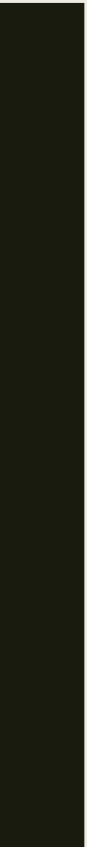



HASHAD, N., STEWART, D., PERUMAL, D., ABDULRAZZAQ, N. and TONNA, A.P. 2022. The impact of COVID-19 on antimicrobial stewardship implementation in United Arab Emirates hospitals: an exploration informed by the Consolidated Framework for Implementation Research. Presented at the 50th ESCP (European Society of Clinical Pharmacy) symposium on clinical pharmacy, polypharmacy and ageing: highly individualized, interprofessional, person-centered care, 19-21 October 2022, Prague, Czech Republic.

The impact of COVID-19 on antimicrobial stewardship implementation in United Arab Emirates hospitals: an exploration informed by the Consolidated Framework for Implementation Research.

HASHAD, N., STEWART, D., PERUMAL, D., ABDULRAZZAQ, N. and TONNA, A.P.

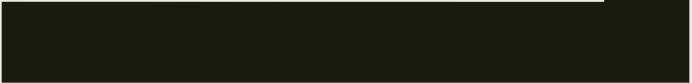
2022



The impact of COVID-19 on Antimicrobial Stewardship implementation in United Arab Emirates hospitals – an exploration informed by the Consolidated Framework for Implementation Research

Presented by
Nortan Hashad

Lecturer, Pharmacy, Higher colleges of Technology, Dubai, UAE
PhD researcher, Pharmacy and Life Sciences, Robert Gordon University, Aberdeen, UK.



Authors

Nortan Hashad^{1, 2}, Derek Stewart³,
Dhayaneethie Perumal⁴, Najiba Abdulrazzaq⁵,
Antonella Pia Tonna²

¹Pharmacy, Higher Colleges of Technology, Dubai, United Arab Emirates

²Pharmacy and Life Sciences, Robert Gordon University, Aberdeen, United Kingdom

³College of Pharmacy, Qatar University, Doha, Qatar

⁴Commission of Academic Accreditation, Ministry of Education, Abu Dhabi, United Arab Emirates

⁵Al Kuwait hospital, Emirates Health Services, Dubai, United Arab Emirates

Conflict of interest

- Nothing to disclose
- This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Background and aim

