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# Clinical decision support systems for differential diagnosis in primary and out of hours care: a qualitative descriptive focus group study

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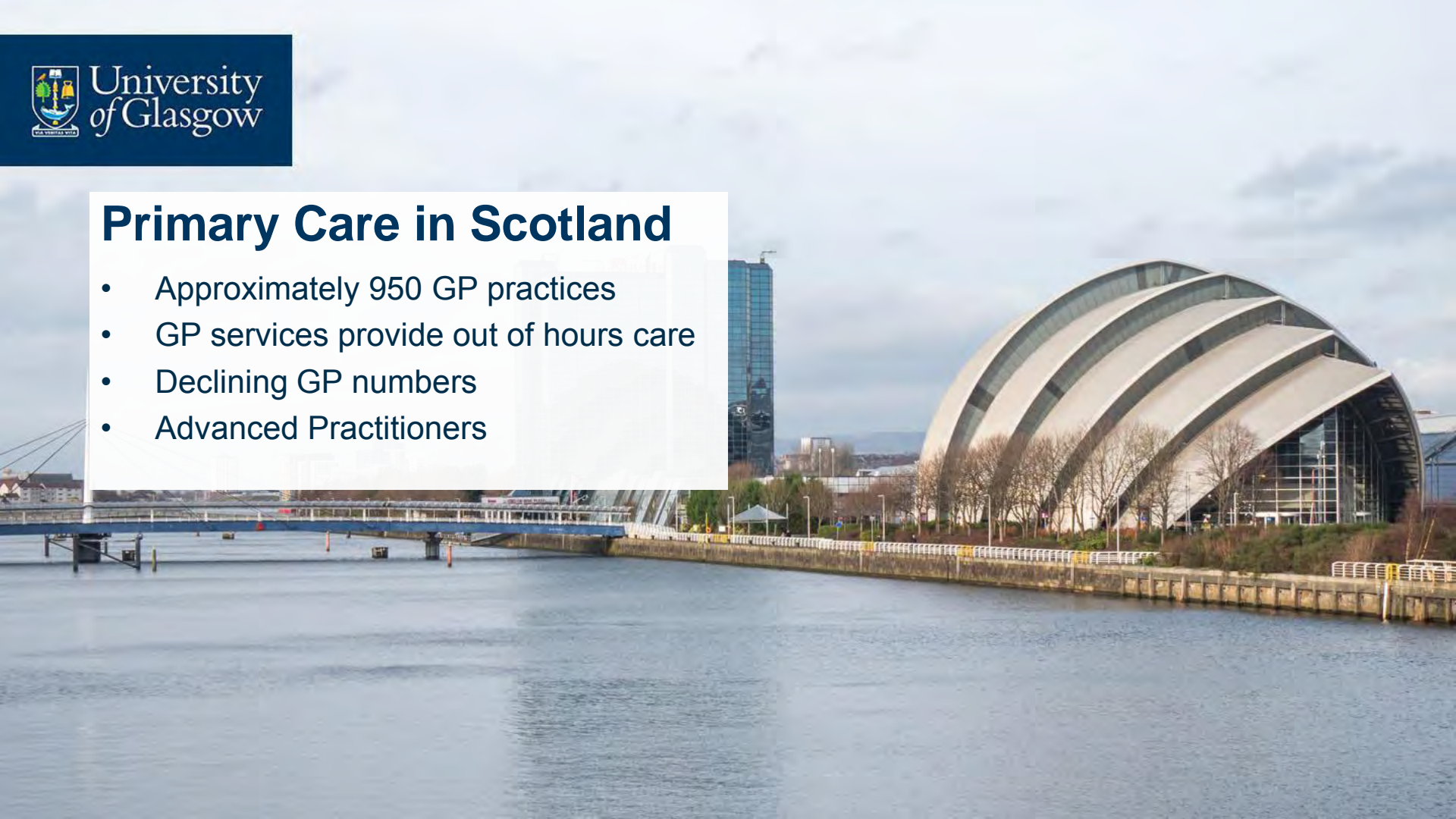
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GLASGOW**





## Primary Care in Scotland

- Approximately 950 GP practices
- GP services provide out of hours care
- Declining GP numbers
- Advanced Practitioners





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# Differential diagnosis decision support systems? (*DDDSS*)



