

Bile reinfusion – a survey assessing experience and confidence levels amongst healthcare professionals working in the East of England HPB Network

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Introduction

High losses from external biliary drains (EBDs) can result in dehydration, acid/base imbalance, electrolyte abnormalities and malabsorption (Berry, 2017). Bile reinfusion (BR) is a method of enteral refeeding of biliary secretions (Kahl *et al.* 2020); which can help to restore the entero-hepatic circulation, reduce electrolyte losses, fat malabsorption and gut microflora changes (Kamiya *et al.* 2004).

Cambridge University Hospitals (CUH) is the pancreatic resection centre (PRC) for the East of England (EoE). The hepato-pancreato-biliary (HPB) team at CUH commences BR in selected patients. However, this is less commonly carried out in other parts of the EoE. This survey aimed to assess experience and confidence levels on BR amongst healthcare professionals (HCPs) in the EoE HPB Network and identify any potential areas for development.

Methods

A Google Forms survey was sent via email to relevant HCPs working in the EoE. The survey asked HCPs a series of questions including:

- Have you heard of BR?
- Have you any experience of caring for patients with BR?
- How confident do you feel in caring for patients with BR?
- How often do you care for patients with EBDs?
- What resources would be helpful to improve confidence with BR?

The survey was closed after four weeks and the results were analysed.

Results

There were 73 respondents; just under half (44%) working outside of the PRC. There was a good mix of different HCPs (30% doctor, 30% ward nurse, 26% dietitian, 12% specialist nurse, 2% health care assistant). 74% of HCPs had heard of BR and 56% had some experience in caring for patients with BR. The level of experience varied, as shown in Figure 1.

