



Medically Refractory Crohn's Colitis

Ileostomy Alone vs Colectomy – Retrospective Outcomes Analysis

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Introduction

- Medically Refractory Crohn's Colitis (MRCC) necessitates surgery for patients that can be in an unfavorable perioperative state: unstable, hyper-inflammatory, malnourished and on immunosuppressive agents. This contributes to the 30% morbidity rate for the standard surgical management option - Acute Colectomy with Ileostomy Formation (ACIF).¹
- European Consensus Guidelines also recommend an alternative surgical option - Diverting Ileostomy Formation Alone (DIFA).²
- Advancements in Crohn's Disease medical therapy with the biologics era coupled with the historic benefits of enteric diversion mean DIFA has the potential to delay definitive surgery into a safer, elective setting to allow time for pre-colectomy optimisation, or mitigate the need for colectomy altogether.^{2,3}
- There is no published data outlining the current practice and post-operative outcomes for the surgical management of MRCC in New Zealand (NZ). Local experience in a specialised colorectal unit (Waikato Hospital) utilises both surgical modalities.

Aims

In the setting of DIFA versus ACIF for the surgical management of MRCC in the urgent and semi-urgent setting in NZ:

- Complete a pilot study to help guide future prospective/comparative studies into determining the safety and feasibility of DIFA versus ACIF.
- Identify and compare the current surgical practice and associated post-operative complication rates.
- Identify the delayed definitive colectomy and ileostomy reversal rates for those that undergo DIFA.

Methods

NATIONAL, MULTI-CENTRE, RETROSPECTIVE OUTCOMES ANALYSIS

Defunctioning Ileostomy Formation Alone vs Acute Colectomy and Ileostomy Formation (DIFA vs ACIF)

Design and Analysis

20 DHBs invited → 7 DHBs recruited → 6 Local investigators
Data collection → Audit Support Units/local ethics → ICD-10 diagnoses

Inclusion Criteria

Age ≥ 16
DIFA or ACIF
MRCC (gastro-surgical consensus)
Between 1/1/1999 and 31/12/2019
Urgent setting (within 24 hours) OR
Semi-urgent setting (within 7 days)

Exclusion Criteria

Hollow viscous perforation
Acute small bowel obstruction
Ileocaecal or perianal disease alone
Previous subtotal or total colectomy
Pre-existing ileostomy in situ
Intra-abdominal malignancy

Primary Outcomes

30-day all-cause post-operative morbidity and Clavien-Dindo complications
Median length of hospital stay

Other Safety and Feasibility Outcomes

30-day all-cause post-operative mortality, surgical approach and 30-day return to theatre
30-day colectomy rate, 1-year colectomy rate and 18-month ileostomy reversal rate

Statistical Analysis (SPSS Version 24)

Mean average age – parametric data Fisher's Exact Test p-value – categorical
Median length of stay – non-parametric data Mann Whitney U-test – continuous

