Privacy issues in smart home healthcare environments

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Health Insurance Portability And Accountability Act (HIPAA) policies

- ❑ Appoint privacy officer
- ❑ Minimum necessary
- ❑ Access to designated record set
- ❑ Accounting disclosures
- ❑ Amendment requests
- ❑ Business associates
- ❑ Verification
- ❑ Alternative means of communication request
- ❑ Restricted use request
- ❑ Complaint
- ❑ Anti-retaliation
- ❑ Safeguards
- ❑ Train workforce
- ❑ Privacy notice
- ❑ Limit disclosures

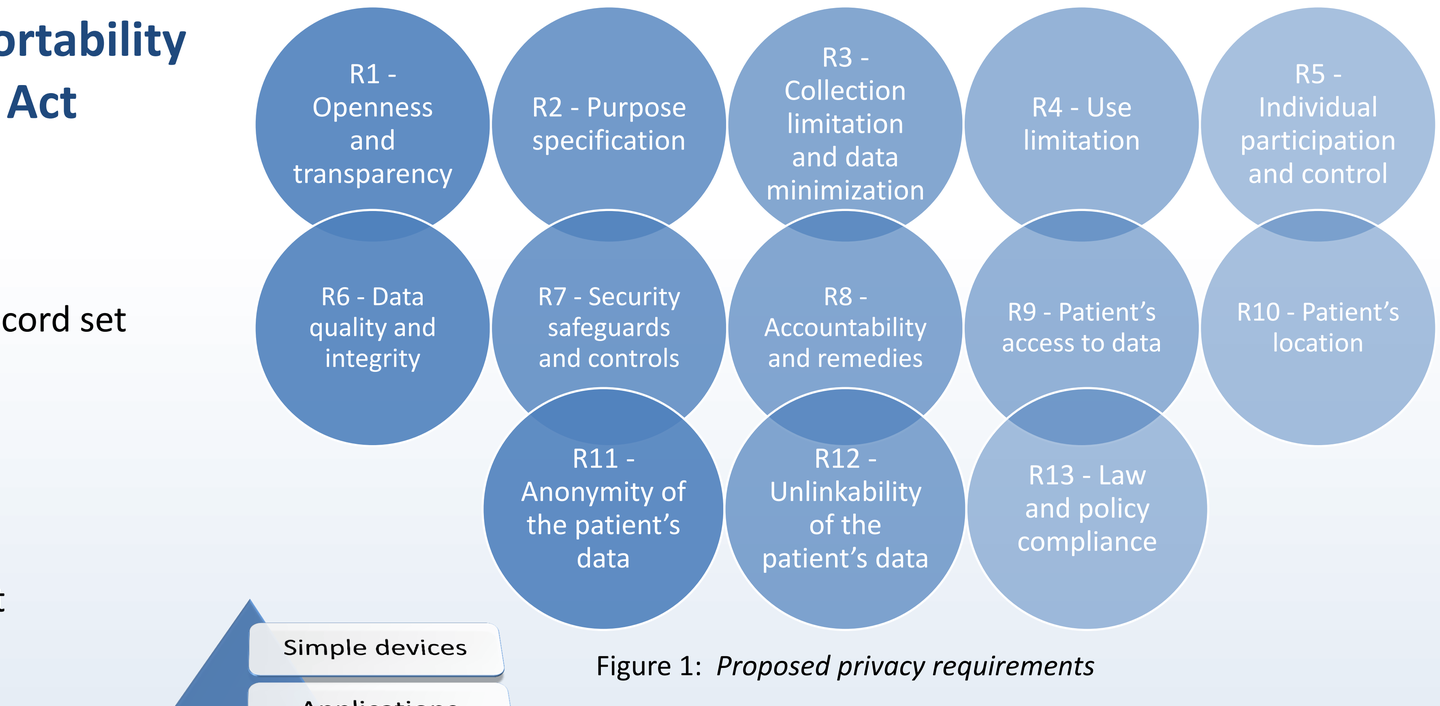


Figure 1: *Proposed privacy requirements*

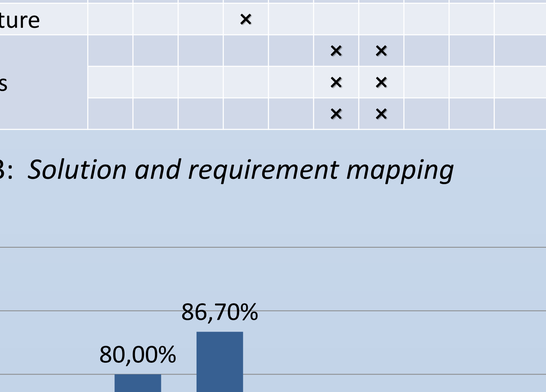


Figure 2: *Indicative smart home solutions*

Methodology

- ❑ Identification of existing requirements regarding healthcare environments
- ❑ Review of available privacy preserving solutions
- ❑ Proposal of privacy requirements (c.f. Figure 1)
- ❑ Mapping of solutions and requirements (c.f. Figure 3)
- ❑ Identified requirement coverage (c.f. Figure 4)

