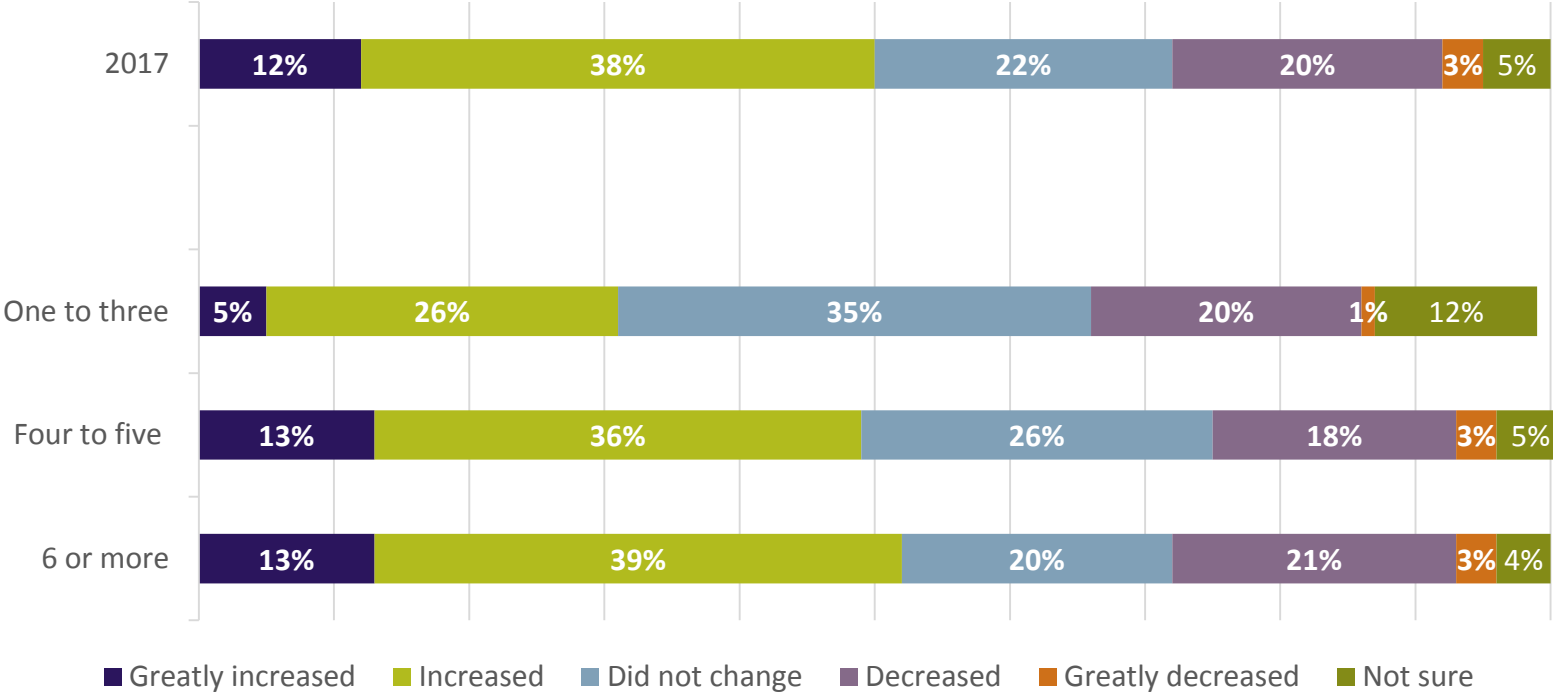
BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Additional analysis: Functionalities used

- The results from “access and use of specific electronic functionalities” were analyzed with regard to use of multiple functionalities to support patient care, with a particular focus on use of multiple functionalities and perceptions of productivity, quality of care, and satisfaction with electronic systems in use.
- An index was created based on the number of functionalities that are available to nurses providing direct patient care that are accessed by a computer or mobile by nurses:
 - None;
 - 1 to 3 functionalities;
 - 4 to 5 functionalities;
 - 6 or more functionalities.
- Note that the list was enhanced from 2014 to include more functionalities based on the current state of electronic systems available to nurses.
- In 2017, approximately six in ten nurses providing direct patient care report use of multiple functionalities to support patient care:
 - 63% report using 6 or more functionalities;
 - 8% use 4 to 5 functionalities;
 - 5% use 1 to 3 functionalities; and
 - 23% do not use any of the functionalities tested.

Impact of electronic record use on practice productivity; Increased productivity with more functionalities used

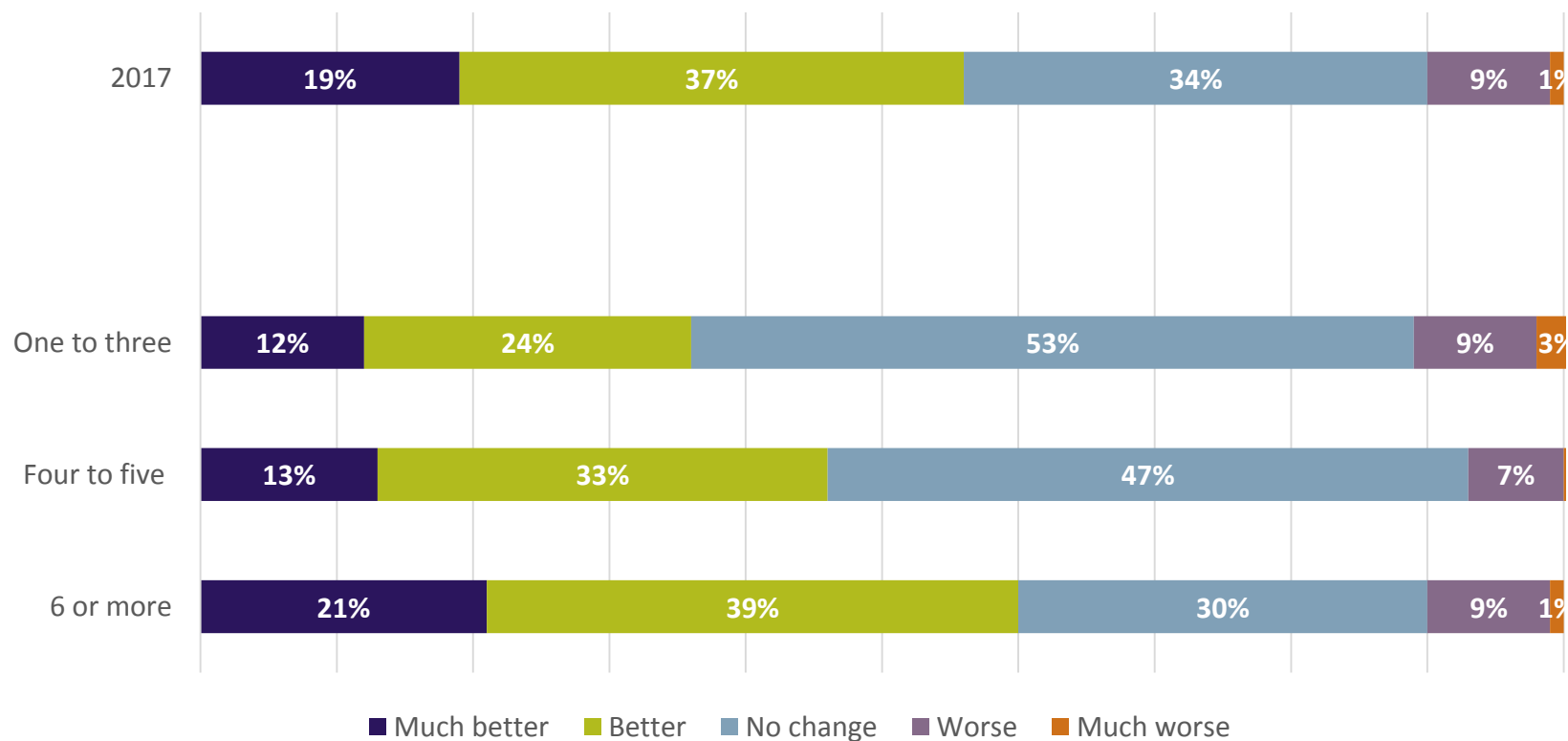
Change in productivity since implementation of electronic record keeping by number of functionalities used



Q16. Because of your use of electronic records/clinical information systems, the productivity of your nursing practice has:
 2014: How has the quality of the patient care you provide changed since electronic records were implemented?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Positive change in quality of patient care with more functionalities of electronic systems used