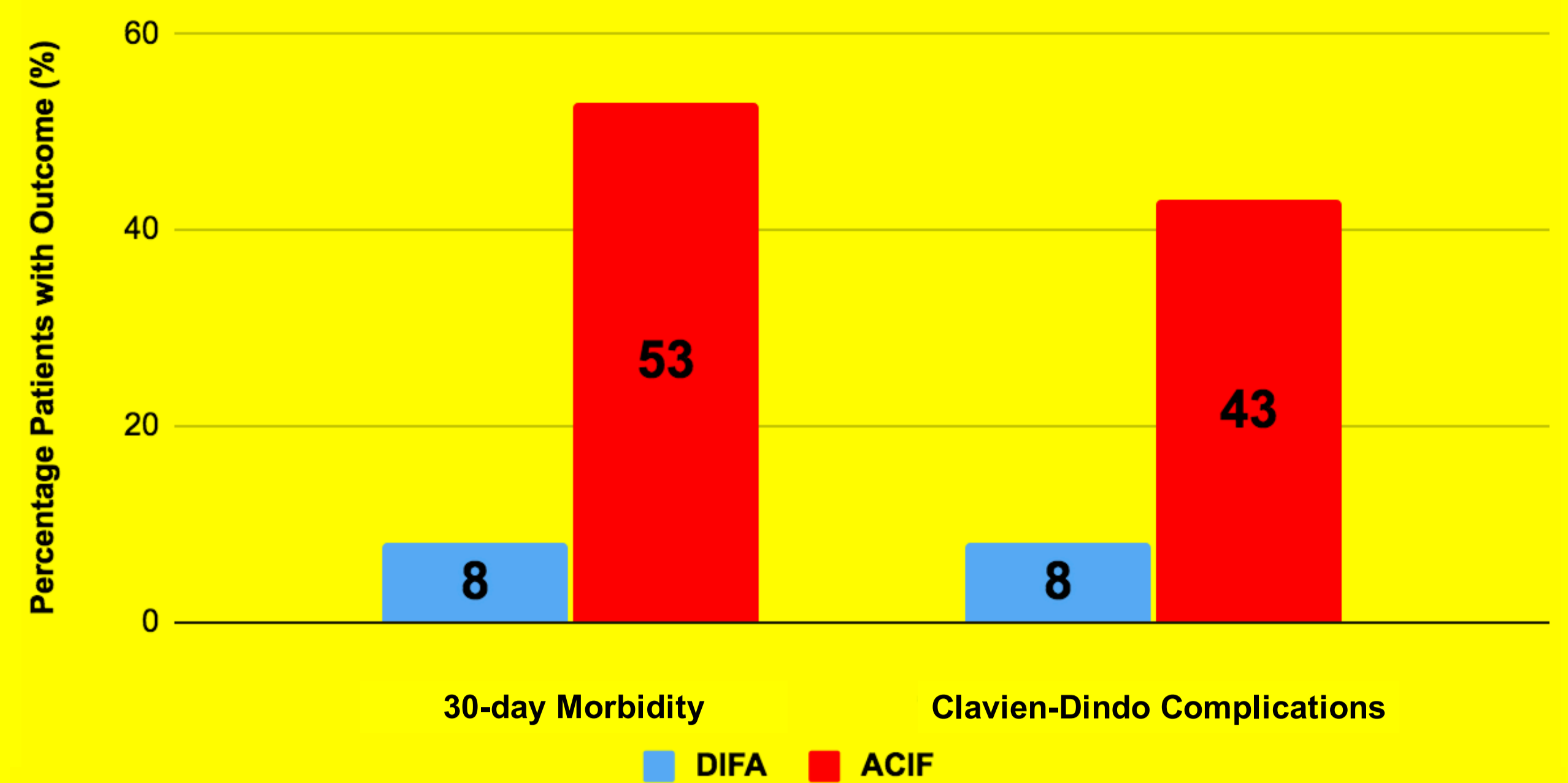
Baseline Characteristics

		DIFA n=12	ACIF n=70
Age	Mean (SD)*	36 (14)	43 (18)
	Range	17-56	17-83
Gender	Male	5 (42%)	28 (40%)
	Female	7 (58%)	42 (60%)
Ethnicity	Maori	1 (8%)	4 (6%)
	NZ European	8 (67%)	64 (91%)
	Asian	0	1 (1%)
	Fijian	1 (8%)	0
	Other European	2 (17%)	1 (1%)
Charlson Comorbidity Index	0	11 (92%)	44 (63%)
	1-2	1 (8%)	17 (24%)
	≥3	0	9 (13%)
Comorbidities		2 (17%)	22 (31%)
Smokers		0	5 (7%)