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# Types of Decision Support



**Differential Diagnosis Decision Support System**



## What do we know?

- Differential diagnosis generators may have the potential to improve diagnostic practices (Riches et al, 2016)
- Overall quality of research in this area is low (Riches et al, 2016)
- Patient-facing symptom checkers have deficits in both triage and diagnosis (Semigran et al, 2015)
- Primary care in the UK- one system trialed, may require adaption to work in this setting (Henderson & Rubin, 2013)





## Methods

- Aim: to examine the needs of key stakeholders in relation to differential diagnosis decision support systems (DDDSS)
- Qualitative descriptive approach (Sandelowski, 2000)
- Convenience and snowball sampling
- 6 focus groups between April – June 2018
- Thematic analysis (Braun & Clarke, 2006)
- Quick talk on DDDSS, some trialed a symptom checker



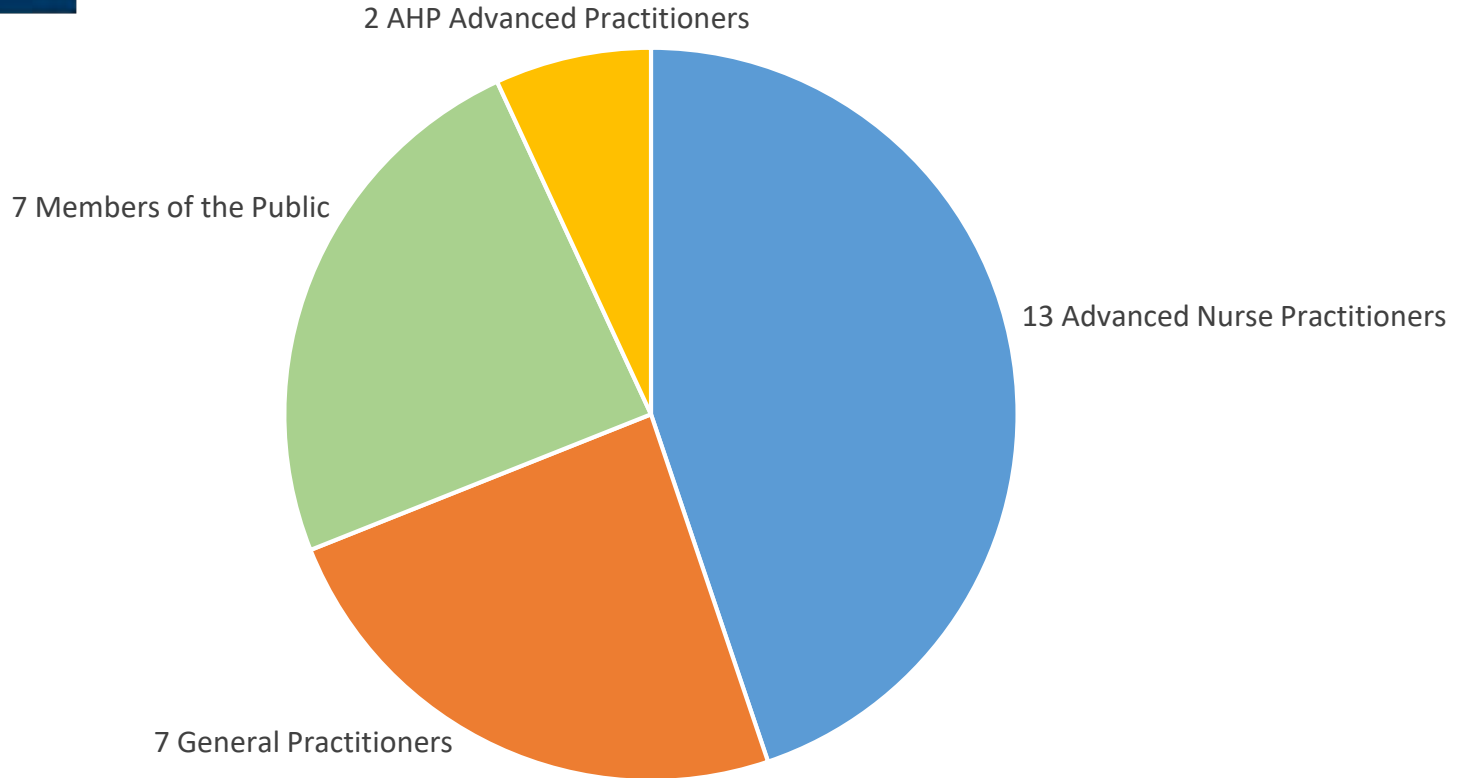
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# Findings



