

Analysis of Attacks and Security Requirements for Wireless Body Area Networks - A Systematic Literature Review

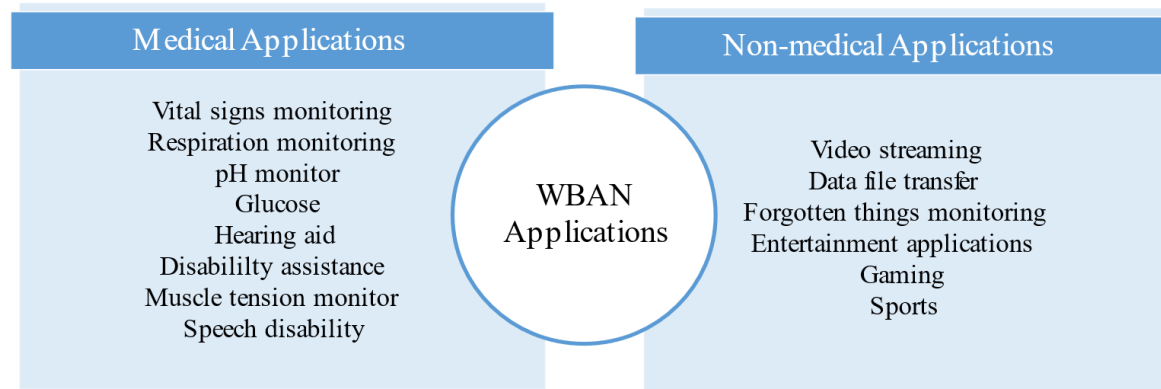
Pangkaj Chandra Paul
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Outline

- Overview of WBAN
- Literature Review Process
- List of Attacks
- List of Security Requirements
- Conclusion & Future Work