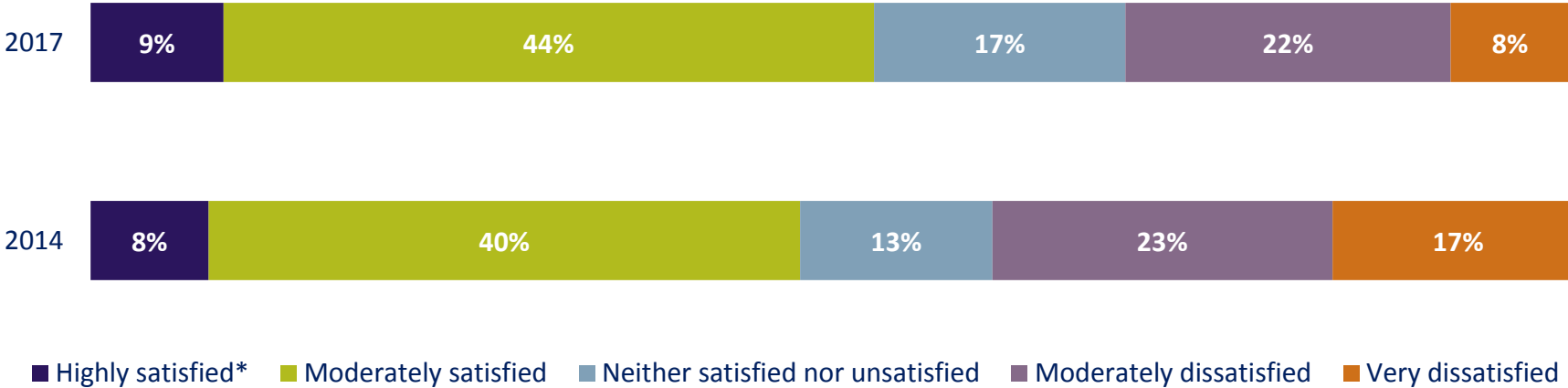
Change in quality of patient care since implementation of electronic record keeping by number of functionalities used



Q15. Because of your use of electronic record /clinical information systems, the quality of the patient care you provide is:
 2014: How has the quality of the patient care you provide changed since electronic records were implemented?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Over half are satisfied to some extent with the electronic information systems used in their practice; there has been an increase in *satisfaction* from 2014

Level of satisfaction with electronic record/clinical information systems



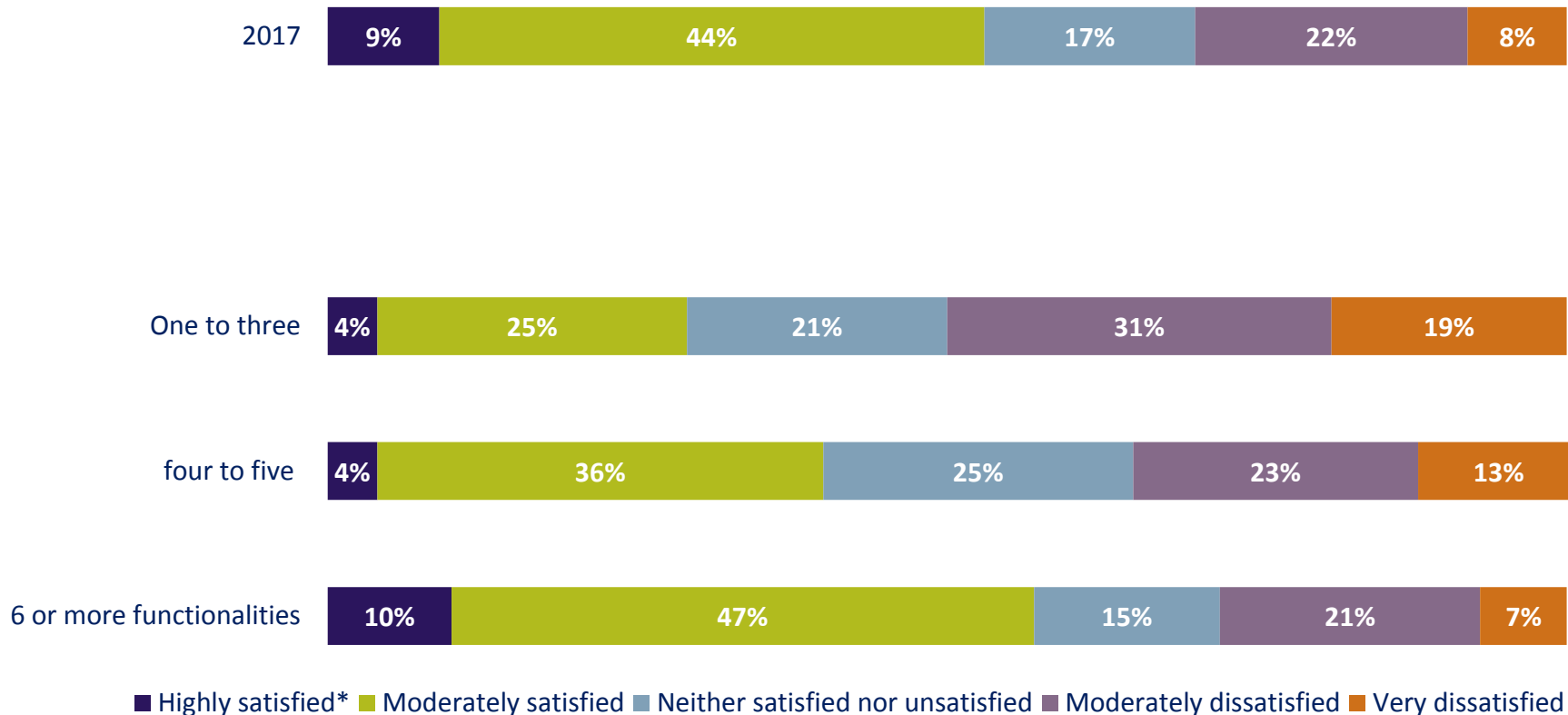
*2014: Very satisfied

- Regionally, nurses in Alberta (63%) express higher levels of satisfaction than others.
- Meanwhile, nurses with at least 25 years experience in practice (12%) are more likely to be *highly* satisfied with their electronic systems. Moreover, practitioners in community care settings express higher degrees of satisfaction than those in other settings (61%).
- Nurses who are using electronic systems exclusively are more satisfied than those using a combination of paper and electronic (71% vs. 46%).
- By contrast, nurses who have been using systems to enter information for less than a year are less likely to be satisfied with their electronic systems.

Q29. How satisfied are you with the electronic record/ clinical information systems that you currently use in your MAIN care setting?
 2014: How satisfied are you with the electronic clinical information and tools that you currently use in your practice?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Satisfaction is higher among nurses with more electronic functionalities

Level of satisfaction with electronic record/clinical information systems by number of functionalities used



*2014: Very satisfied

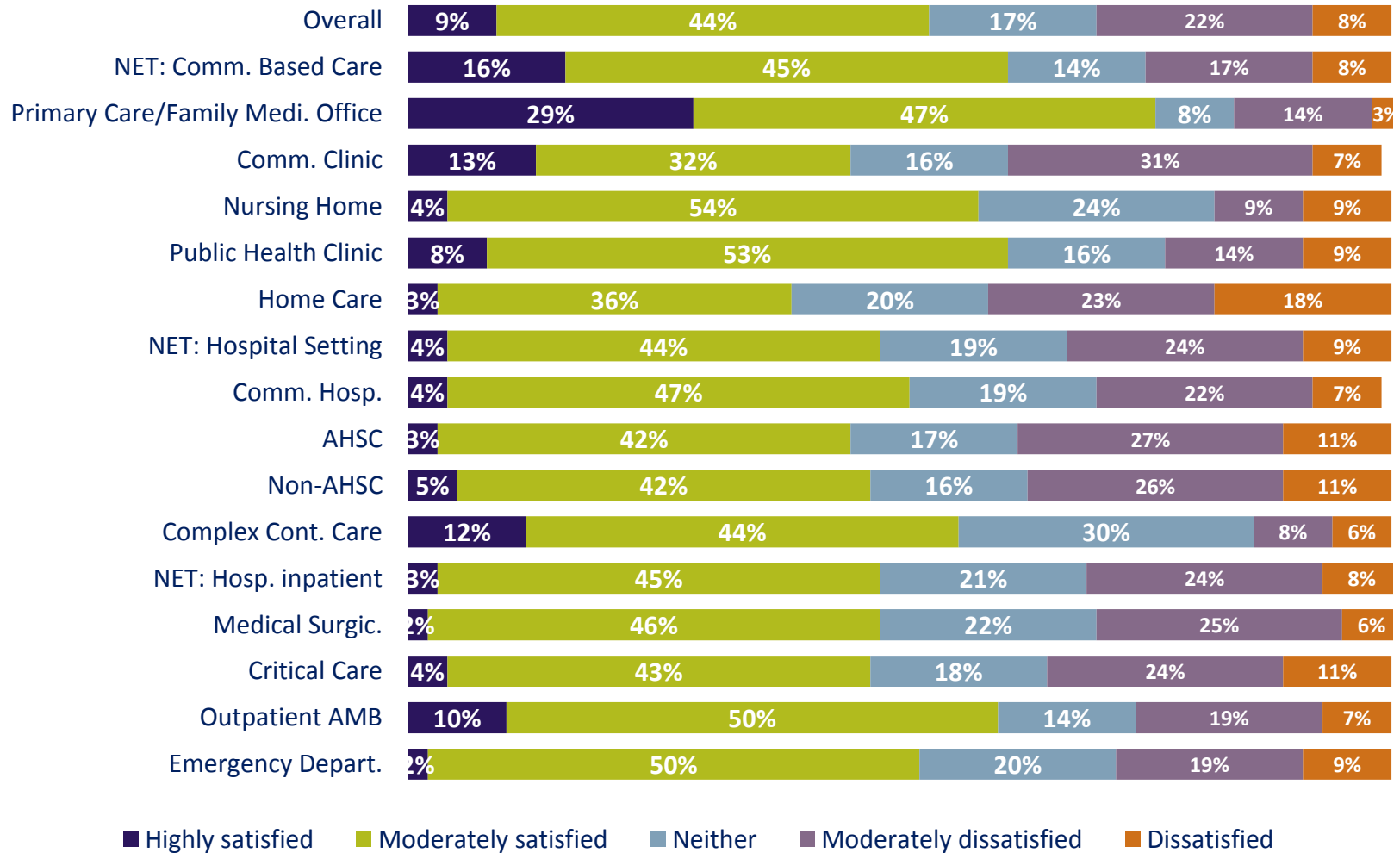
Q29. How satisfied are you with the electronic record/ clinical information systems that you currently use in your MAIN care setting?

