

Faculti Summary

<https://faculti.net/design-of-patient-visit-itineraries-in-tandem-systems/>

This video discusses the complexities of appointment scheduling in healthcare, highlighting the challenges faced in managing patient flow through multi-stage service environments. Healthcare appointment scheduling aims to align provider capacity with patient demand, but it becomes complicated due to various stakeholder objectives, such as patients seeking quicker access and providers wanting to optimize resource utilization.

Traditional models have largely focused on single-stage systems, which simplify the process, whereas real-world healthcare often involves multi-stage processes where patients undergo several service stages, resulting in longer wait times and increased anxiety. The development of personalized visit itineraries, which detail appointment times at each service stage, is suggested as a way to enhance patient experience and operational efficiency.

This video introduces a new optimization framework that accounts for patient flow across multiple stages, aiming to minimize waiting and idle times for both patients and providers. This video framework contrasts with traditional models, which may overlook the complexities of multi-stage systems and lead to inefficiencies.

The author details the two solution methods developed to improve computational efficiency for this framework, demonstrating their effectiveness through case studies in specific healthcare settings. The new model shows a cost reduction in operations while enhancing patient experiences by differentiating between types of waiting and provider idling. Future research is proposed to explore more complex healthcare networks and patient flow dynamics, acknowledging the necessity for advanced modeling frameworks to improve healthcare delivery.