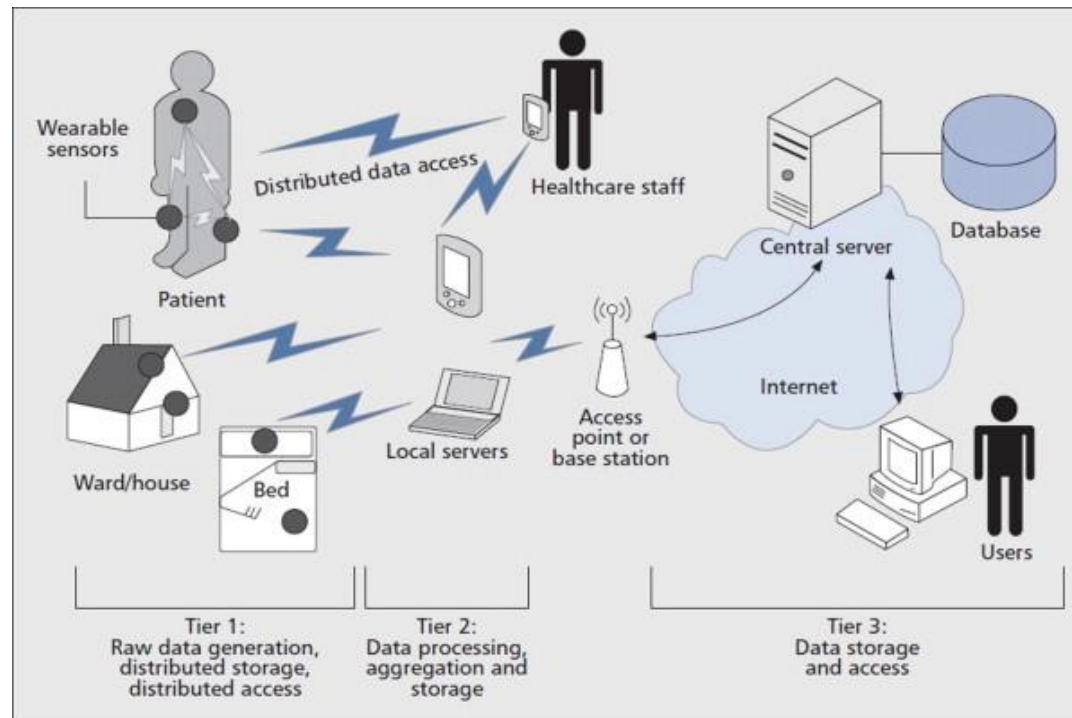
Overview

- A wireless body area network (WBAN) is a collection of wireless sensor nodes that are situated either inside or outside the human body for monitoring the functions of the body.
- Categories of WBAN applications

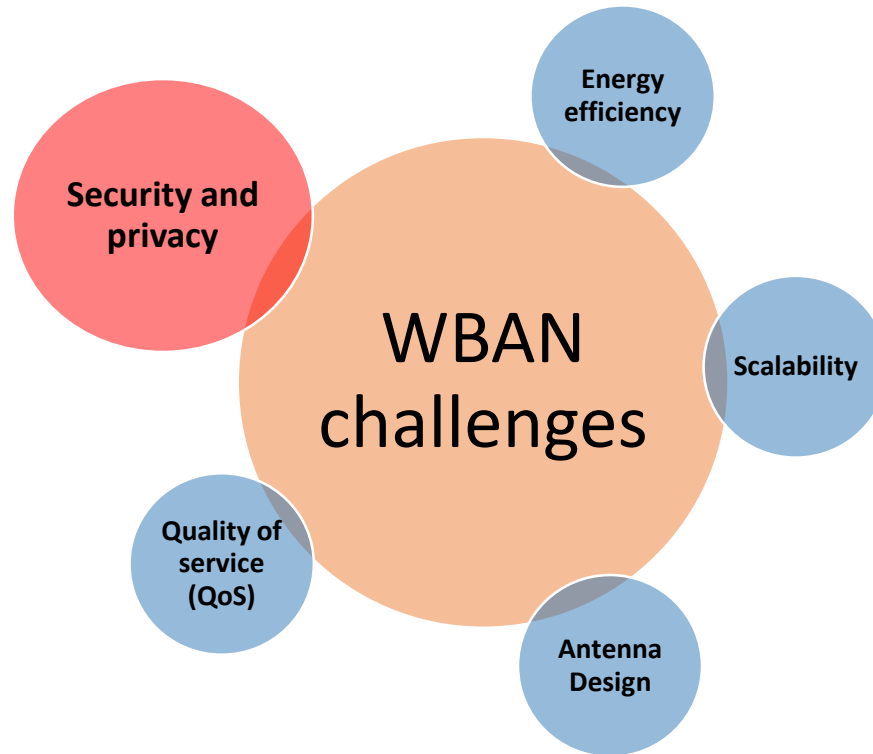


Overview (Cont.....)