2014: How satisfied are you with the electronic clinical information and tools that you currently use in your practice?

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Over half are satisfied to some extent with the electronic information systems used in their practice; there has been an increase in *satisfaction* from 2014 (cont'd)

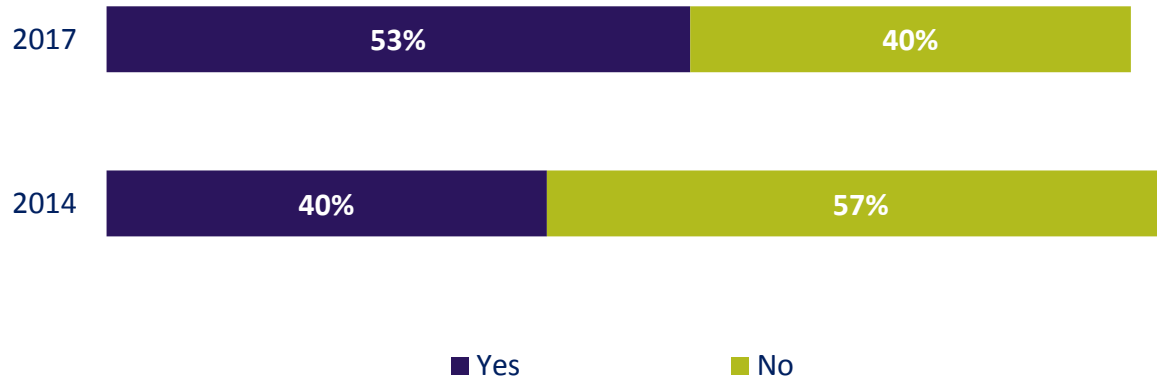
Level of satisfaction with electronic record/clinical information systems



Q29. How satisfied are you with the electronic record/ clinical information systems that you currently use in your MAIN care setting?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Adequacy of electronic/ clinical information systems for their role are adequate for the majority of nurses; an increase from 2014.

Types of electronic clinical information systems/tools are adequate for your role



- Nurses practicing in care settings that exclusively use electronic records to enter/retrieve patient clinical information are more likely to say their electronic/clinical information systems are adequate for their role in comparison to nurses whose main care setting uses a combination electronic and paper systems to enter/retrieve patient clinical information (71% vs. 45%).
- As might be expected, nurses who are satisfied with their system and see an improvement in patient care are more apt to believe that the systems in place are adequate for their role. Moreover, those who feel that the patient care they provide as a result of electronic systems has improved are also more apt to say their current systems are adequate for their role.

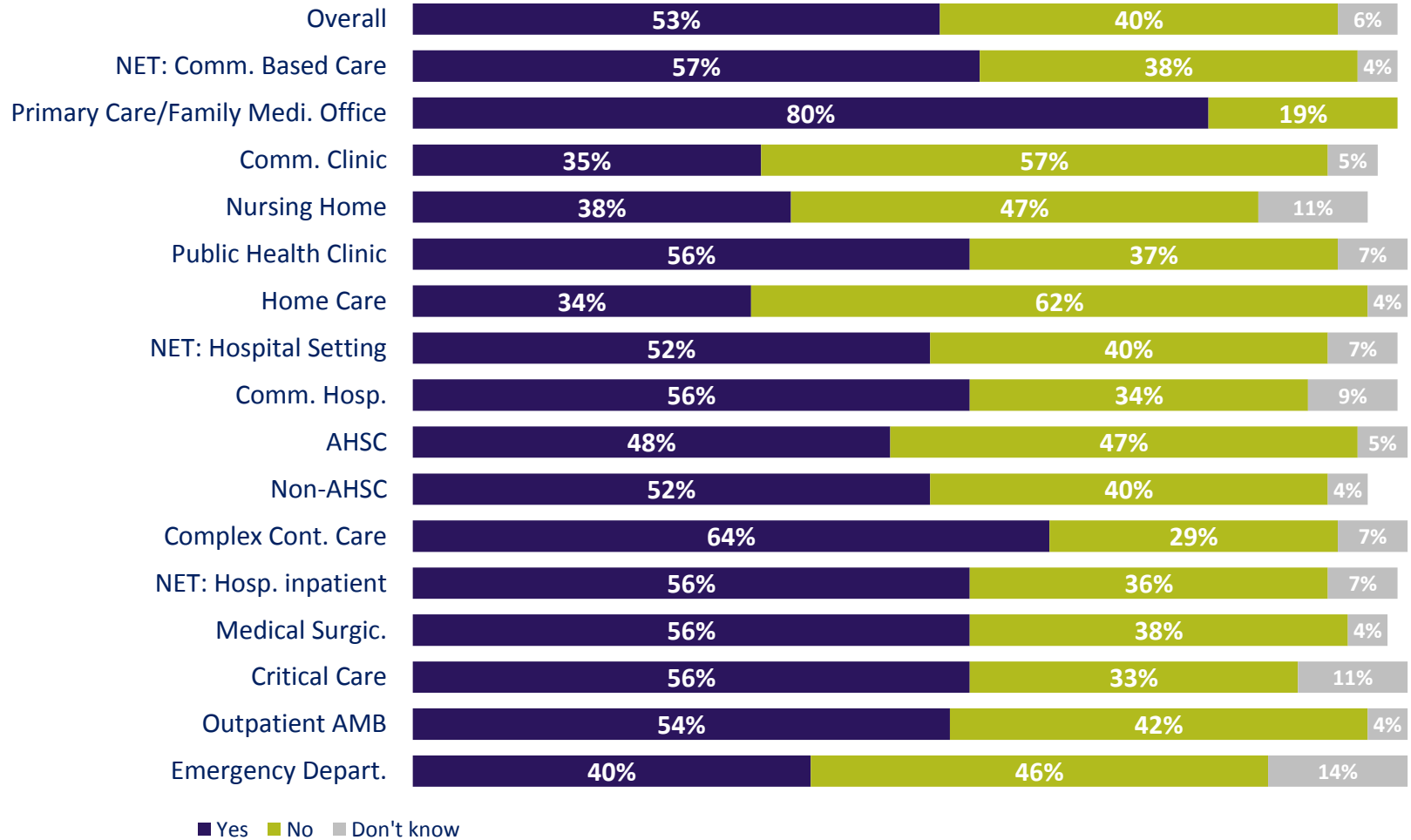
Q28. Do you consider that the types of electronic record/ clinical information systems you are using in your MAIN care setting are adequate for your role?

2014: Do you consider that the types of electronic clinical information systems and tools you are using in your practice adequate for your role?