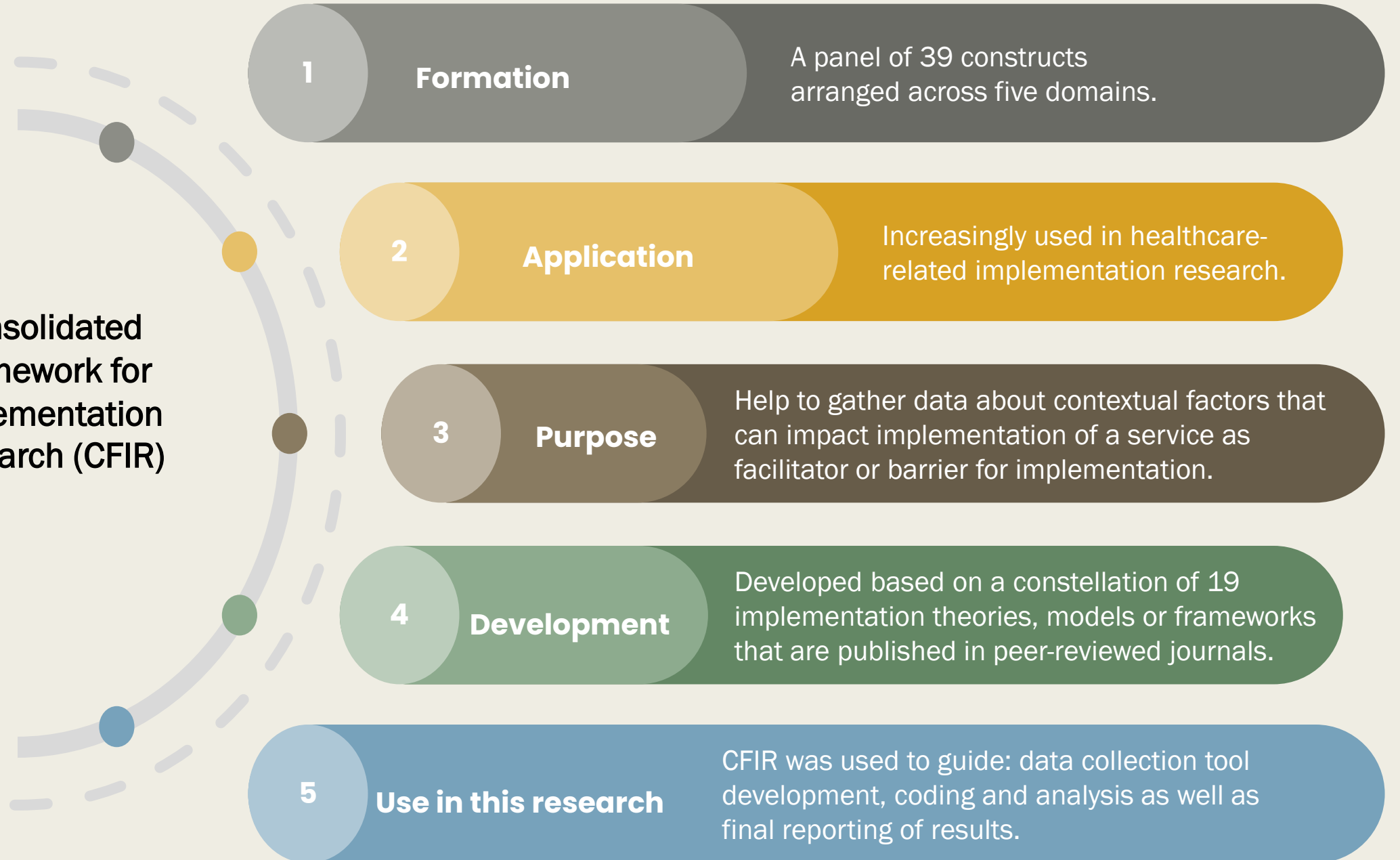
- Antimicrobial stewardship programme (ASP) has been defined by WHO as *'An organizational or system-wide health-care strategy to promote appropriate use of antimicrobials through the implementation of evidence-based interventions'*
- The disruption caused by Coronavirus disease 2019 (COVID-19) on antimicrobial stewardship programmes (ASP) has been acknowledged but not explored in-depth.



