ISPOR Europe
9–12 November 2025, Glasgow, UK

HSD19

Can switching from intravenous (IV) to subcutaneous (SC) formulations save time and resources? A service impact model (SIM)

Bradley S[1], Mann O[1],
[1]*Roche Products Ltd, Welwyn Garden City, UK*

BACKGROUND

- Healthcare system resources are significantly constrained. As demand for care increases, it becomes critical to optimise resources to improve the efficiency of healthcare settings
- IV infusions are resource-intensive, requiring specialist nursing time and consume significant hospital chair time, often in dedicated day units or infusion suites, which are frequently at full capacity
- Many IV preparations also require aseptic compounding by hospital pharmacy staff, adding another layer of cost, time, and logistical complexity to the care pathway
- SC formulations of IV medicines are simpler and quicker to administer and therefore have potential to alleviate the burden in secondary care through significant time and resource savings

OBJECTIVE

- A SIM was developed to quantify the time saved from switching patients from an IV infusion to a SC injection in a UK healthcare setting

METHODS

- A SIM was developed to quantify the impact of switching patients from IV to SC administration for a hypothetical 1000 IV infusions in a single hospital
- The base case assumes:
  - A three-week treatment period for both formulations (Q3W)
  - Clinical outcomes are equivalent for each formulation
  - 75% of IV patients switch to SC
- Service impact over a 12-month period was calculated based on three key resources described below (Box 1); time inputs for each are summarised in Table 1
- Scenario analyses were conducted to explore the impact on different inputs into the SIM, including varying the proportion switching to SC and administering IV infusions over longer intervals compared with Q3W SC injections

Box 1: SIM inputs and assumptions

Pharmacy and aseptic preparation time

- Pharmacist, technician, assistant and cytotoxic work unit times for aseptic preparation for an IV infusion are informed by the Quality Assurance of Aseptic Preparation Services handbook[1]
- The SIM assumes that no aseptic preparation is required for the SC formulation; only time for pharmacy dispensing is included

Chair time

- Administration time is informed by the respective timings for each formulation as defined in the Tecentriq SmPC as an example treatment with both IV and SC formulations[2]
  - It is assumed that patients tolerated the initial 60 minute IV infusion so the SIM IV infusion time is set at 30 minutes, as per the SmPC recommendation for subsequent Tecentriq infusions
  - An administration time of 7 minutes is applied for the SC injection
- Additional time spent where a patient occupies an infusion chair is included, e.g. for cannulation, pre/post flushing and observation

Nurse time

- This input reflects the time a nurse would spend with a patient that is associated with treatment and additional activities of delivering a single dose
- Delivery time for a SC injection reflects the time needed to complete this dose, whereas it is assumed nurses will not stay with a patient for the duration of an IV infusion

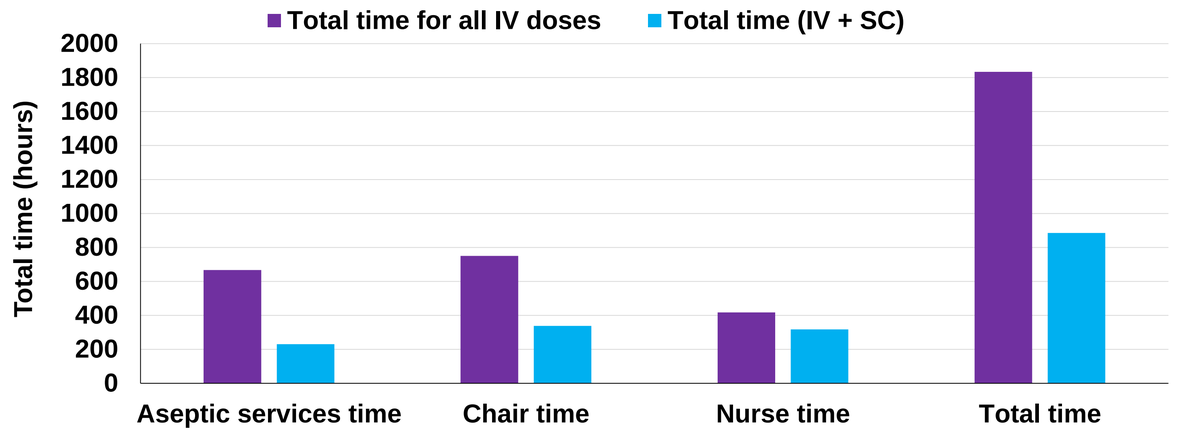
Table 1. SIM scenario – times per patient by input, IV vs SC

Input	IV infusion (mins)	SC injection (mins)
Pharmacy and aseptic preparation time		
Pharmacy dispensing time	5	5
Pharmacist time	7	0
Technician time	17	0
Assistant time	8	0
Time for cytotoxic work units	3	0
Total aseptic services time	**40**	**5**
Chair time		
Administration time	30	7
Additional chair time	15	5
Total chair time	**45**	**12**
Nurse time		
Pre-treatment	10	5
Delivery	5	7
Post-treatment	10	5
Total nurse time	**25**	**17**
Total time per formulation	**110**	**34**

RESULTS

- Over the course of 12 months, switching 75% of 1000 IV patients to a SC injection would release 949 hours of time currently spent administering the IV formulation (Figure 1)
- This includes:
  - 437 hours of aseptic services time
  - 412 hours of chair time
  - 100 hours of nurse time