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Adequacy of electronic/ clinical information systems for their role are adequate for the majority of nurses; an increase from 2014. (cont'd)

Types of electronic clinical information systems/tools are adequate for your role



Q28. Do you consider that the types of electronic record/ clinical information systems you are using in your MAIN care setting are adequate for your role?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses are most familiar with Informatics Entry-to-Practice Competencies for RNs and are least familiar with LOINC Nursing Physiologic Assessment Panel

Use of various tools

	Familiar			Use			Not familiar		
	Total	Nurses providing direct patient care	Nurses in supervisory role	Total	Nurses providing direct patient care	Nurses in supervisory role	Total	Nurses providing direct patient care	Nurses in supervisory role
Nursing Informatics Entry-to-Practice Competencies for Registered Nurses	35%	30%	35%	10%	7%	10%	60%	67%	60%
Canadian Health Outcomes for Better Information in Care (C-HOBIC)	18%	10%	17%	4%	2%	5%	80%	88%	80%
International Classification for Nursing Practice (ICNP)	17%	10%	18%	2%	1%	3%	81%	90%	81%
Infoway National Change Management Framework	13%	6%	13%	3%	1%	2%	85%	93%	86%
CASN Faculty Teaching Toolkit	10%	5%	12%	3%	2%	3%	88%	93%	86%
SNOMED CT	10%	4%	10%	2%	1%	3%	88%	95%	89%
Consumer Health Solutions	8%	6%	8%	2%	1%	2%	91%	93%	91%
Logical Observation Identifiers Names and Codes (LOINC) nursing physiological assessment panel	6%	2%	5%	1%	1%	1%	94%	97%	95%

Q56. Please Indicate if you are familiar with or use the following *Check all that apply*

BASE: All respondents (n=2,058)



Confidence in use, engagement, implementation, training and ongoing learning and development

A majority of nurses feel confident in using electronic tools, an increase from 2014

Confidence in using electronic tools



- Nurses in Quebec (47%) are more likely to say they are very confident in using the electronic systems in their main care setting. Nurses in community care settings are more likely to be confident in using electronic tools than those working in hospitals (46% vs. 35%).
- Nurses who are using electronic records exclusively to enter / retrieve patient clinical notes are more likely to say they are very confident using electronic tools in comparison to nurses using combination electronic and paper (44% vs. 36%). Nurses with more than one year of experience using electronic systems to both view and enter clinical notes are more likely to say they are very confident in using electronic tools as compared to those who have been using electronic systems for less than 1-year (28% and 26% very confident with less than 1 year experience, up to 42% and 47% for more than 6 years experience).
- Lastly, nurses who are highly satisfied with their system(s) and with the quality of training and access to ongoing learning are more likely to say they are very confident in their current use of system(s) in their main care setting.

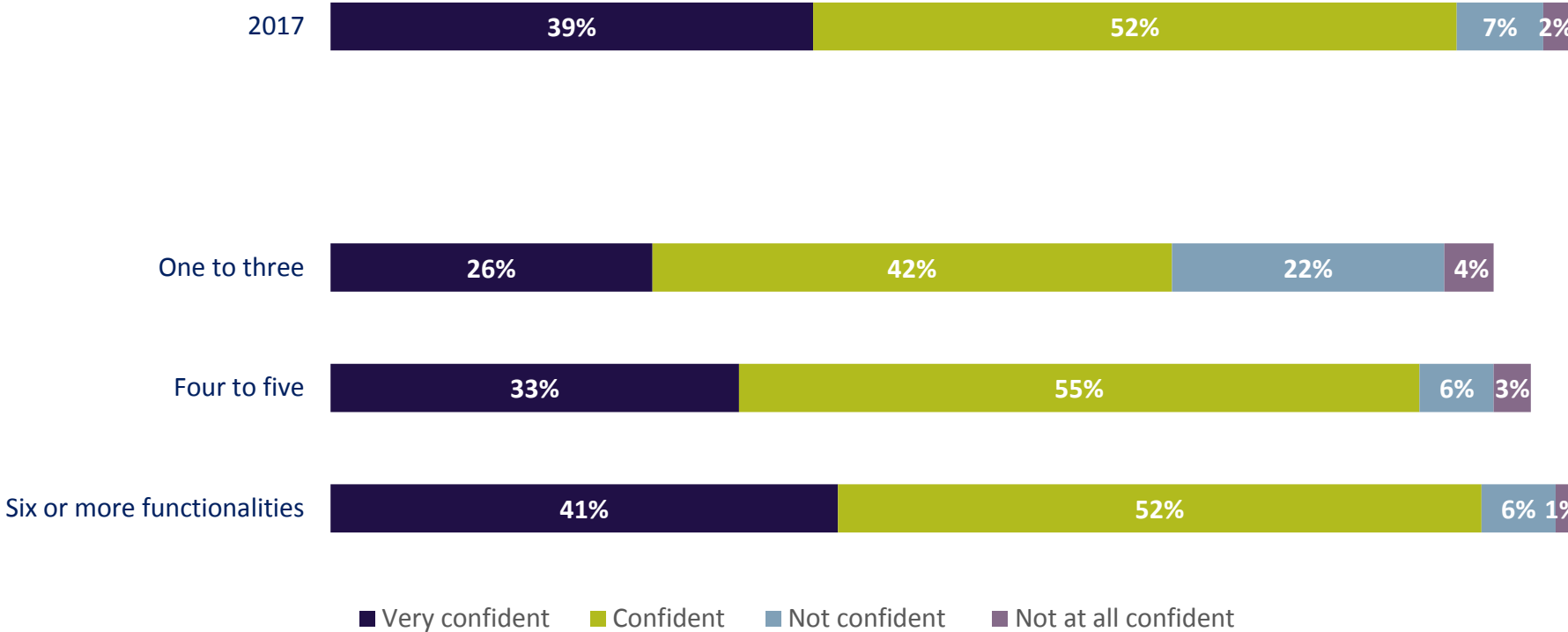
Q32. How would you rate your confidence in using the electronic record/ clinical information systems in your MAIN care setting?

2014: How has the quality of the patient care you provide changed since electronic records were implemented?

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Confidence increases with more electronic functionalities used

Confidence in using electronic tools by number of electronic functionalities used



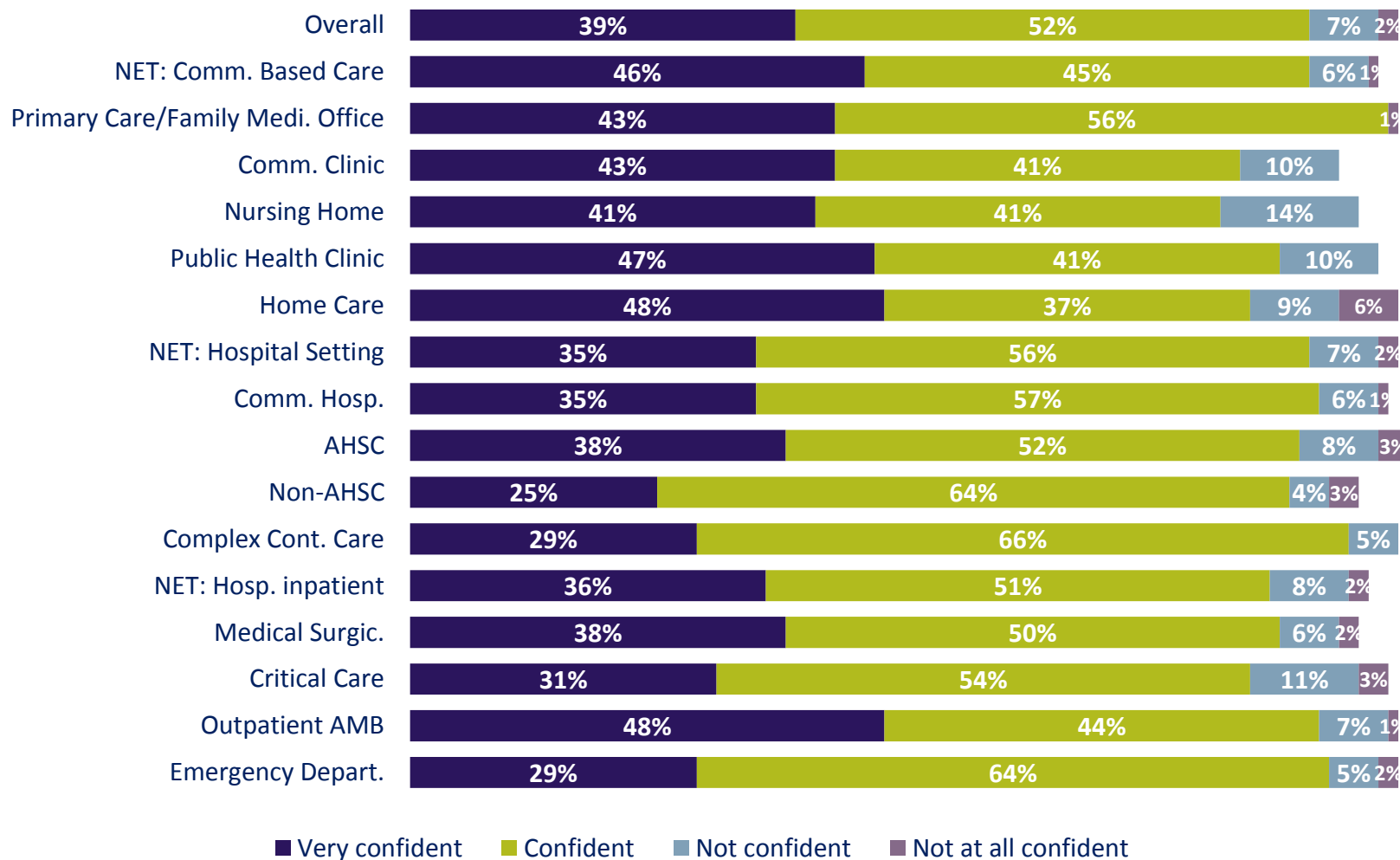
Q32. How would you rate your confidence in using the electronic record/ clinical information systems in your MAIN care setting?