Aim

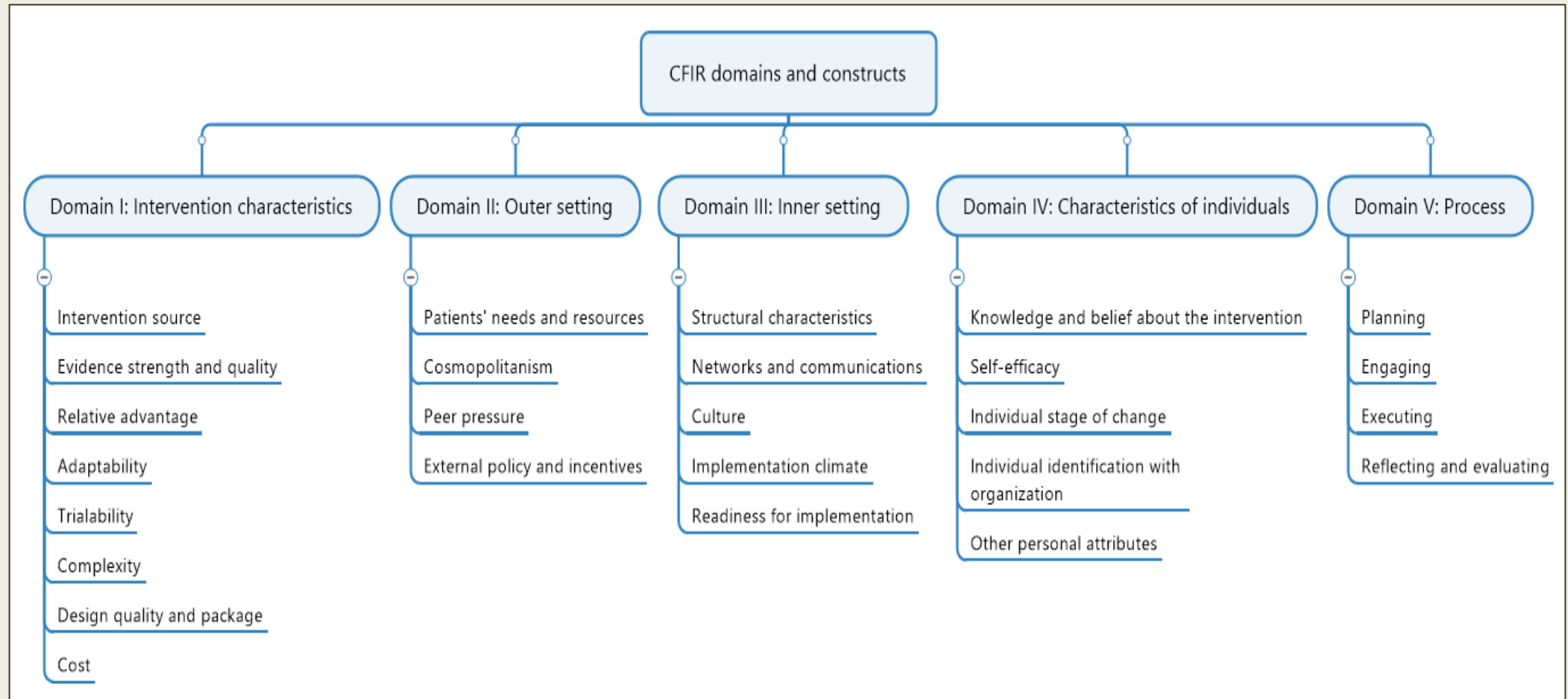
- This study uses a theoretical qualitative approach to understand the impact of COVID-19 on ASP implementation in United Arab Emirates (UAE) hospitals as well as identify facilitators and barriers to ASP implementation.

Consolidated Framework for Implementation Research (CFIR)





Consolidated Framework for Implementation Research



Map produced by Mind Manager from Coral Corporate

Methods

Methods



Research tool

Semi-structured online interviews, Conducted through Zoom, Microsoft teams, Blackboard collaborate ultra. July 2020 – December 2020. Approximately 45 – 60 minutes



Interview schedule

informed by Consolidated framework for Implementation research (CFIR) and literature review.



Participants

ASP team members and other healthcare practitioners dealing with antimicrobials in UAE hospitals

Methods

Methods



Recruitment

Purposeful followed by snowball sampling.
Maximum variation of participants representing different governing health authorities, bed size, background training and specialities.



Data management

Audio recorded, transcribed verbatim and anonymised.
Transferred to NVIVO software – facilitate data management and visualisation.



Data analysis

Independently analysed by two researchers both:
Deductively (based on CFIR) and Inductively (based on emerging themes).



NVIVO software

The screenshot displays the NVivo 12 Pro interface with a coding framework for 'Domain 3'. The main window shows a list of files with columns for Name, Codes, References, Modified on, and Modified by. The 'Coding' sidebar on the left lists various codes, including 'Domain 1' through 'Domain 5', 'Sentiment', 'Relationships', and 'Relationship Types'. The 'Domain 3' sidebar on the right shows a list of codes with radio buttons for selection: 'E. Readiness for implementation', 'D. Implementation climate', 'C. Culture', 'B. Network and communication', and 'A. Structural characteristics'. The 'Domain 3' code is currently selected.