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# 29 Participants





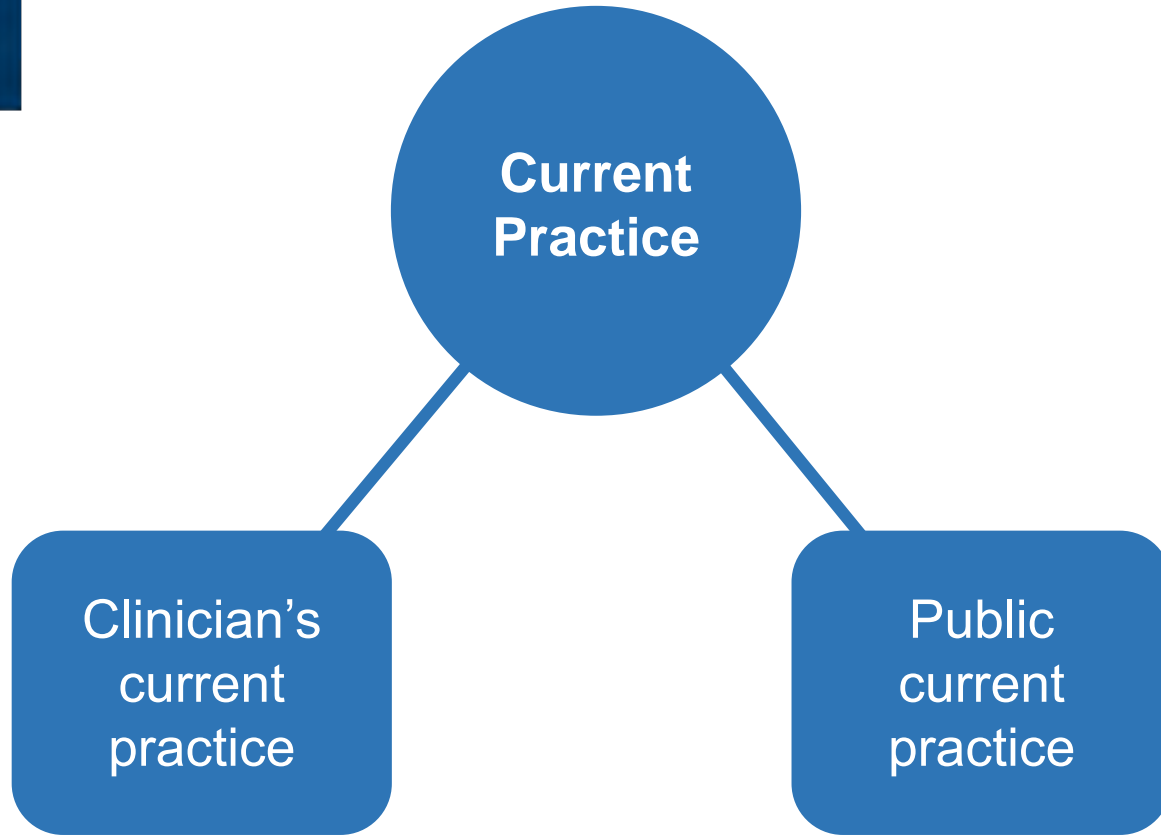
## Four Themes

**Current  
Practice**

**Attitudes to  
DDDSS**

**Implementation  
Considerations**

**Desirable  
Characteristics  
of DDDSS**





## Clinician's current practice

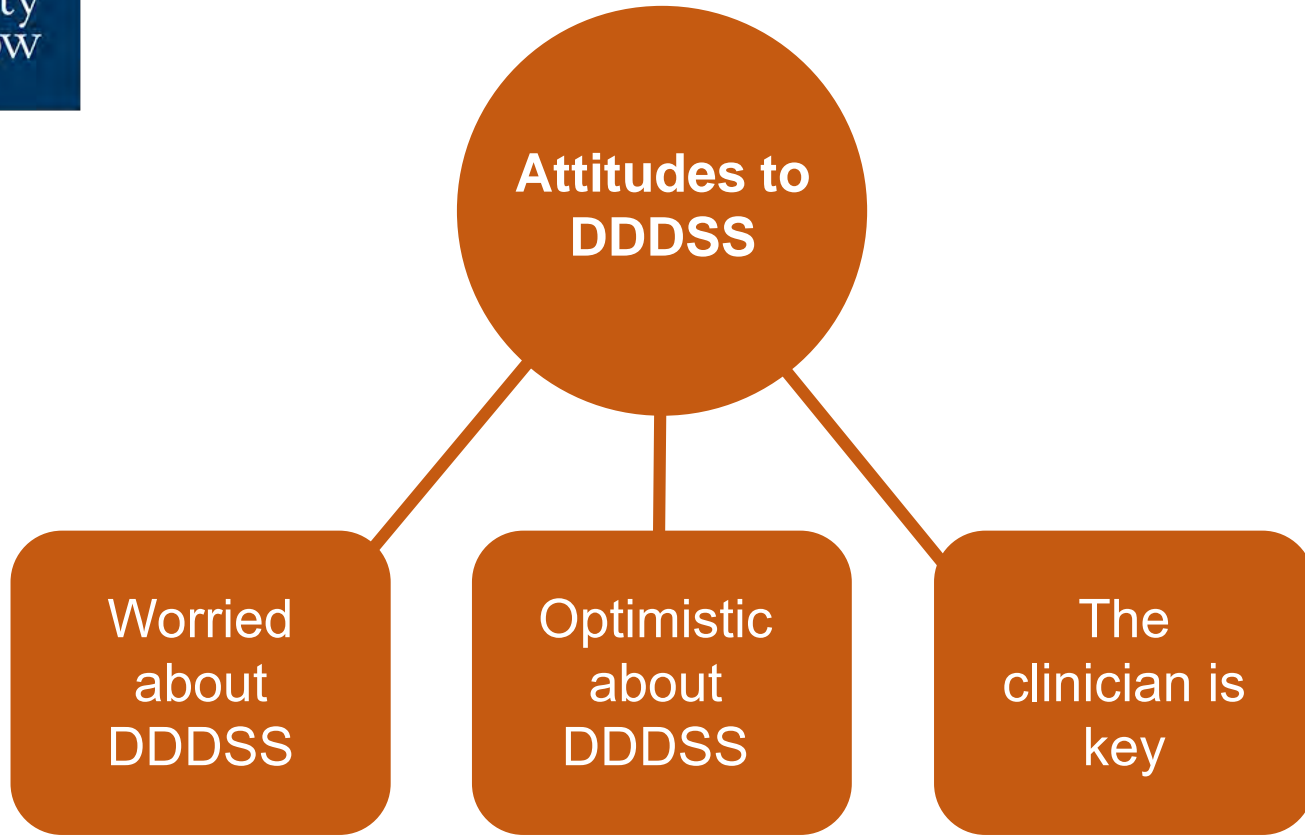
*"I just say, oh I'm just going to check something online quickly, just to make sure that I've covered everything. I haven't missed anything. And normally... if there's a husband or a wife, the eyes roll."*

*[Morgan, trainee ANP]*

## Public current practice

*"Individuals will say, well look, I've checked this through, I'm pretty sure I've got this rare condition, you know... there will be people coming to GPs and saying, look, I insist."*

*[Danny, member of the public]*





## Worried about DDDSS

*"I put in back pain, it came up with the alternative possible diagnosis, and the first one was aortic aneurism."*

*[Cheryl, AHP AP]*

## Optimistic about DDDSS

*"It's going to help me. Gives me a bit more confidence... you know... we're really guilty as nurses at, kind of, doubting yourself"*