➤ General architecture of WBAN application



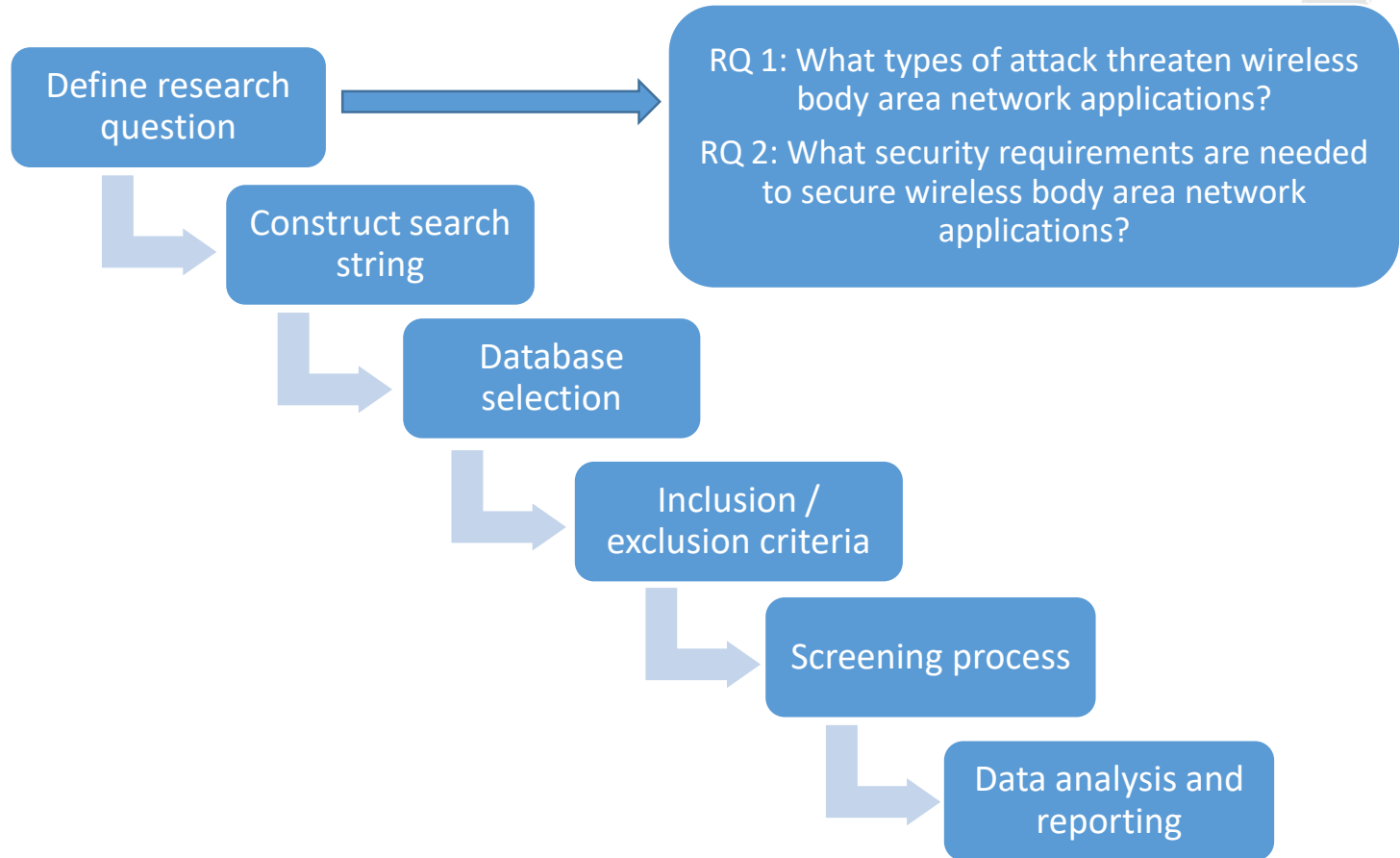
Challenges for WBAN application



Motivation

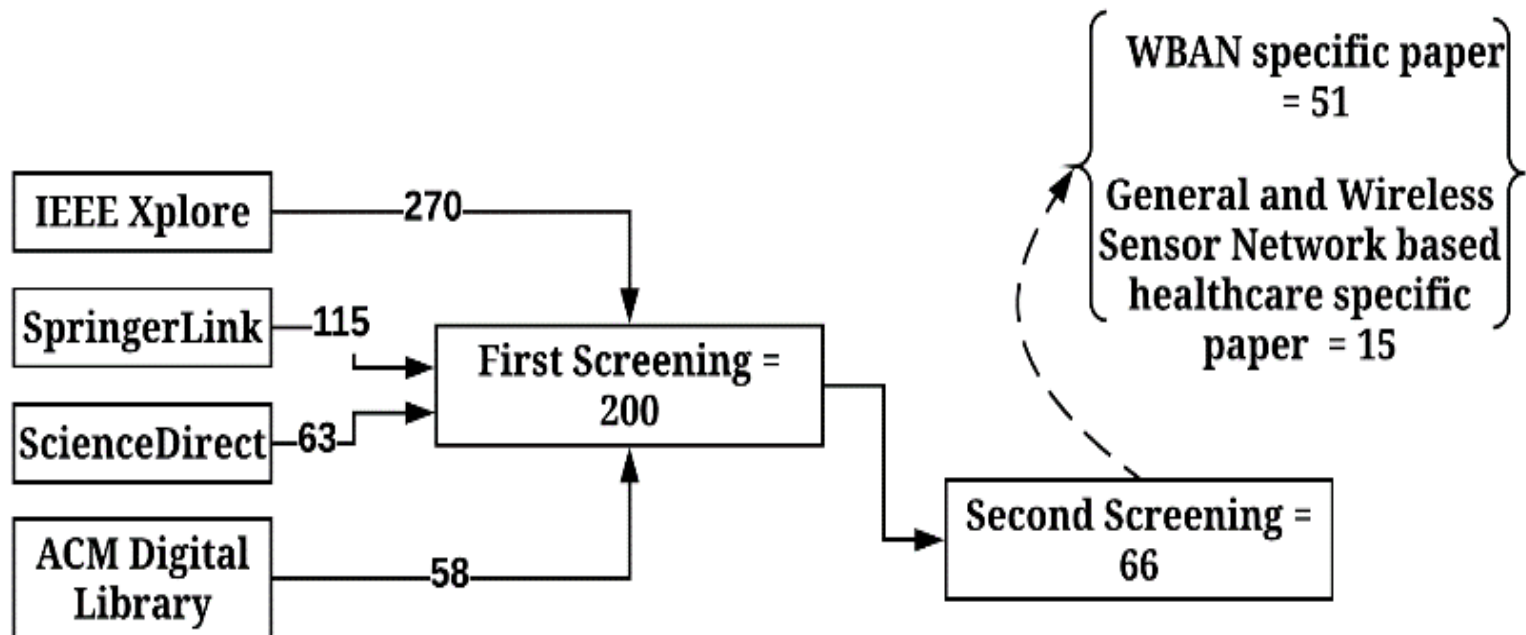
- Data need to be protected during collection, transmission, processing and storage
- To develop effective solutions, it is necessary to explore the attacks and security requirements landscape of WBAN
- A literature review is required to identify the landscape of the attacks and security requirements for WBAN

Literature Review Process



The Review Process (Cont....)