2014: How has the quality of the patient care you provide changed since electronic records were implemented?

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

A majority of nurses feel confident in using electronic tools, an increase from 2014 (cont'd)

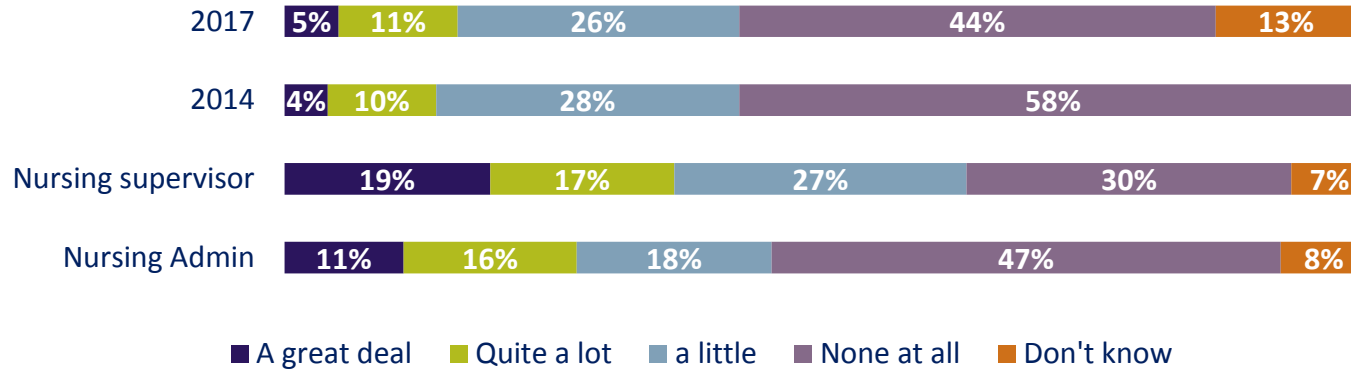
Confidence in using electronic tools



Q32. How would you rate your confidence in using the electronic record/ clinical information systems in your MAIN care setting?
 2014: How has the quality of the patient care you provide changed since electronic records were implemented?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

A minority or nurses feel that they were consulted about decisions to introduce electronic records and this is unchanged from 2014

Consultation with you about decisions to introduce electronic records/ Clinical information tools



- Regionally, nurses in Quebec are more likely to say that they were not consulted at all (61%) in comparison to nurses in other regions. Nurses in Alberta (24%) and Ontario (20%) are more likely to say they were consulted a great deal or quite a lot.
- Nurses who feel that their current systems are adequate for their role are more likely to say they were consulted a great deal or quite a lot than those who do not feel their systems are adequate for their role (22% vs. 10%).
- Lastly, those who are more satisfied with their systems are more apt to say they were consulted at least quite a lot than those who are dissatisfied.
- Three percent of nurses who say no consultation was undertaken feel that their peers were adequately consulted about decisions to introduce electronic systems.

Q35. How much consultation has there been (or was there) with you about decisions to introduce electronic records/ clinical information systems and tools in your MAIN care setting?

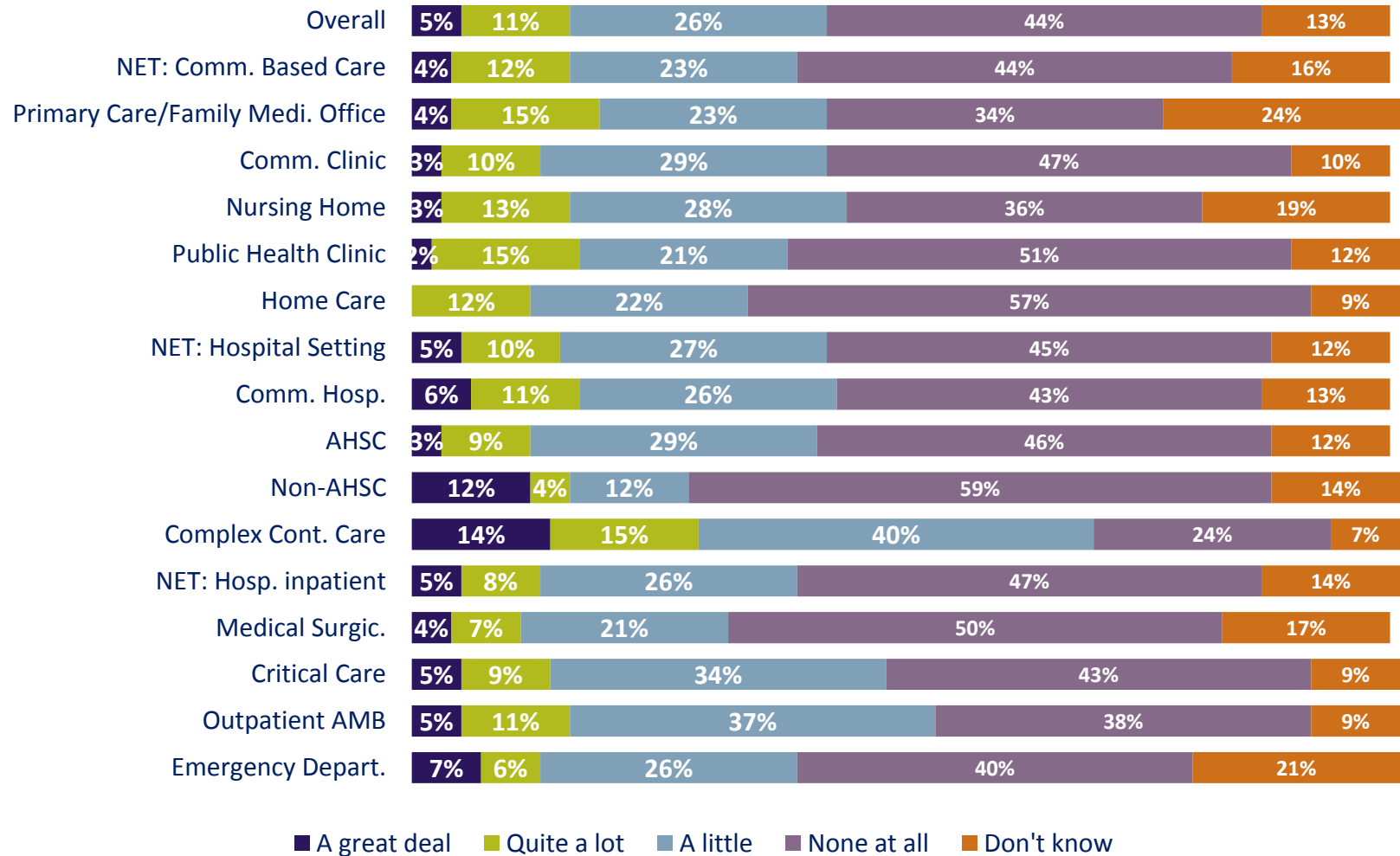
BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Q36. In your opinion, were your nursing peers adequately consulted about decisions to introduce electronic records/ clinical information systems and tools in your MAIN care setting?