Privacy Solution / Requirement	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
National Framework	×			×		×	×	×	×				
Health Privacy Project				×	×		×	×	×				
Common Framework	×	×	×	×	×	×	×	×					
Certification Criteria	×			×	×				×				
Mhealth Privacy Framework	×	×	×	×	×	×	×	×	×				
RFID Privacy Protection Framework						×	×						×
EHR Security Model			×	×		×	×						
Privacy-preserving Scheme						×	×			×	×		
Privacy and emergency response solution						×	×	×			×	×	
Privacy Protector				×	×	×	×	×	×		×	×	×
Quality of Privacy						×	×						
Privacy Management Architecture				×									
Individual security solutions						×	×						×
						×	×				×		
						×	×				×	×	

Figure 3: *Solution and requirement mapping*

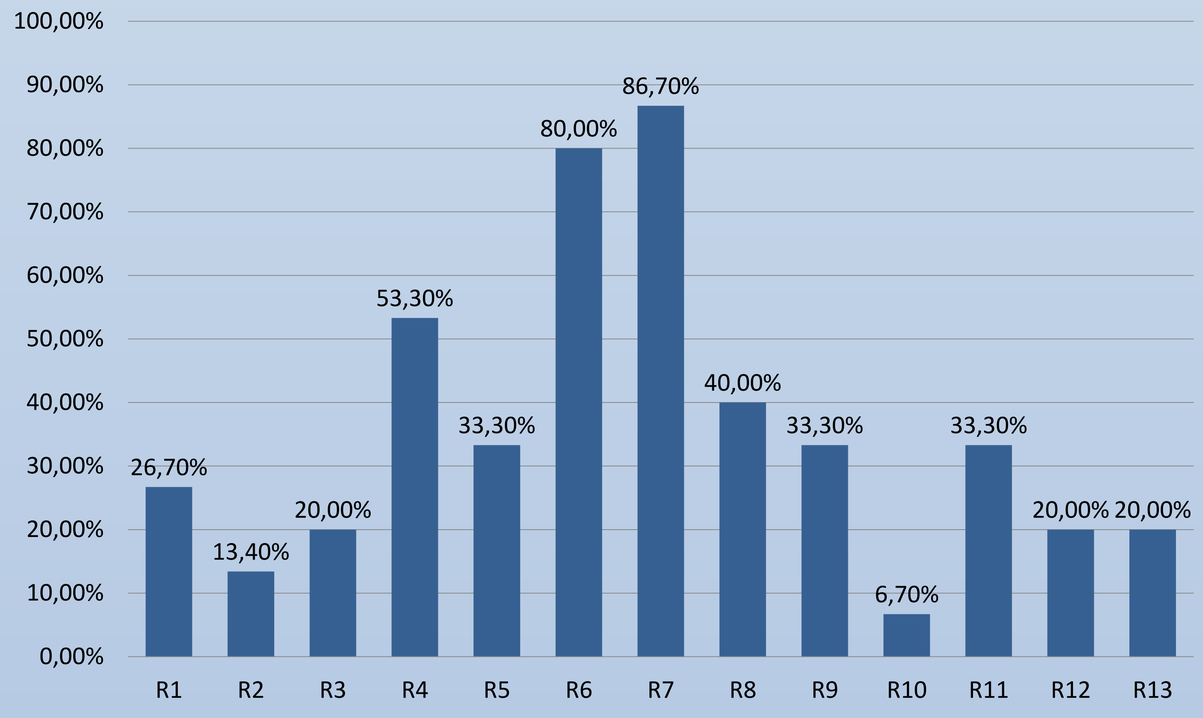
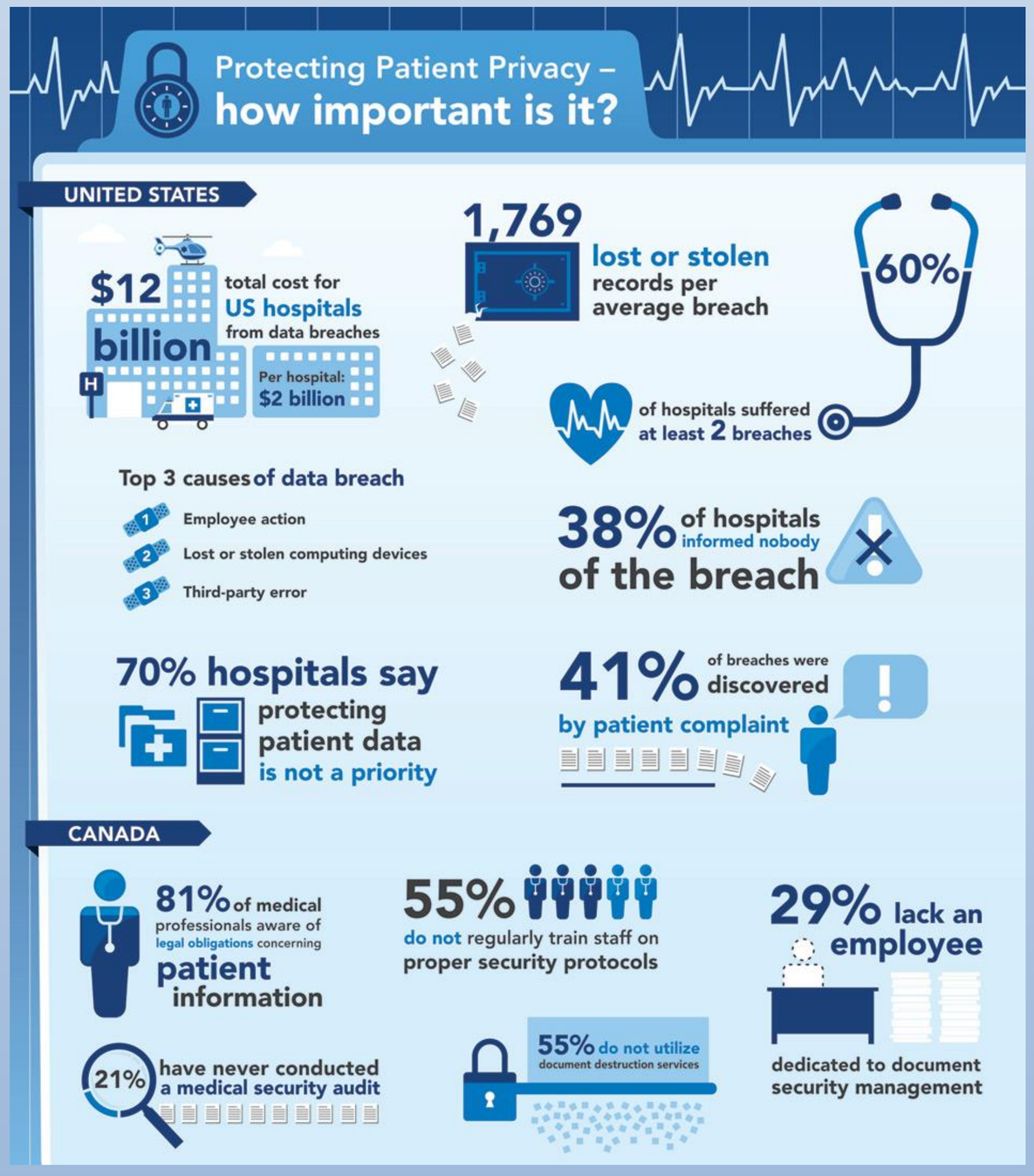


Figure 4: *Requirement coverage*

No	ONC	BP	CF	CCHIT	MH
1	Individual access	Transparency and notice	Openness and transparency	Consent	Openness and transparency
2	Correction	Education	Purpose specification	Controlling access to your information	Purpose specification
3	Openness and transparency	Employees can choose which content is included in the PHR	Collection limitation and data minimization	Conditions of use	Collection limitation and data minimization
4	Individual choice	Employees control access to and use of the PHR	Use limitation	Amending the record	Use limitation
5	Collection, use, and disclosure limitation	Employees can designate proxies to act on their behalf	Individual participation and control	Account management	Individual participation and control
6	Data quality and integrity	"chain of trust": information policies extend to business partners	Data quality and integrity	Document import	Data quality and integrity
7	Safeguards	Data security	Security safeguards and controls	Data availability	Security safeguards and controls
8	Accountability	Data management	Accountability and oversight	-	Accountability and remedies
9	-	Enforcement and remedies	Remedies	-	Patient Access to Data
10	-	Portability	-	-	Anonymity of Presence

Figure 5: *Privacy frameworks' requirements for healthcare*



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