*[Amanda, trainee ANP]*

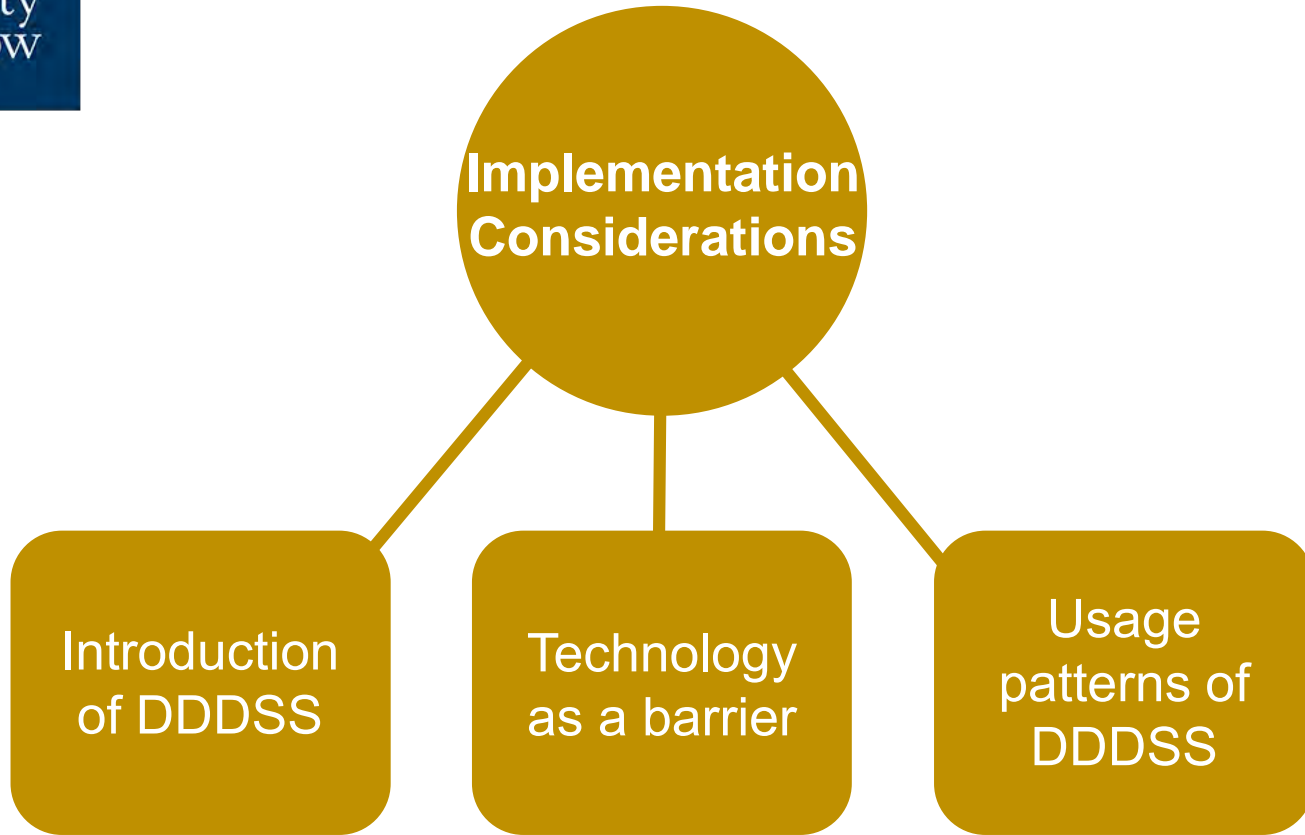
## The clinician is key

*"Patients don't follow flow charts, in my experience"*  
*[Lydia, GP]*

*"I think the public need that reassurance, too, that we're not replacing your doctor... or your health professional, with a robot."*

*[Charlie, member of the public]*







## Introduction of DDDSS

*“As long as, you know, it comes to be seen as a tool, just like a stethoscope is a tool, and that education, public education reflects that”*

*[Danny, member of the public]*

## Technology as a barrier

*“That would be my concerns, is that if I was actually... asking them questions but going through the computer, they would then maybe then not give me that pearl of information that’s going to change or alter my differential diagnosis”*

*[Morgan, trainee ANP]*

## Usage patterns of DDDSS

*“You always have the luxury of getting the person to come back, or you can contact them again. I certainly would never, I think, [search online] in front of a patient”*

*[Bailey, GP]*

*“Where on earth does this fit into our ten-minute consultation?”*

*[Julie, GP]*



## Desirable Characteristics of DDDSS

Provides  
access to  
the evidence  
base

Enables  
patient  
involvement

Promotes  
self-care

Workflow  
integration



## Provides access to evidence base

*“the amount of evidence that are...and guidelines that are coming out, it’s mindboggling. So we do need something to condense these and feed it through in a manner that’s digestible in the day-to-day practice.”*

*[Sydney, AHP AP]*

## Enables patient involvement

*“there’s quite a lot of things that I could be going to the GP about. If she at least knows that it’s my blood pressure, or whatever, she’s pre-warned, she knows what letter to look at from the specialist, and stuff like that. It saves an awful lot of the guff that goes on at the beginning of a consultation”*

*[Judith, member of the public]*



## Promotes self-care

*“If a tool helps the knowledge part for the patient, empowers the patient, then that would maybe help... in making sure that the decisions and the pathways are right for that individual patient as well as the condition...they’re presenting with”*