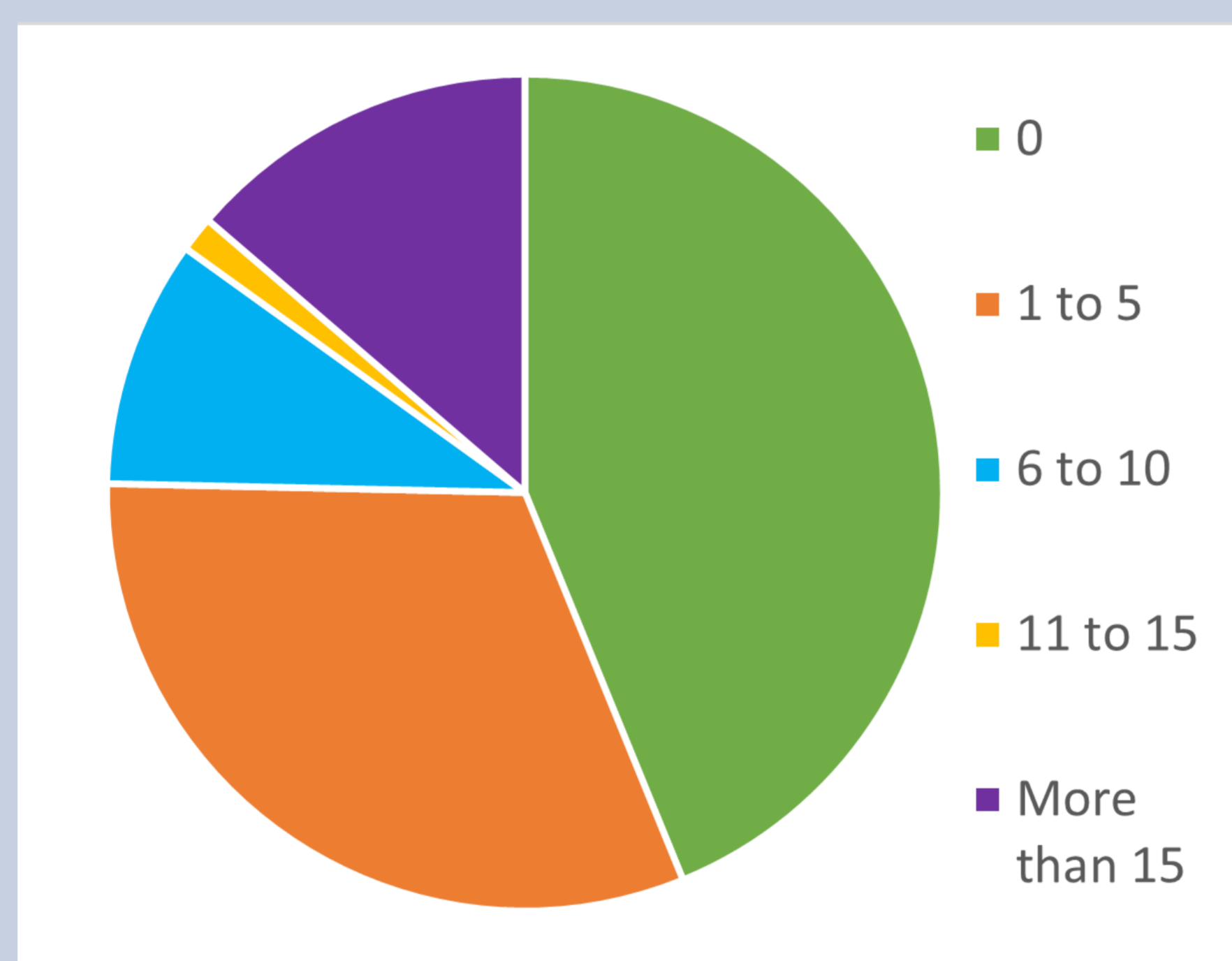


Figure 1 Approximate number of patients with bile reinfusion the HCPs reported having experience in caring for

Of those who had heard of BR (n = 54), there was a wide range of confidence levels reported on various aspects of the BR process. There were more respondents with lower ratings ('not confident at all' or 'slightly confident') than higher ratings ('confident' or 'very confident') in each aspect. The lowest level confidence ratings were on the aspects of practical advice to give on bile reinfusion and the contraindications for BR (Figure 2).