➤ Search Result

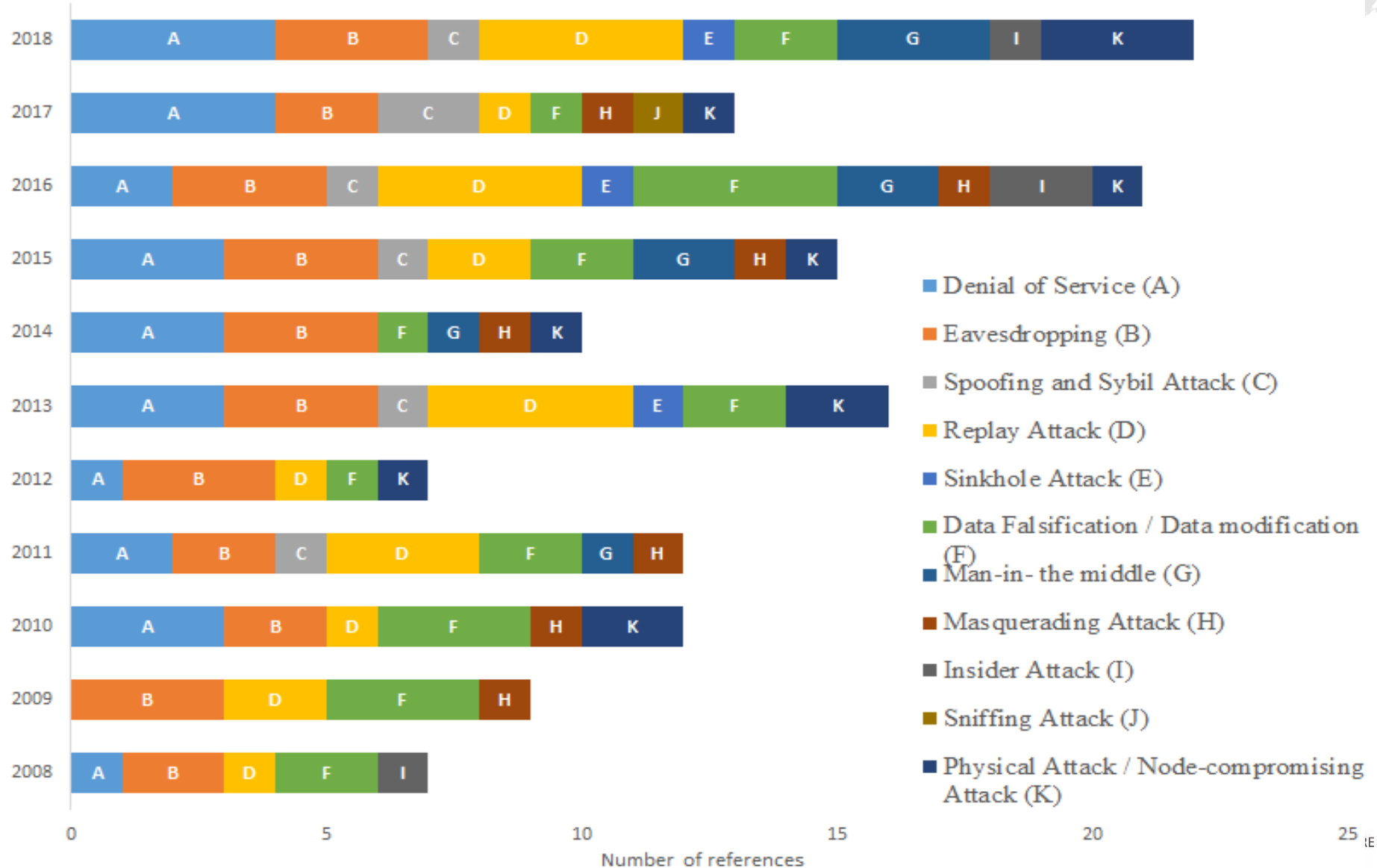


List of attacks

➤ 11 types of attack reported for WBAN

Denial of Service (DoS)	Spoofing and Sybil attack
Eavesdropping	Masquerading attack
Replay attack	Insider attack
Data falsification / modification	Sinkhole attack
Physical attack / node- compromising attack	Sniffing attack
Man-in-the-middle	