BASE: Nurses providing direct care to patients and using electronic record-keeping and were not consulted at all (n=451)

A minority or nurses feel that they were consulted about decisions to introduce electronic records and this is unchanged from 2014 (cont'd)

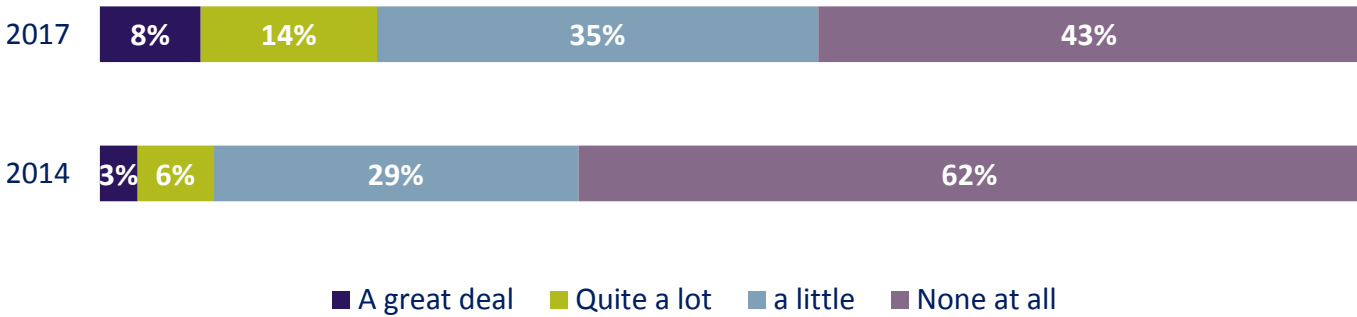
Consultation with you about decisions to introduce electronic records/ Clinical information tools



Q35. How much consultation has there been (or was there) with you about decisions to introduce electronic records/ clinical information systems and tools in your MAIN care setting?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Increased engagement of nurses providing input on the use of electronic/ clinical information systems in their care setting

Input on the use electronic records/ Clinical information tools



- Nurses who feel that their current systems are adequate for their role are more likely to say they have had a great deal or quite a lot of input on the use of electronic systems than those who do not feel their systems are adequate for their role (28% vs. 16%).
- Nine percent of nurses who say they were not able to provide input “at all” say they feel their peers were able to provide input on the use of electronic systems.

Q37. How much have you been able to have input on the use of electronic records/ clinical information systems and tools in your MAIN care setting?

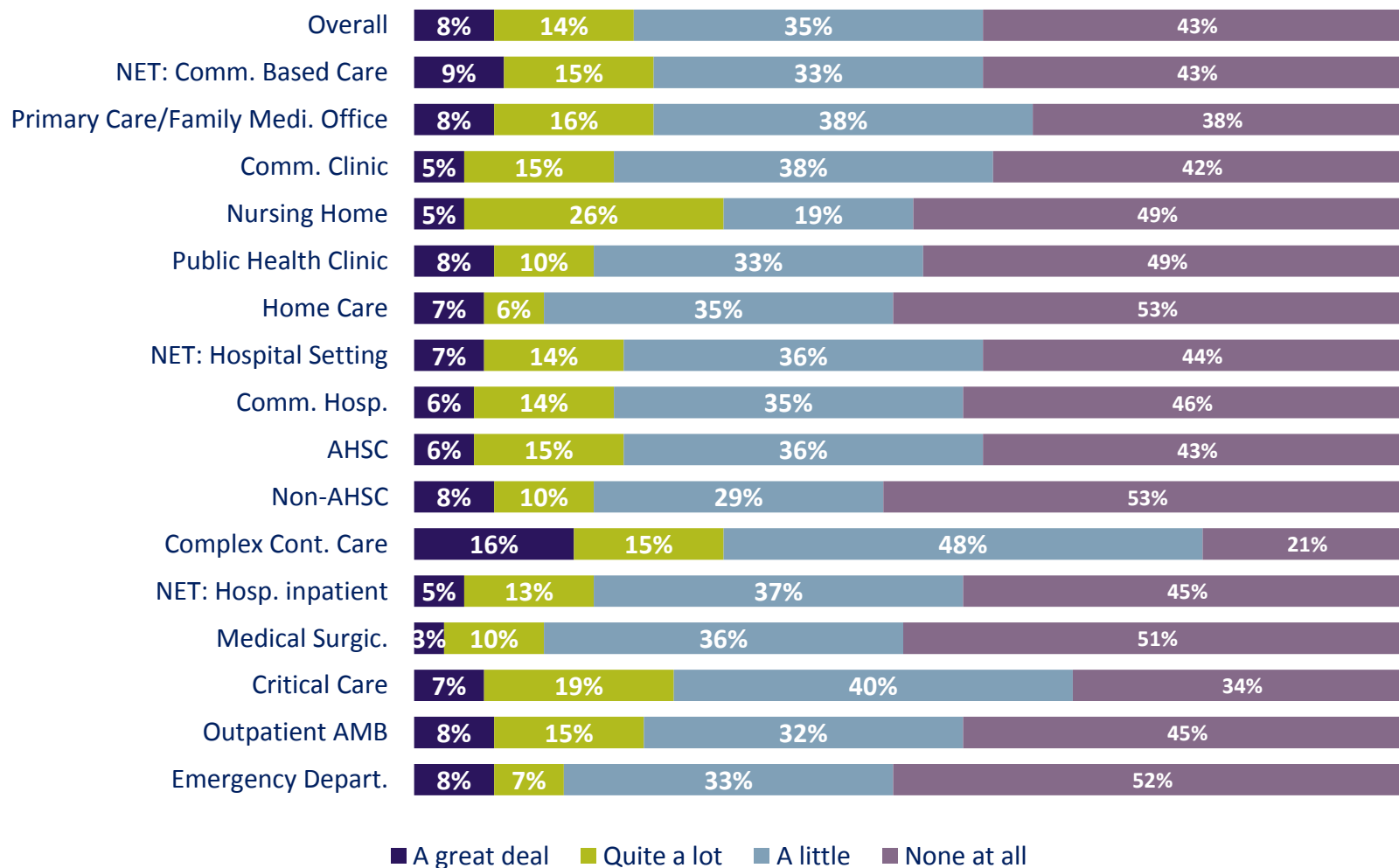
BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Q38. In your opinion, were your nursing peers able to provide input on the use of electronic records/ clinical information systems and tools in your MAIN care setting?

BASE: Nurses providing direct care to patients and using electronic record-keeping and no input at all (n=432)

Increased engagement of nurses providing input on the use of electronic/ clinical information systems in their care setting (cont'd)

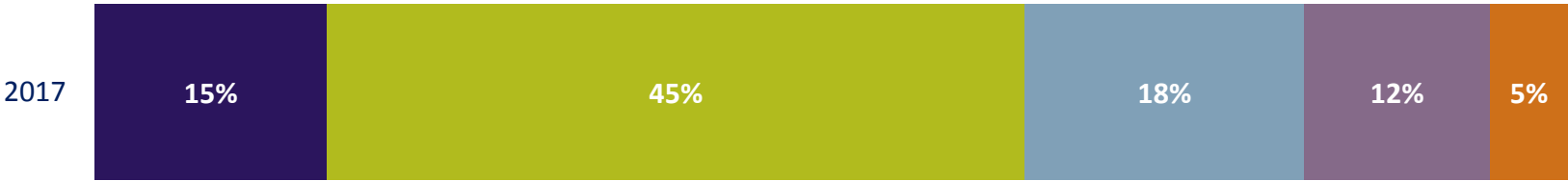
Input on the use electronic records/ Clinical information tools



Q37. How much have you been able to have input on the use of electronic records/ clinical information systems and tools in your MAIN care setting?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses satisfaction with the quality of formal training to support their use of electronic record/clinical information systems