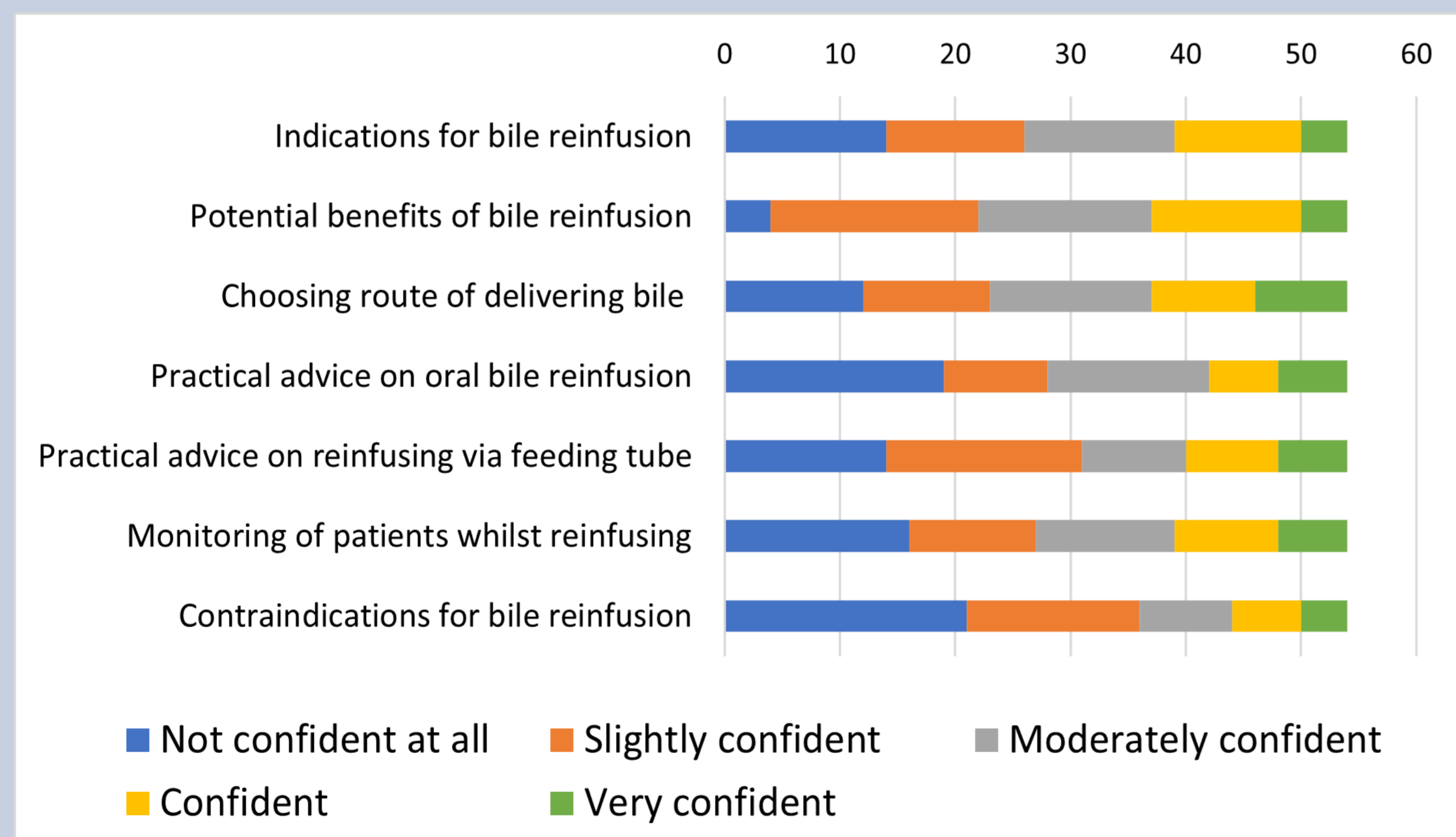


Figure 2 HCPs reported confidence levels on various aspects of the bile reinfusion process

Further analysis compared responses from HCPs working at the PRC with those working in other hospitals in the region. HCPs working at the PRC had much higher levels of experience and confidence with BR, as shown in Table 1. However, the frequency of caring for patients with EBDs was much higher in HCPs working at the PRC (Table 2).

	Pancreatic Resection Centre (n=41)	Other regional hospitals (n=32)
Percentage of HCPs:		
Heard of bile reinfusion	89%	56%
Any experience in caring for patients with bile reinfusion	81%	25%
Experience in caring for >15 patients with bile reinfusion	24%	0%
Reported highest level confidence ratings	66%	19%

Table 1 Comparison of levels of experience and confidence with bile reinfusion between HCPs working at the Pancreatic resection centre and other regional hospitals

	Pancreatic Resection Centre (n = 41)	Other regional hospitals (n = 32)
Percentage of HCPs caring for patients with EBDs:		
Weekly	49%	0%
Few times a month	24%	13%
Few times a year	20%	56%
Never or unsure	7%	31%

Table 2 Comparison of frequency of caring for patients with external biliary drains between HCPs working at the Pancreatic resection centre and other regional hospitals

There was a significant interest in the development of resources to improve confidence with BR. Regional guidelines on BR (78%) and E-learning resources (73%) were the two most desired resources (Figure 3).