Name	Codes	References	Modified on	Modified by
Surgeon 4	46	109	4/16/2021 1:58 PM	NH
Surgeon 3	39	74	4/17/2021 6:08 PM	NH
Surgeon 2	34	87	4/16/2021 5:31 AM	NH
Surgeon 1	42			
Quality officer 2	18			
Quality officer 1	35			
Pharmacist 4	30			
pharmacist 3	34			
Pharmacist 2	34			
Pharmacist 1	43			
Nurse 3	37			
Nurse 2	39			
Nurse 1	49			
Nephrologist 2	29			
Nephrologist 1	54			
Microbiologist 2	39			
Microbiologist 1	51			
Internist 1	39			

Domain 3

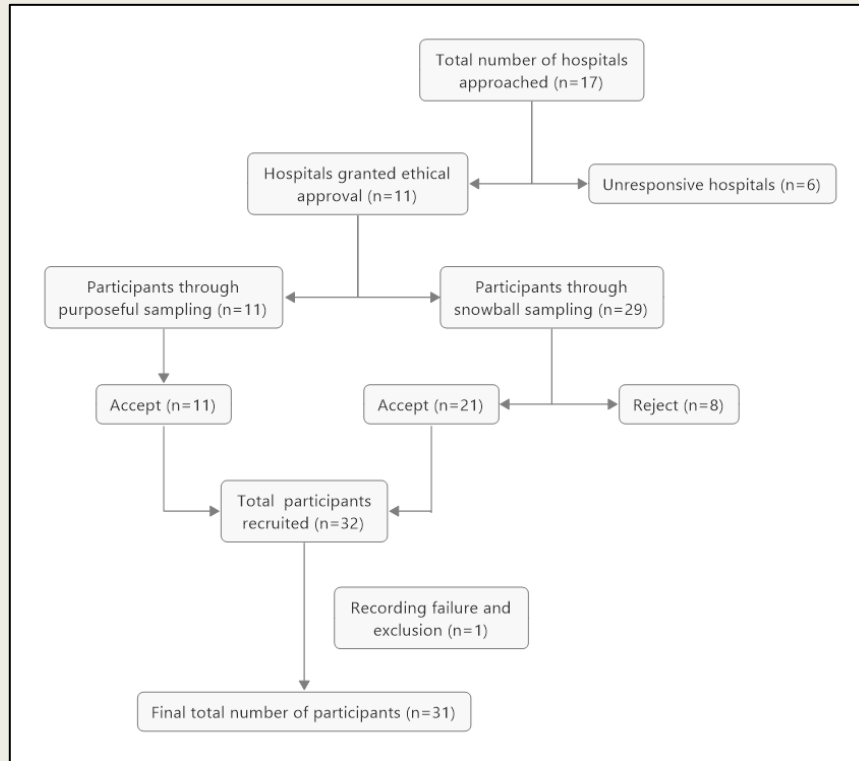
- E. Readiness for implementation
- D. Implementation climate
- C. Culture
- B. Network and communication
- A. Structural characteristics