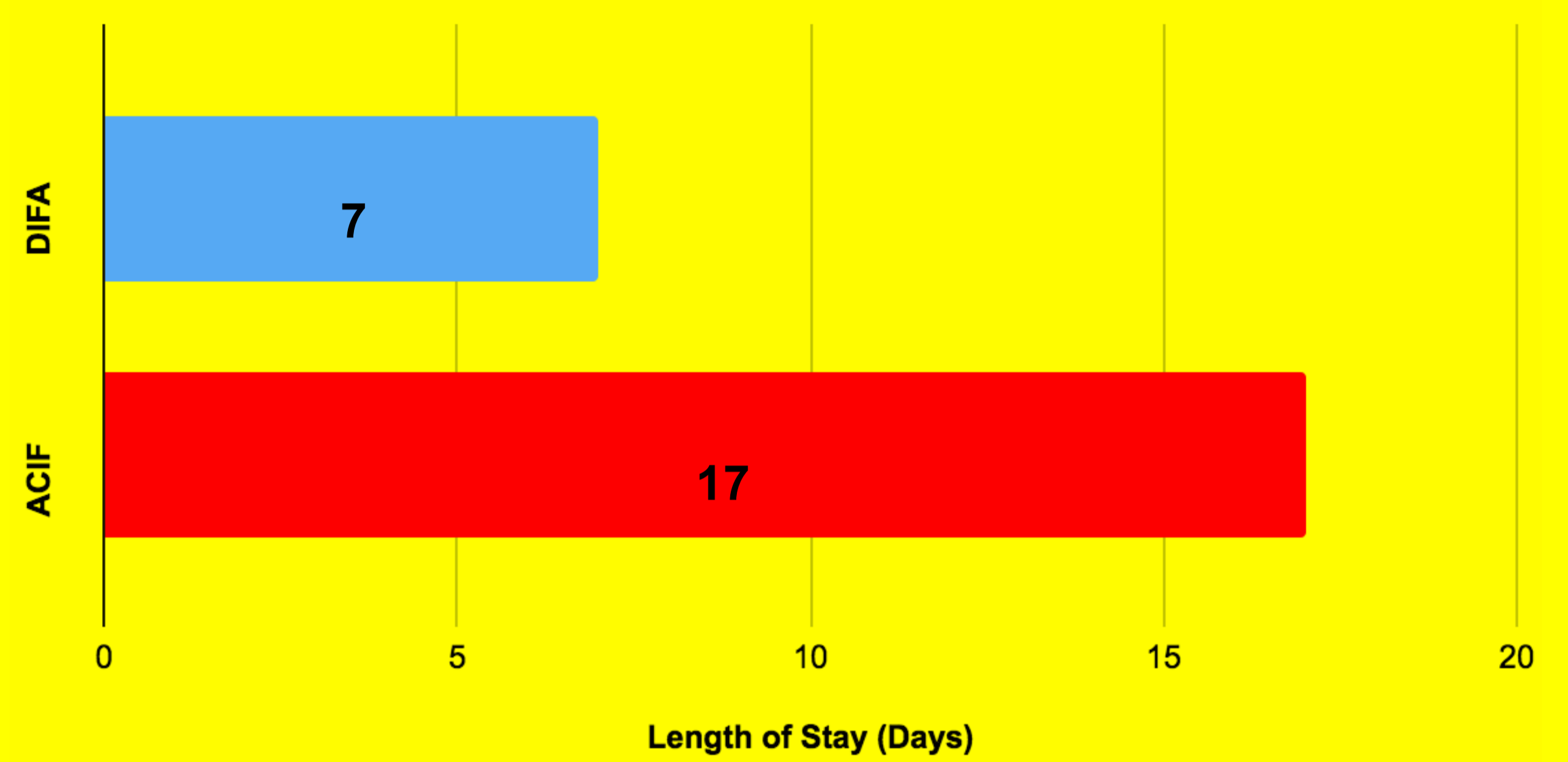
DIFA – Defunctioning Ileostomy Formation Alone, ACIF – Acute Colectomy and Ileostomy Formation, SD – Standard Deviation, NZ – New Zealand.
*Mean expressed as average value (standard deviation).