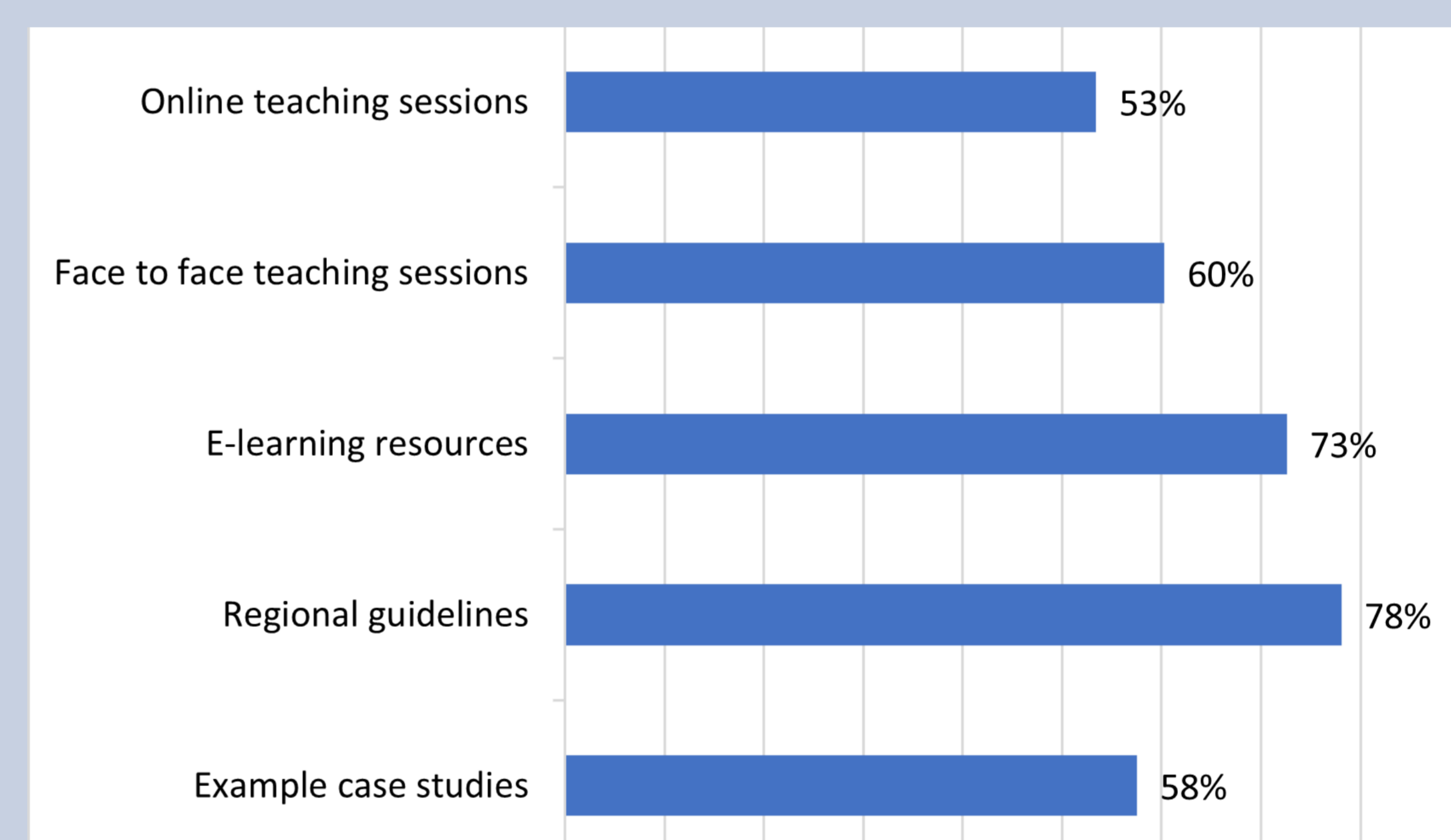


Figure 3 Resources selected by HCPs to help increase confidence in bile reinfusion

Conclusions

This survey highlights the **varied level of experience with BR** amongst HCPs and the **need to help improve confidence** in all HCPs working within this clinical area. There is a clear difference in experience and confidence levels between those HCPs working at the PRC and those in other regional hospitals. This is not surprising, as HCPs working at the PRC look after patients with EBDs more frequently. However, 69% of HCPs working in other regional hospitals reported they care for patients with EBDs either a few times a year or a few times a month. This suggests that it is **valuable to increase HCPs confidence in BR over the whole region**. Pleasingly, there is a **demonstrated desire to upskill** in this area. Regional guidelines and educational resources are currently being developed.

References

- Berry A (2017) Reinfusion of gastrointestinal secretions: The bedside experience. *Practical gastroenterology*; Series #165
 Kahl A, Khurana S & Larson S (2020) Oral Bile Reinfusion in Chronic Percutaneous Transhepatic Cholangiodrainage, *ACG Case Reports Journal*; 7(7)
 Kamiya S, Nagino M, Kanazawa H *et al.* (2004) The value of bile replacement during external biliary drainage. An analysis of intestinal permeability, integrity, and microflora. *Annals of Surgery*; 239(4):510-517