Analysis - List of attacks

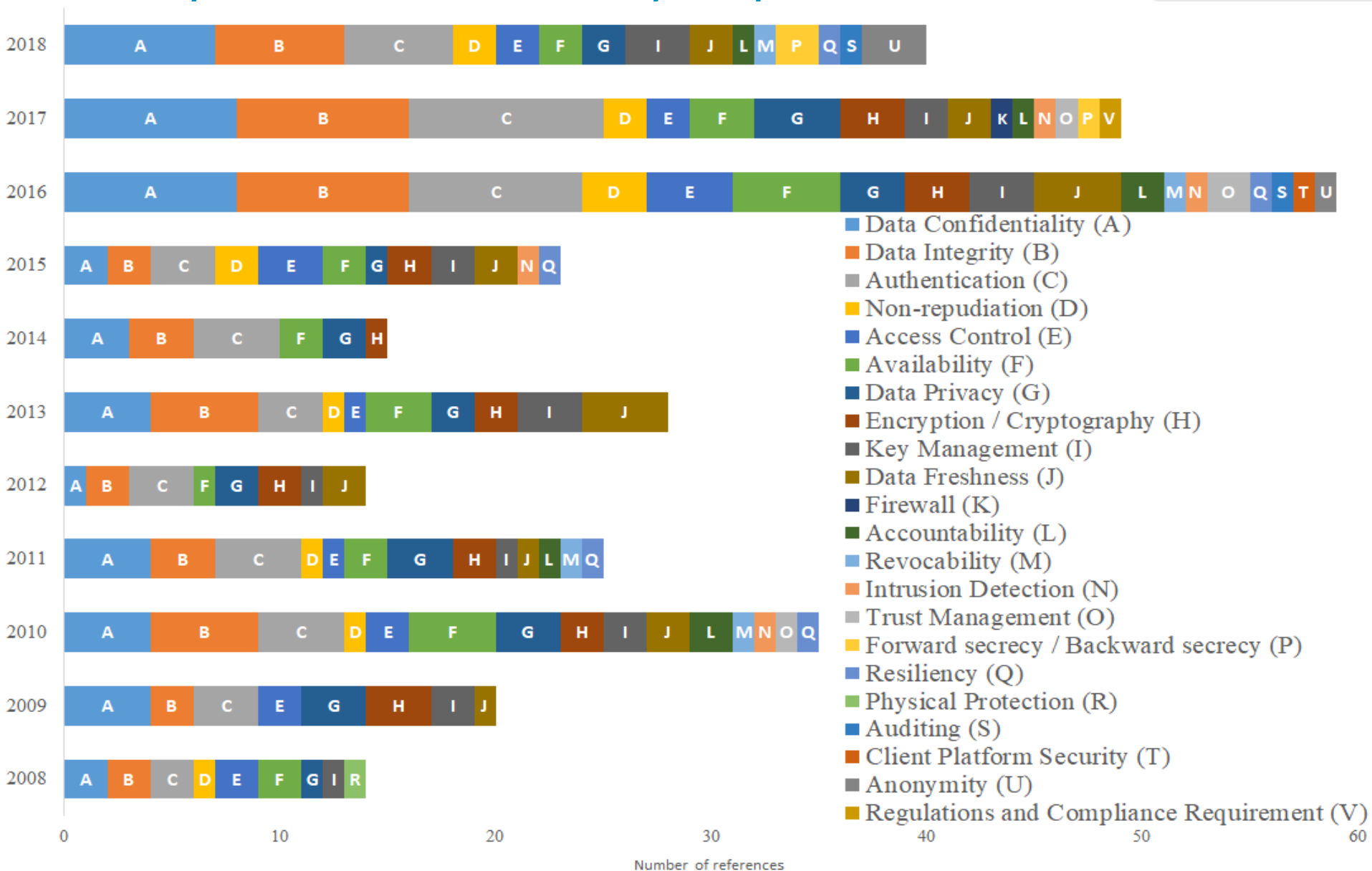


List of security requirements

➤ 22 types of security requirements

Data Confidentiality	Access Control	Forward secrecy / Backward secrecy
Data Integrity	Non-repudiation	Auditability
Authentication	Accountability	Firewall
Availability	Resiliency	Physical Protection
Data Privacy	Revocability	Client Platform Security
Encryption / Cryptography	Intrusion Detection	Regulations and compliance requirement
Key Management	Trust Management	
Data Freshness	Anonymity	

Analysis - List of security requirements



Conclusion & Future Work

- Literature review summary
 - 11 types of attack
 - 22 types of security requirements
- Extend scope of the literature review
 - Keep up-to-date search result
 - Adding other digital library and gray literature
- Develop a data security framework for WBAN application
 - Take countermeasure for attacks
 - Design implementation guidelines for addressing security requirements



Thank You I appreciate your feedback

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