Results

30-day Morbidity and Clavien-Dindo Complications DIFA vs ACIF



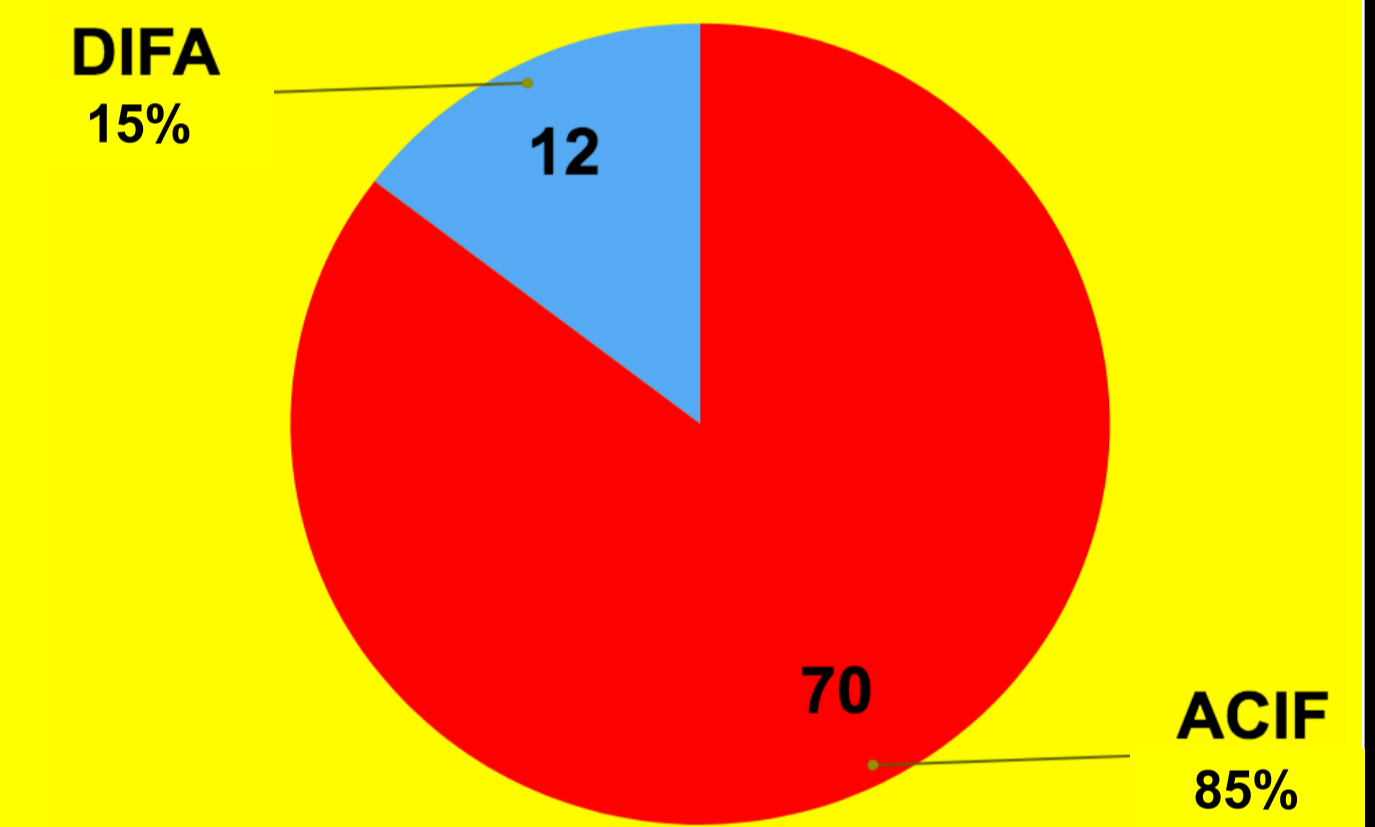
Median Length of Stay DIFA vs ACIF



DIFA Feasibility Outcomes n=12

Colectomy Within 30-days	0
Colectomy From 30-days To 1-year	2 (17%)
Ileostomy Reversal Within 18-months	3 (25%)

DIFA vs ACIF Patient Split



Safety and Feasibility Outcomes

	DIFA n=12	ACIF n=70	p-value*
30-day Morbidity	1 (8%)	37 (53%)	0.004
Clavien-Dindo Complications	1 (8%)	30 (43%)	0.026
Median Length of Stay (IQR)	7 (9)	17 (13)	0.018^
30-day Mortality	0	3 (4%)	1.000
Laparoscopic Surgery	9 (75%)	13 (19%)	<0.001
Open Surgery	3 (25%)	56 (80%)	<0.001
30-day Return To Theatre	0	7 (10%)	0.586

IQR – Interquartile Range, DIFA – Defunctioning Ileostomy Formation Alone, ACIF – Acute Colectomy and Ileostomy Formation.
*All p-values are Fisher's Exact Test p-values except Median Length of Stay.
^ p-value for Median Length of Stay calculated by Mann Whitney U-Test with U = 207.

Conclusion

- DIFA is six times less commonly performed than ACIF to surgically manage MRCC in New Zealand despite consensus guidelines supporting its use and a known ACIF post-operative morbidity rate of 30%.
- DIFA had significantly lower rates of 30-day morbidity, Clavien-Dindo complications, median length of stay and open surgical approach over ACIF.
- All of the DIFA cohort were able to safely delay colectomy, with 84% not requiring colectomy within one year. Furthermore, 25% achieved disease remission and restoration of bowel continuity by 18-months.
- DIFA is a promising and safe option to manage MRCC in the urgent/semi-urgent setting for the NZ population.
- Larger, prospective studies with detailed sub-group analyses reviewing medication usage and clinical perioperative decision making are required to validate DIFA further.

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