Coding framework by NVivo 12 Pro

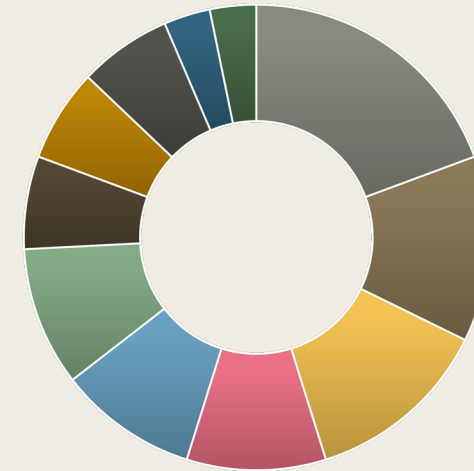


Results

A. Population demographics



Sampling strategy for data generation



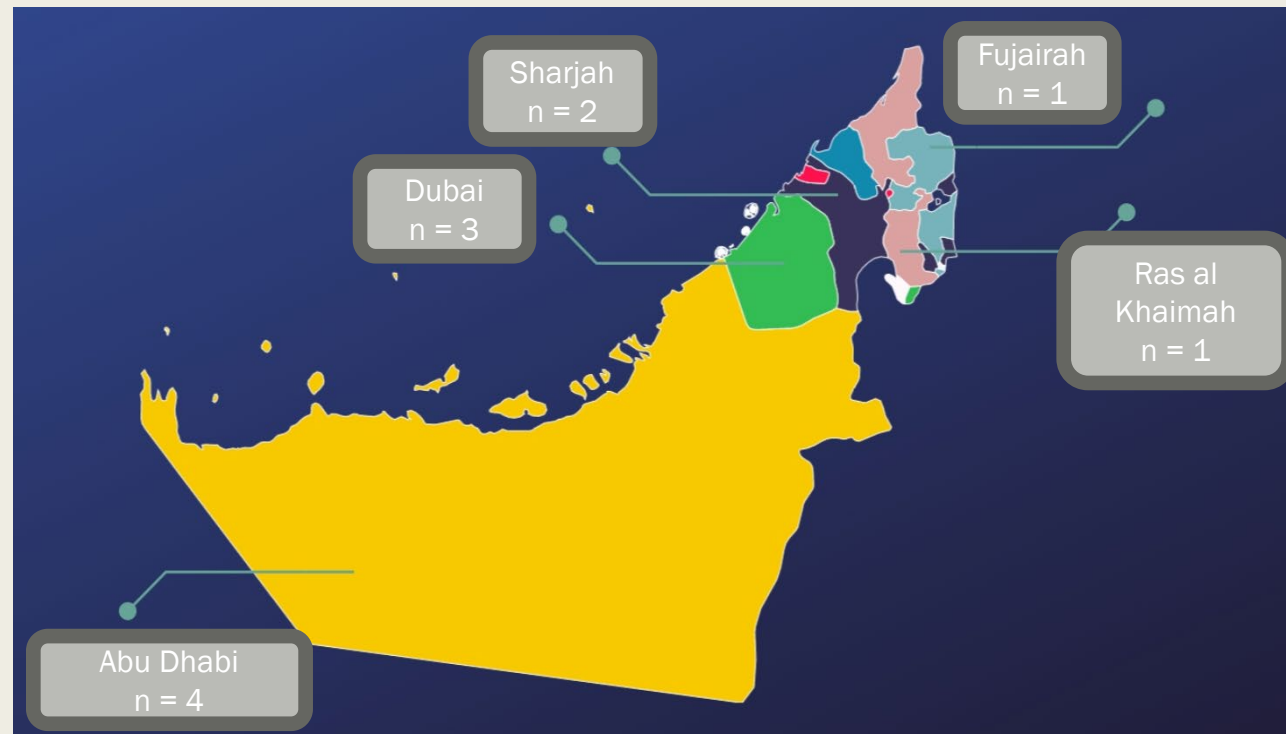
- 6 Clinical pharmacist
- 4 pharmacist
- 4 surgeons
- 3 ID physicians
- 3 ICU consultants
- 3 Nurses
- 2 Nephrologist
- 2 Microbiologist
- 2 Quality officers
- 1 internist
- 1 GP physician

