

What is the impact of OPAT on admission rates for adult patients with Cellulitis: A Systematic Review

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Background

Cellulitis is a common cause of hospitalisation for intravenous antimicrobial therapy. An alternative to this would be Outpatient Parenteral Antimicrobial Therapy (OPAT) which could reduce the numbers of patients admitted to acute settings.

Increasingly hospitals have been collaborating with OPAT services to move care closer to home. Management of patients within OPAT teams necessitates meticulous risk management and distinct pathways in the event of patient deterioration.

Results

This study demonstrates a statistically significant reduction in admission rates associated with OPAT for this patient group. A total of 5281 participants were included across all the included studies. Of these 12.8% or n=676 participants were admitted to hospital during OPAT treatment. Table 1 below details the findings of this review in terms of admission rates.

Table 1

Study Author	Total number of participants	Number of patients admitted	% Admission	P value
Seaton <i>et al.</i> (2005)	n=114	n=8	7%	-
Kieran <i>et al.</i> (2009)	n=56	n=5	8.9%	-
Allison <i>et al.</i> (2014)	n=782	n=207	26%	-
Zhang <i>et al.</i> (2016)	n=267	n=14	5.5%	-
Chan <i>et al.</i> (2017)	n=120	n=12	10%	-
Jacobs <i>et al.</i> (2017)	n=230	n=32	15.2%	-
Hatcher <i>et al.</i> (2019)	n=1793	n=148	8.3%	-
Ong <i>et al.</i> (2019)	n=100	n=5	10.4%	0.023
Yadav <i>et al.</i> (2019)	n=153	n=6	4.4%	-
Yadav <i>et al.</i> (2021)	n=1666	n=239	12%	0.529
Overall totals	n=5281	n=676	12.8%	-

Table 2 below displays the adverse events correlated with OPAT in this study. 5 studies reported on line events (mean 29.6, median 20, min 5, max 68). 8 studies recorded antibiotic events (mean 26.6, median 12, min 4, max 128). In 6 of these 8 the majority of recorded adverse events were not OPAT related (mean 20.8, 10.5).

Study	% Adverse event	Line event	Antibiotic event	Not OPAT related
Seaton <i>et al.</i> (2005)	19%	-	n=13	n=5
Kieran <i>et al.</i> (2009)	20%	n=5	n=4	-
Allison <i>et al.</i> (2014)	-	n=20	n=30	n=63
Zhang <i>et al.</i> (2016)	-	-	n=6	-
Jacobs <i>et al.</i> (2017)	-	-	n=8	n=28
Hatcher <i>et al.</i> (2019)	10.9%	n=68	n=128	n=12
Yadav <i>et al.</i> (2019)	18.9%	n=15	n=11	n=8
Yadav <i>et al.</i> (2021)	Pre OPAT: 5.7% Post OPAT: 5%	Pre: n=49 Post: n=40	Pre: n=10 Post: n=13	Pre: n=14 Post: n=9

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Objective : A comprehensive examination of the impact of OPAT on admission rates internationally.

Method: A computerized search of electronic databases was performed. The searches were conducted from December 2021 to January 2022. All selected studies were observational.

Study Author	Sample (n=)	OPAT success	% OPAT success
Seaton <i>et al.</i> (2005)	n=109	n=106	97.0%
Kieran <i>et al.</i> (2009)	n=56	n=52	92.8%
Allison <i>et al.</i> (2014)	n=782	n=575	74.0%
Zhang <i>et al.</i> (2016)	n=267	n=252	94.5%
Chan <i>et al.</i> (2017)	n=120	n=108	90.0%
Hatcher <i>et al.</i> (2019)	n=1793	n=1645	91.7%
Yadav <i>et al.</i> (2019)	n=137	n=131	95.6%
Yadav <i>et al.</i> (2021)	n=808	n=794	98.3%

Eight studies considered OPAT Treatment success +/- OPAT treatment failure. Table 3. above demonstrates the % rate of treatment success extracted from each study. OPAT treatment success is significant ranging from 74% to 98.3%.

Discussion & Conclusion

This review has presented the evidence surrounding the use of OPAT in treating adult patients with cellulitis and its impact on admission rates.

Key findings:

- Statistically significant reduction in admission rates associated with OPAT for this patient group.
- Only 12.8% of participants readmitted.
- 87.2% of participants not readmitted.
- Co-morbidities and reduced capacity OPAT models are correlated with readmissions.
- OPAT is associated with a significant rate of treatment success with a mean of 91.7%.
- OPAT has the potential to provide high quality cost effective care at home
- Significant cost savings are possible.

Acknowledgements & Further Information

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