*[Cheryl, AHP AP]*

## Workflow integration

*“It can’t sit as a separate... it just becomes another guideline, another bit of... tabs at the bottom of your computer. It needs to be embedded in your every day for everybody”*

*[Amanda, trainee ANP]*



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# Discussion



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## Point 1:

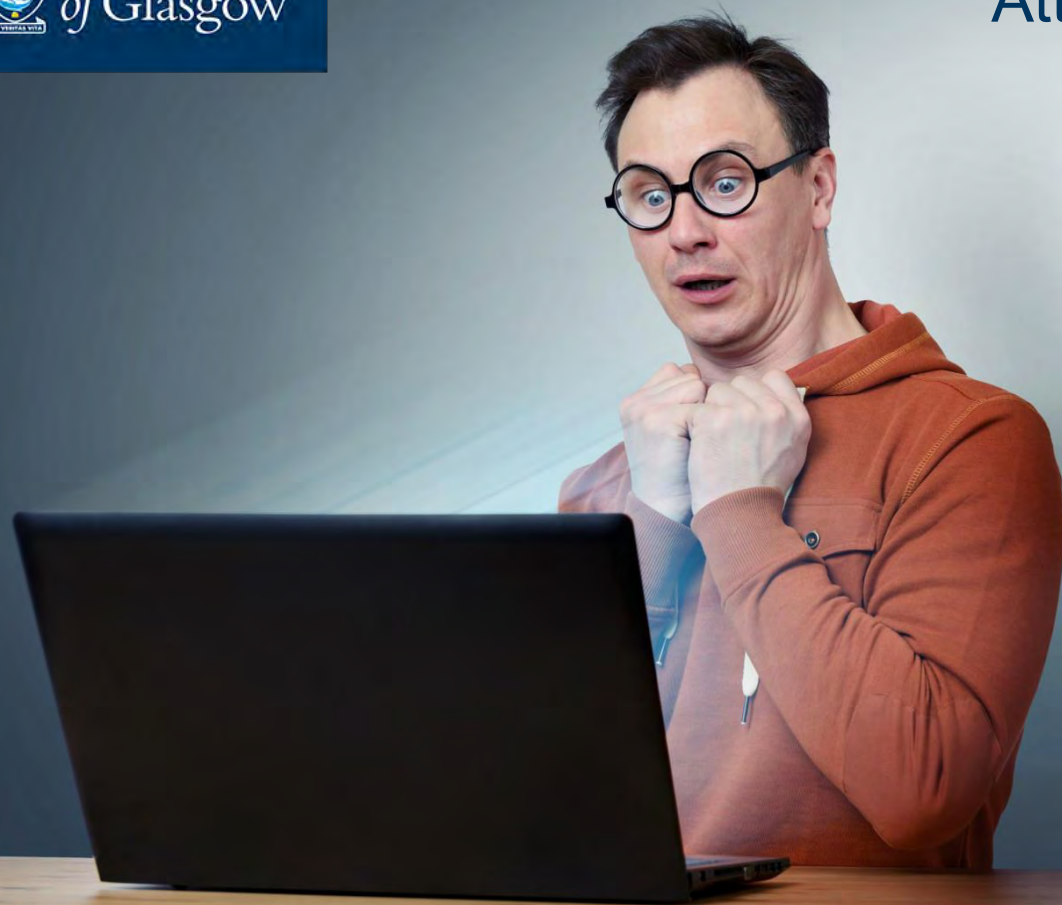
People are already using technology to support their decisions about healthcare





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## Point 2: Attitudes and responses to DDDSS are varied







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### **Point 3:**

DDDSS must fit with the way clinicians work, and the way the public interact with healthcare services



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**Point 4:**  
DDDSS must link to trusted  
evidence, and promote  
patient involvement and  
self-care



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## For the article:

McParland, C. R., Cooper, M. A. and Johnston, B. (2019) 'Differential Diagnosis Decision Support Systems in Primary and Out-of-Hours Care: A Qualitative Analysis of the Needs of Key Stakeholders in Scotland', *Journal of Primary Care & Community Health*. doi: [10.1177/2150132719829315](https://doi.org/10.1177/2150132719829315).



(Or scan the QR code)

## For the overall project:

Come to **poster number 47 tomorrow**, for an overview of the whole project.

Poster tour G: *Service Delivery*

“Exploring the role of decision support systems for differential diagnosis in out of hours and primary care in Scotland”



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# Thank you for listening

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