Maximum variation sampling

Results

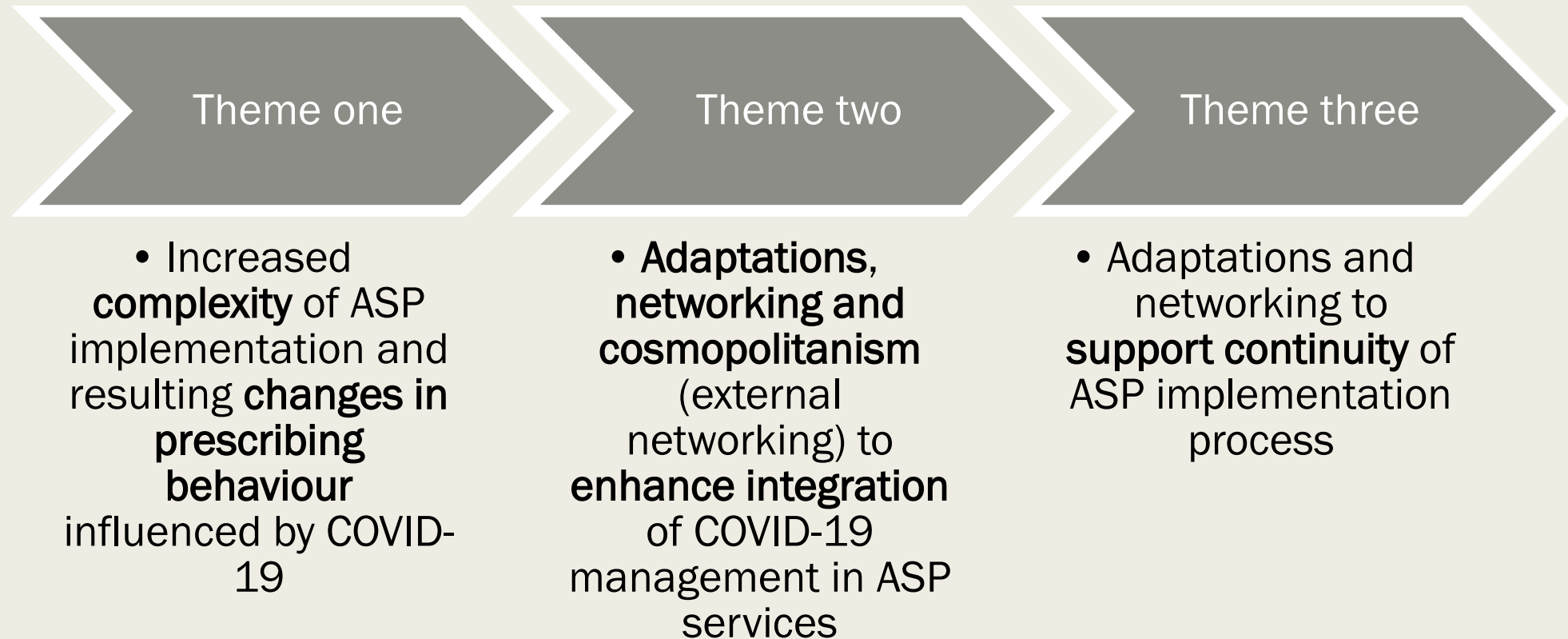
B. Hospital demographics

Total 11 hospitals granted ethical approval
(8 governmental and 3 private), across the seven Emirates



Results

C. Main themes identified



Theme one:

Increased complexity of ASP implementation and resulting changes in prescribing behaviour influenced by COVID-19

- Disruption of ASP implementation as a result of COVID-19
- Change in priority under the impact of COVID-19
- Changes in antimicrobial resistance pattern
- Delay in ASP plans under the impact of COVID-19
- Change in antimicrobial prescribing behaviour

“It halted everything, because we had to be pulled to cover the covid wards.”
[ID physician 1]

“We saw a lot of misuse of antibiotics. We saw a lot of doctors who were just if a patient comes with COVID-19 they would start a lot of empirical antibiotics.” [Clinical pharmacist 5]

“People [prescribers] did not even care about the comments of ASP. So they started all the broad spectrum antibiotics you can imagine, although in many cases it was clear, clear viral infection.” [ICU consultant 3]

Theme two

Adaptations, networking and cosmopolitanism (external networking) to enhance integration of COVID-19 management in ASP services

- Cosmopolitanism and networking to support building national COVID-19 management guidelines
- Adaptations for ASP activities to include management of COVID-19 patients