Level of satisfaction with quality of formal training they received

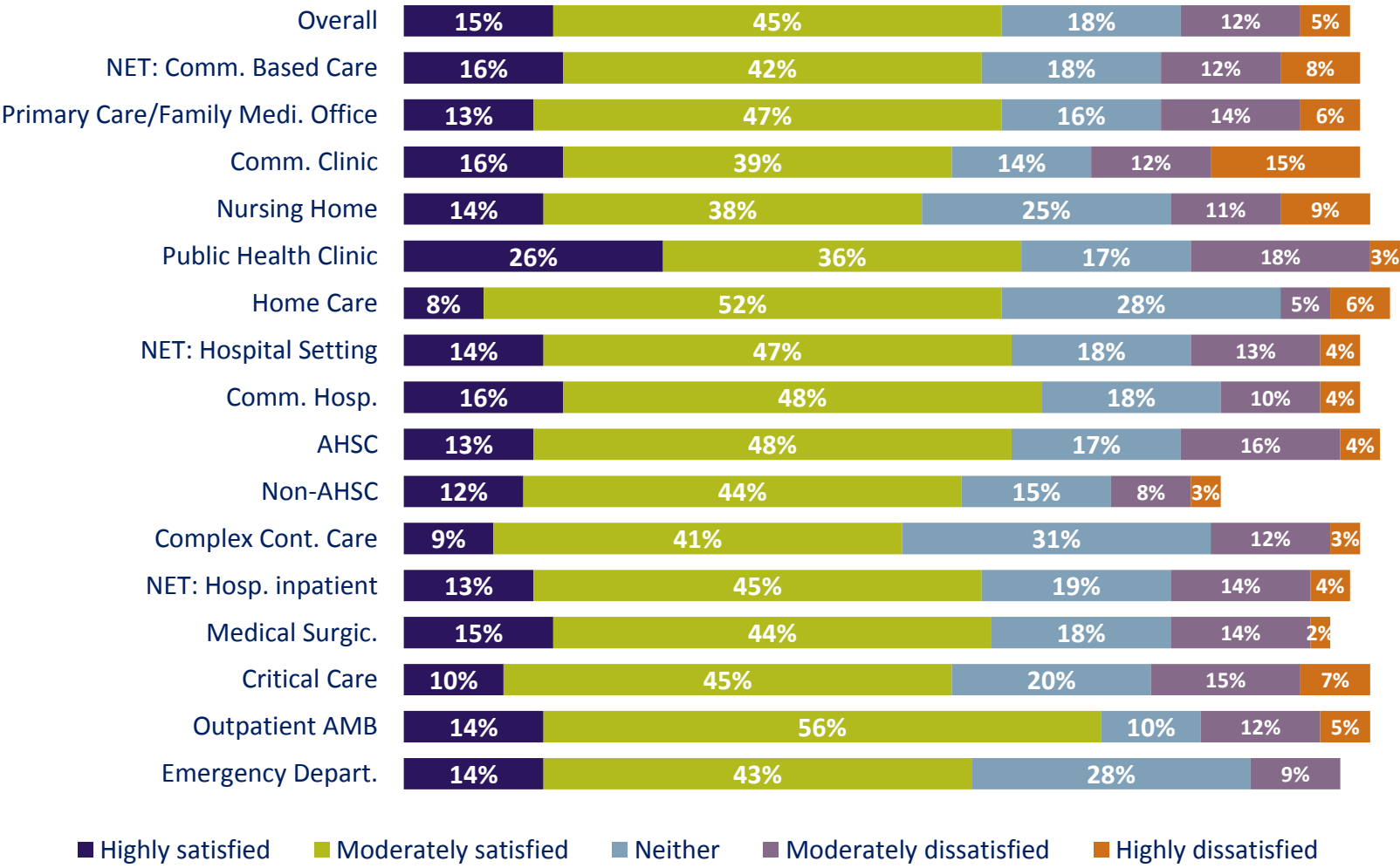


■ Highly satisfied ■ Moderately satisfied ■ Neither satisfied nor unsatisfied ■ Moderately dissatisfied ■ Very dissatisfied

The 2014 survey asked about adequacy of training as a "yes/no". Therefore there are no tracking results.
Q33. How satisfied are you with the quality of the formal training you may have received to support your use of electronic record/ clinical information systems in your MAIN care setting?
BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses satisfaction with the quality of formal training to support their use of electronic record/clinical information systems (cont'd)

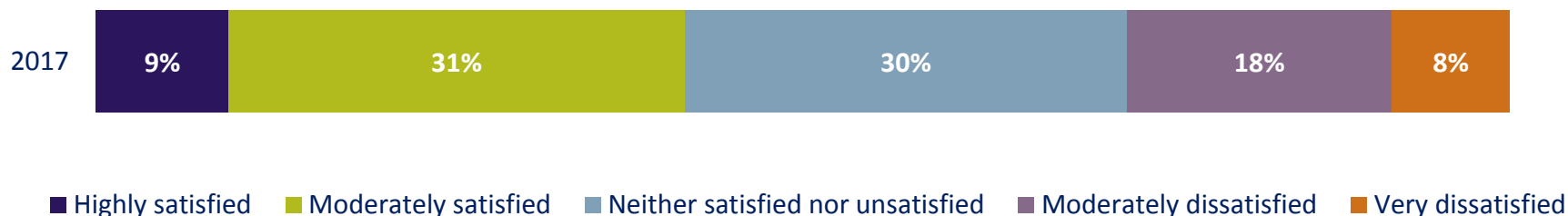
Level of satisfaction with quality of formal training they received



The 2014 survey asked about adequacy of training as a "yes/no". Therefore there are no tracking results.
 Q33. How satisfied are you with the quality of the formal training you may have received to support your use of electronic record/ clinical information systems in your MAIN care setting?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses satisfaction with ongoing learning and development training to advance their use of electronic records/ clinical information systems

Level of satisfaction with ongoing learning



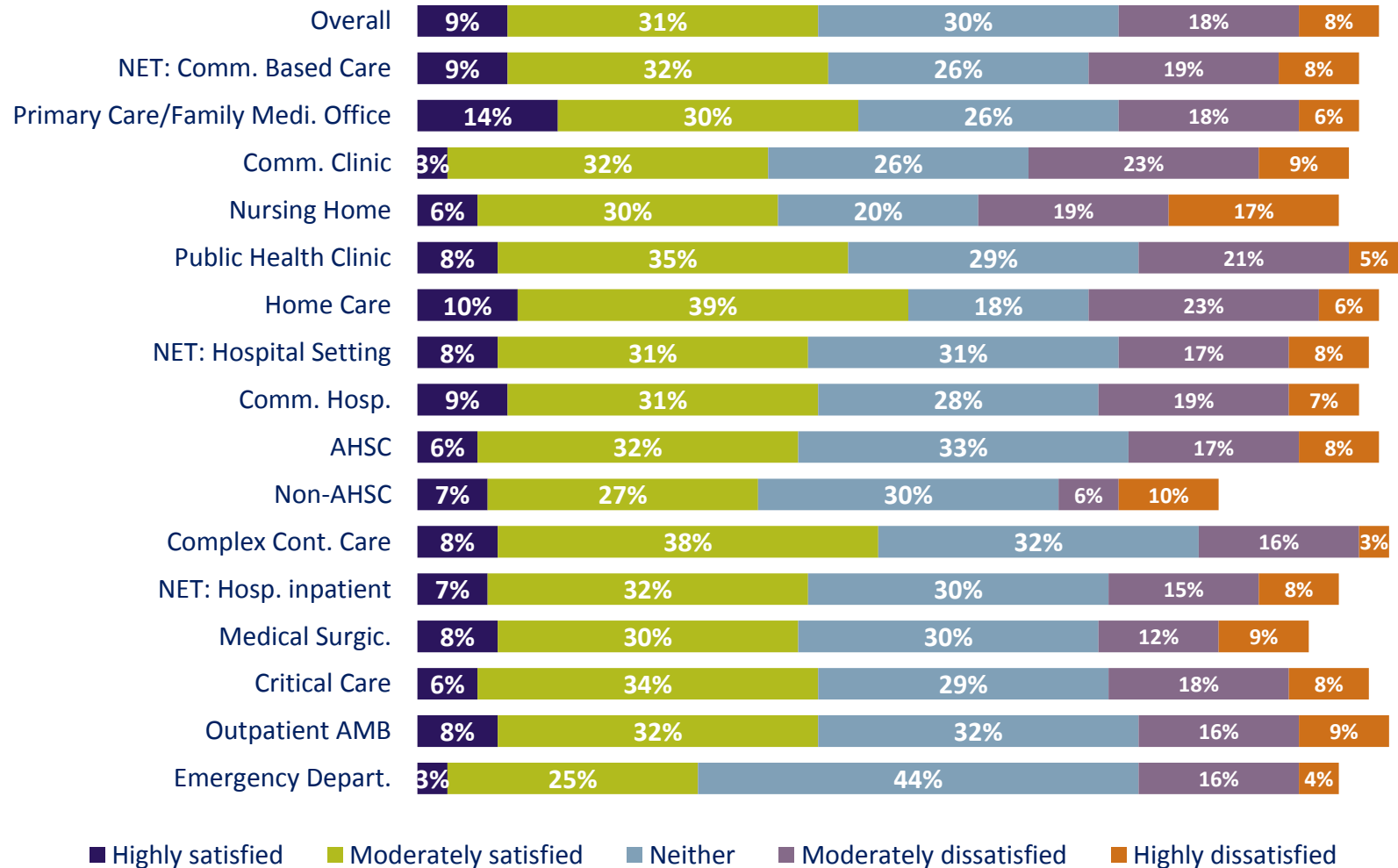
- Again, nurses who are highly satisfied with their systems are also more apt to be satisfied with the level of ongoing learning available.

Q34. How satisfied are you with your access to ongoing learning and development training to advance your use of electronic records/ clinical information systems in your MAIN care setting?