Figure 1. Time saved from switching 75% of patients from IV to SC

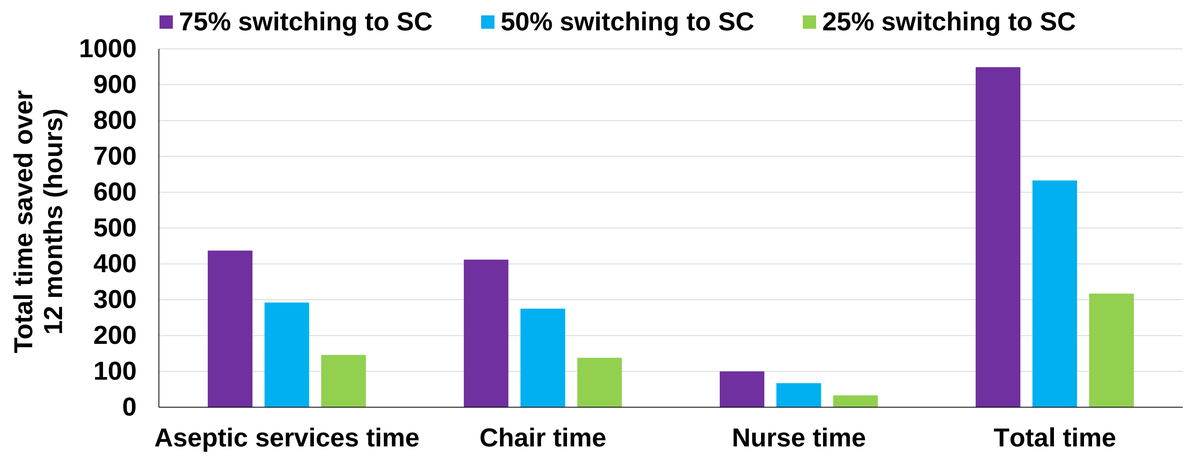


	Aseptic services time (hours)	Chair time (hours)	Nurse time (hours)	Total time (hours)
Total time for all IV doses	667	750	417	1834
Total time for IV post switch	167	188	104	459
Total time for all SC injections	63	150	213	426
Total time (IV + SC)	230	338	317	885

Scenario analysis - varying proportions of patients switching to SC

- Switching to SC administration results in time savings, irrespective of the proportion of patients converting from IV administration
- Even if just 25% of IV patients switch to a SC injection, over 300 hours in total would be released with respect to pharmacy, chair and nurse time (Figure 2)

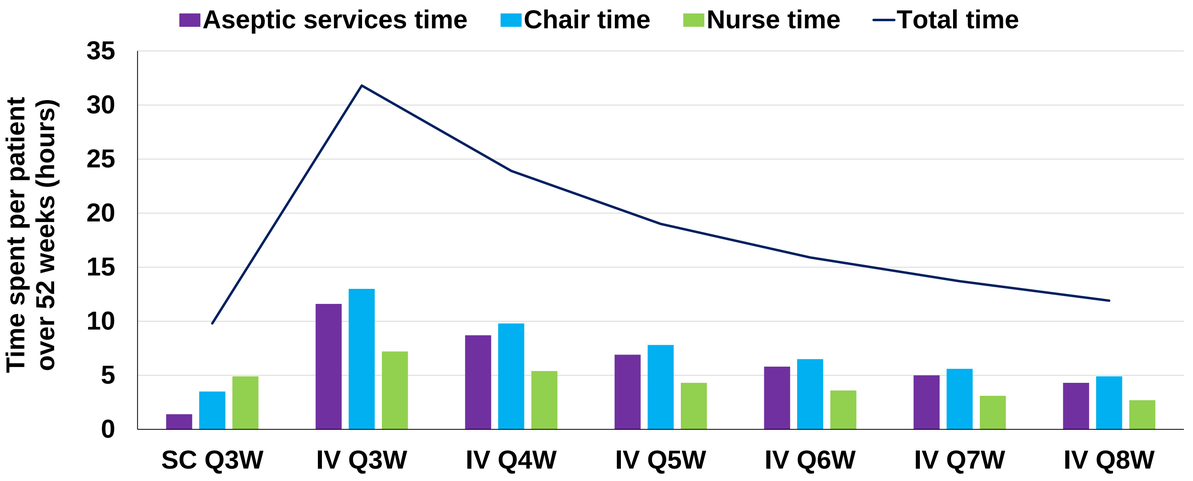
Figure 2. Scenario analysis: impact of proportion switching



Scenario analysis - varying IV dose interval

- Extending the IV dose administration interval up to 8 weekly infusions still results in increased time spent for aseptic services and time spent in chair per patient over a 52 week period compared to Q3W SC injections (Figure 3)
- Savings in nurse time per patient over a 52 week period with Q3W SC injections are only observed compared to IV infusions given every 3 or 4 weeks
  - Although nurse time is reduced with longer IV infusion intervals, Q3W SC injections are still associated with time savings overall compared to IV, even up to 8 weekly IV infusions.

Figure 3. Scenario analysis: varying IV dose interval



CONCLUSIONS

- Switching from IV to SC eases pharmacy workload and reduces both chair time and nurse time
- This SIM shows that adopting SC injections optimises healthcare resource utilisation through significant time savings and could improve productivity
- The time savings from no aseptic services, and reduced chair and nurse time demonstrate how SC formulations of medications can alleviate the burden on healthcare resources, thereby aligning with the core strategic priority within the UK Government's 10 year health plan for the NHS to reduce the pressure on hospital-based services[3]
- The hypothetical findings from this SIM have been demonstrated in clinical practice - please refer to poster RWD141, which concluded significant operational savings for the Clatterbridge Cancer Centre as a result of switching to SC Tecentriq from the IV formulation[4]

DISCLOSURES

This project was sponsored by Roche Products Ltd.

REFERENCES

1. Beaney A, Quality Assurance of Aseptic Preparation Services: Standards Handbook
2. Tecentriq SmPC
3. UK Government, 10 Year Health Plan for England. July 2025
4. Pope R et al. RWD141 poster, ISPOR EU 2025