“Experience with ASP and having structure and having consultations and having meetings with different stakeholders really allowed us [to help in building national guidelines for COVID], a lot of the infectious disease people are clinical pharmacist and are actually quite solid.” [Clinical pharmacist 2]

Theme three

Adaptations and networking to support continuity of ASP implementation process

- Adaptation on networking to facilitate continuity of ASP implementation during the pandemic
- Adaptation of pre-authorization forms to facilitate continuity of ASP implementation during the pandemic
- Restrictions on broad spectrum antimicrobials
- Desire to re-establish ASP implementation
- Gradual decline in antimicrobial prescribing

“For us as an ASP member in our facility, we provide a daily feedback for the doctor, especially in the Critical care area regarding the treatment plan of covid patients, so it was a huge challenge at the initial phase of covid, but now start to be stabilized and improved.” [Clinical pharmacist 6]

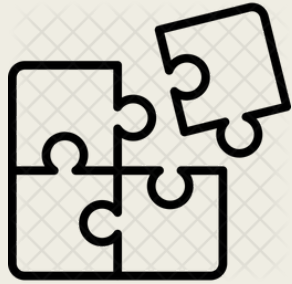
“Everybody trying to work virtually to reduce contact with others, even our rounds, we used to do rounds, it's virtual rounds, we will do it through WhatsApp” [Clinical pharmacist 1]

CFIR constructs identified as barriers mapped to corresponding themes

Impact on ASP practice	CFIR Domain	CFIR Construct	Corresponding overarching theme	Corresponding subtheme
Barriers	Intervention characteristics	Complexity	Theme (1)	Disruption of ASP implementation
			Theme (1)	Delay in ASP plans under the impact of COVID-19
			Theme (1)	Changes in antimicrobial resistance patterns
	Outer setting	Patient needs and resources	Theme (1)	Seriousness of illness of COVID-19 patients
	Inner setting	Implementation climate	Theme (1)	Changes in antimicrobial prescribing behaviour
		Relative priority	Theme (1)	Change in priority under the impact of COVID-19 pandemic

CFIR constructs identified as facilitators mapped to corresponding themes

Impact on ASP practice	CFIR Domain	CFIR Construct	Corresponding overarching theme	Corresponding subtheme
Facilitators	Intervention characteristics	Adaptability	Theme (2)	Adaptations for ASP activities to include management of COVID-19 patients
			Theme (3)	Adaptation of networking to facilitate continuity of ASP implementation during the pandemic
			Theme (3)	Adaptation of pre-authorisation forms to facilitate continuity of ASP implementation during the pandemic
	Outer setting	Cosmopolitanism	Theme (3)	Cosmopolitanism and networking to support building national COVID-19 management guidelines
	Inner setting	Network and communication	Theme (3)	Cosmopolitanism and networking to support building national COVID-19 management guidelines
		Access to knowledge and information	Theme (3)	Gradual decline in antimicrobial prescribing
	Characteristics of individuals	Knowledge and belief about the intervention	Theme (3)	Desire to re-establish ASP implementation



Conclusion

- Despite the initial disruption of ASP implementation given the complexity of the intervention, due to the pandemic, successful restoration and evolvement of ASP services reflects the high value and adaptability of ASP implementation in UAE hospitals.
- This value further motivates for investment in such programmes to ensure readiness for future pandemics and to keep pace with global accelerated developments in healthcare systems.

References

- Pierce J, Stevens MP. COVID-19 and antimicrobial stewardship: lessons learned, best practices, and future implications. *International journal of infectious diseases: IJID: official publication of the International Society for Infectious Diseases*. 2021; 113:103-108.
- Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation Science: IS*. 2009; 4:50-50.
- Hashad N, Perumal D, Stewart D, Tonna AP. Mapping hospital antimicrobial stewardship programmes in the Gulf Cooperation Council states against international standards: a systematic review. *The Journal of hospital infection*. 2020; 106(3):404-418.

THANK YOU



ANY QUESTIONS