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Nurses satisfaction with ongoing learning and development training to advance their use of electronic records/ clinical information systems (cont'd)

Level of satisfaction with ongoing learning



Q34. How satisfied are you with your access to ongoing learning and development training to advance your use of electronic records/ clinical information systems in your MAIN care setting?
 BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)



Benefits and Barriers

Improved continuity of care, communication and coordination of care are the most positive impacts of nurses use of electronic records on quality of care

Impact of use on quality of nursing care during face-to-face encounters

	Positive	Neutral	Negative	NA
Improving continuity of patient care	71%	17%	11%	1%
Improving care team communication	69%	17%	11%	2%
Improving coordination of patient care	64%	21%	9%	3%
Improving turnaround time for lab/diagnostic results to make clinical decisions	63%	25%	8%	7%
Improving how nursing care is reported	63%	22%	14%	2%
Improving patient safety	63%	25%	11%	2%
Improving clinical decision making	62%	26%	11%	2%
Providing care (that meets) (according to) clinical practice guidelines	58%	26%	13%	4%
Enabling continuous quality improvement efforts and tracking	55%	29%	12%	5%
Helping you identify needed lab tests	52%	29%	8%	8%

Q40. Thinking about your practice in your MAIN care setting, rate the impact of your use of electronic record/clinical information systems in the quality of nursing care you provide during a face-to-face encounter:

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Impact of use on quality of nursing care during face-to-face encounters, *Continued*

Impact of use on quality of nursing care (Cont'd)

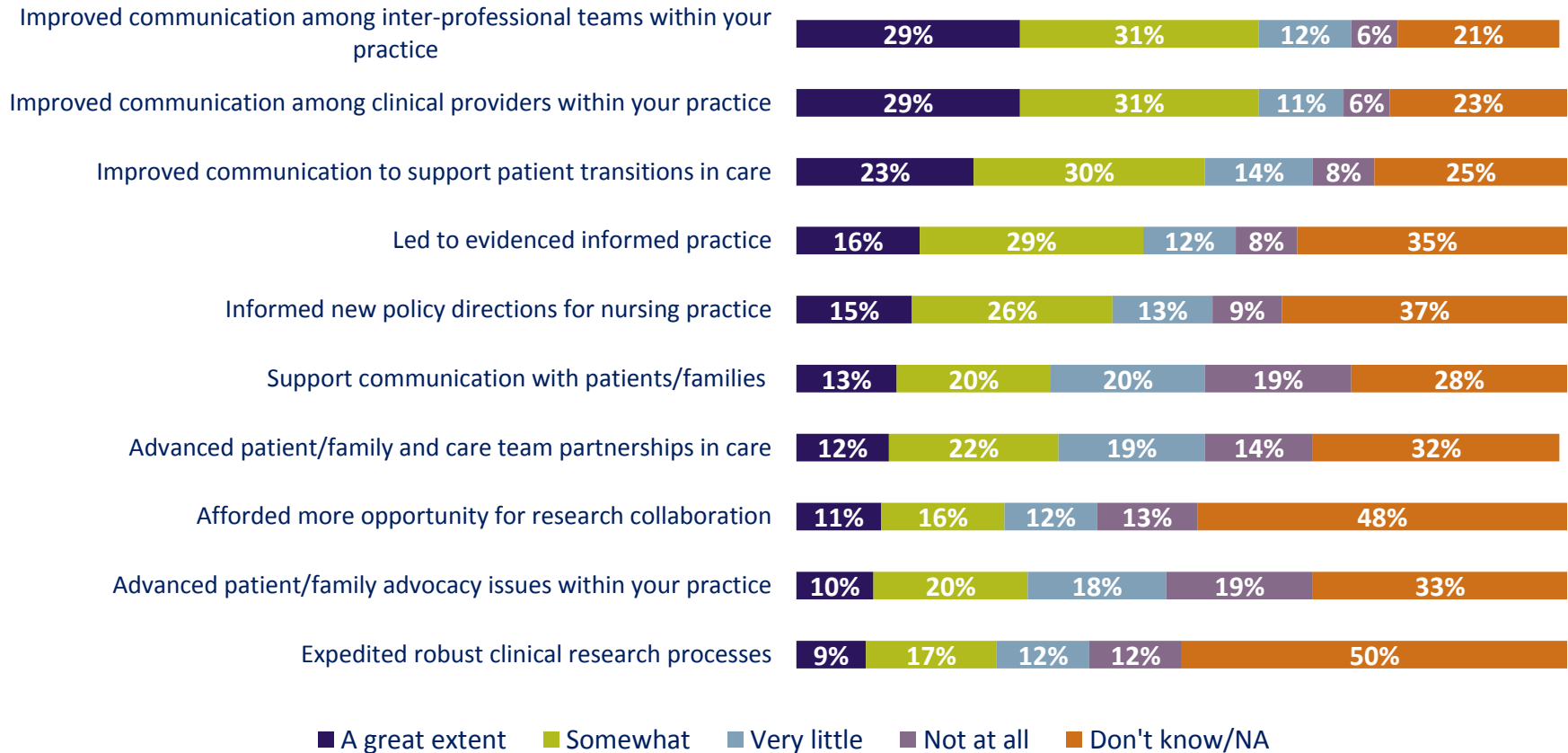
	Positive	Neutral	Negative	NA
Improving capacity to assess clinical performance	49%	33%	14%	5%
Decreasing redundant data capture	45%	23%	31%	3%
Providing information for clinical quality improvement initiatives	42%	39%	12%	8%
Facilitating patient education by using the computer screen information	41%	34%	15%	10%
Reducing the burden of administrative work	41%	24%	32%	3%
Helping you recommend/order fewer tests due to better availability of lab results	40%	38%	7%	10%
Improving communication with external providers	40%	38%	12%	10%
Prompting you with reminders prior to/during patient encounters for screening/preventive care to support patient care	38%	34%	17%	12%
Facilitating direct communication with a patient	33%	41%	19%	7%

Q40. Thinking about your practice in your MAIN care setting, rate the impact of your use of electronic record/clinical information systems in the quality of nursing care you provide during a face-to-face encounter:

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Improved communication is the biggest impact of electronic records and clinical information systems

Opinion on impact of electronic records/clinical information systems on the following



65. In your opinion, to what degree has the use of electronic records/clinical information systems in your MAIN Care setting ... ?
 BASE: Nurses in various practice settings (n=1839)

The combination of paper and electronic and multiple log-ins continue to be the biggest barriers that exist from fully realizing the benefits systems in use

Barriers to preventing accessing or getting full value from electronic systems in use

What barriers currently exist to prevent you from accessing or getting full value from your electronic record/clinical information systems in your MAIN patient care/practice setting?	2017	2014
Use of both paper charts and electronic records	46%	61%
Multiple logins required to access different clinical information systems	36%	54%
Integration with current systems/having multiple systems that aren't connected	31%	--
Lack of available equipment (e.g. workstations, mobile devices)	31%	48%
Too many other work demands	29%	38%
Does not align with clinical workflow	25%	24%
Available budget/costs associated from implementing electronic systems	22%	--
Unreliable network connection	22%	22%
Equipment does not meet nursing needs	21%	37%
It takes too long to sign in to use the systems	21%	34%

Q41. What barriers currently exist to prevent you from accessing or getting full value from your electronic record/clinical information systems in your MAIN patient care/practice setting?.

BASE: Nurses providing direct care to patients and using electronic record-keeping (n=1,031)

Very few nurses feel that too many Clinical Decision Support (CDS) alerts are a barrier to fully realizing benefits of electronic systems

Barriers to preventing accessing or getting full value from electronic systems in use, *continued*

	2017	2014
Lack of permissions to access systems	19%	27%
Lack of appropriate training	19%	26%
Information content of system does not meet nursing needs	19%	--
Clinical information system very complex and not intuitive	18%	27%
Too many “workarounds” required to use system	18%	--
Documented data disappears sometimes from the system creating a need to re-enter information	17%	20%
Internal policies do not support accessing electronic record/clinical information systems	12%	19%
Not Applicable	12%	--
Didn’t receive applied training on electronic record/clinical information systems in my undergraduate nursing program	10%	--
Lack of Bring Your Own Device (BYOD) policy necessitating the need to use multiple mobile devices	10%	--
No barriers in accessing electronic record/clinical information systems in my main care setting	9%	13%
Too many clinical decision support (CDS) alerts or prompts	4%	--

Q41. What barriers currently exist to prevent you from accessing or getting full value from your electronic record/clinical information systems in your MAIN patient care/practice setting?.

BASE: Nurses providing direct care to patients (n=1383)

Systems support nursing leadership to report on patient safety and support continuous quality improvement

Use of electronic record / clinical information systems to support



- Those who feel that the quality of patient care has gotten better are more likely to say they use all of these tools.
- Nurses in community care settings are more likely to use these systems for strategic planning (30%) and government reporting (33%) whereas those in hospital settings are more likely to use these systems for patient flow (38%), staff assignment (29%), and patient safety reporting (57%).

Q55 In your role, do you use electronic record /clinical information systems to support:
BASE: Nurses who provide direct patient care and/or are in a supervisory role who use electronic systems (n=752)

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2017 National Survey of Canadian Nurses: Use of Digital Health Technology in Practice Final Executive Report

May, 2017

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