



Audit & Feedback

MetaLab

International Audit & Feedback MetaLab Meeting:
Putting A&F into real world practice

Does Audit & Feedback Improve Surgical Quality In Non-Muscle Invasive Bladder Cancer?

Steven MacLennan, Kevin Gallagher, Param Mariappan, Veeru Kasivisvanathan
& RESECT study group

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SISTEMA SANITARIO REGIONALE

ASL
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REGIONE
LAZIO



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del Sacro Cuore



The Ottawa
Hospital
Research Institute

L'Hôpital
d'Ottawa
Institut de recherche

Question.

Do patients with NMIBC receive
recommended bladder instillations?

Answer.

**Mibbe aye,
mibbe naw**

[ˈmɪbə eɪ, ˈmɪbə nɑː]

—————
Maybe yes, maybe no



Evidence and guidance

EUROPEAN UROLOGY 69 (2016) 231–244

available at www.sciencedirect.com
journal homepage: www.europeanurology.com

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Platinum Priority – Guidelines
Editorial by J. Alfred Witjes on pp. 245–246 of this issue

Systematic Review and Individual Patient Data Meta-analysis of Randomized Trials Comparing a Single Immediate Instillation of Chemotherapy After Transurethral Resection with Transurethral Resection Alone in Patients with Stage pTa–pT1 Urothelial Carcinoma of the Bladder: Which Patients Benefit from the Instillation?

Richard J. Sylvester^{a,*}, Willem Oosterlinck^b, Sten Holmang^c, Matthew R. Sydes^d, Alison Birtle^e, Sigurdur Gudjonsson^f, Cosimo De Nunzio^g, Kikuo Okamura^h, Eero Kaasinenⁱ, Eduardo Solsona^j, Bedeir Ali-El-Dein^k, Can Ali Tatar^l, Brant A. Inman^m, James N'Dowⁿ, Jorg R. Oddens^o, Marek Babjuk^p

High certainty evidence

“Reduces risk of recurrence by 35%”



EUROPEAN UROLOGY ONCOLOGY xxx (xxxx) xxx–xxx

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Achieving Benchmarks for National Quality Indicators Reduces Recurrence and Progression in Non–muscle-invasive Bladder Cancer

Paramanathan Mariappan^{a,b,*}, Allan Johnston^c, Matthew Trail^d, Sami Hamid^e, Graham Hollins^e, Barend A. Dreyer^f, Sara Ramsey^g, Luisa Padovani^g, Roberta Garau^g, Julia Guerrero Enriquez^h, Alasdair Bodenⁱ, Gianluca Maresca^j, Helen Simpson^j, Rami Hasan^{a,c}, Claire Sharpe^k, Benjamin G. Thomas^{l,r}, Altaf H. Chaudhry^k, Rehan S. Khan^l, Jaimin R. Bhatt^c, Imran Ahmad^{c,m}, Ghulam M. Nandwani^d, Konstantinos Dimitropoulos^j, Lydia Makaroff^{n,o}, Johnstone Shaw^p, Catriona Graham^q, David Hendry^c, for the members of the Scot BC Quality OPS Clinical Collaborative

Real world evidence

“meeting targets...in the real world were independently associated with delays to recurrence and progression”

EAU Guidelines on Non-muscle-invasive Bladder Cancer (TaT1 and CIS)

P. Gontero (Chair), A. Birtle, E. Compérat, J.L. Dominguez Escrig, F. Liedberg, P. Mariappan, A. Masson-Lecomte, A.H. Mostafid, B.W.G. van Rhijn, T. Seisen, S.F. Shariat, E.N. Xylinas
Patient Advocates: R. Wood
Guidelines Associates: O. Capoun, B. Pradere, B.P. Rai, F. Soria, V. Soukup
Guidelines Office: E.J. Smith, H. Ali

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7.10 Guidelines for adjuvant therapy in TaT1 tumours and for therapy of carcinoma *in situ*

General recommendations	Strength rating
Counsel smokers to stop smoking.	Strong
The type of further therapy after transurethral resection of the bladder (TURB) should be based on the risk groups shown in Section 6.3 and Table 6.1. For determination of a patient's risk group use the 2021 EAU risk group calculator available at www.nmibc.net .	Strong
In patients with tumours presumed to be at low risk and in those with small papillary recurrences (presumably Ta LG/G1) detected more than one year after previous TURB, offer one immediate single chemotherapy instillation.	Strong

Study rationale

NMIBC: high recurrence rates, costly to treat, burdensome for patients & families/carers

Surgical 'quality' improves NMIBC outcomes – what is 'quality'?

Evidence based quality indicators:

- Tumour documentation
- Resection documentation
- Detrusor muscle in sample
- **Single instillation of intravesical chemotherapy (SI-IVC)**

Variable SI-IVC practice:



Scotland (QPIs): 16%-90% (2016)

Europe: 22% (France) to 61% (UK)

USA: 0.3% to 50%

Why does practice vary?

Why does practice vary?

UROLOGIC ONCOLOGY

Urologic Oncology: Seminars and Original Investigations 38 (2020) 774–782

Review Article

Low compliance to guidelines in nonmuscle-invasive bladder carcinoma: A systematic review



Keiichiro Mori, M.D.^{a,b}, Noriyoshi Miura, M.D.^{a,c}, Marek Babjuk, M.D.^d, Pierre I. Karakiewicz, M.D.^e, Hadi Mostafaei, M.D.^{a,f}, Ekaterina Laukhtina, M.D.^{a,g}, Fahad Quhal, M.D.^{a,h}, Reza Sari Motlagh, M.D.^a, Benjamin Pradere, M.D.^{a,i}, Shoji Kimura, M.D.^b, Shin Egawa, M.D.^b, Shahrokh F. Shariat, M.D.^{a,d,g,j,k,l,m,n,*}

BJU Int 2021; 128: 225–235 doi:10.1111/bju.15336

BJUI
BJU International

Original Article


What influences adherence to guidance for postoperative instillation of intravesical chemotherapy to patients with bladder cancer?

Jennifer Dunsmore¹, Eilidh Duncan², Paramananthan Mariappan³ , Marijn de Bruin^{4,5}, Sara MacLennan¹, Konstantinos Dimitropoulos^{1,6}, Veeru Kasivisvanathan⁷, Hugh Mostafid⁸, Alberto Briganti^{9,10}, James N'Dow^{1,6,10} and Steven MacLennan¹ 



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Platinum Priority – Review – Bladder Cancer – Editor's Choice
Editorial by Paramananthan Mariappan on pp. 60–62 of this issue.

Quality Indicators for Bladder Cancer Services: A Collaborative Review

Jeffrey J. Leow^{a,b,c}, James W.F. Catto^d, Jason A. Efstathiou^e, John L. Gore^f, Ahmed A. Hussein^{g,h}, Shahrokh F. Shariat^{i,j,k,l,m}, Angela B. Smithⁿ, Alon Z. Weizer^o, Manfred Wirth^p, J. Alfred Witjes^q, Quoc-Dien Trinh^{c,*}

Theoretical Domains Framework (TDF) informed interview study

Critical case study approach (high, medium, low QPI achievement [Scotland] + opportunistic sampling [England])



Developed typical patient pathway with interviewees + TDF informed interview study

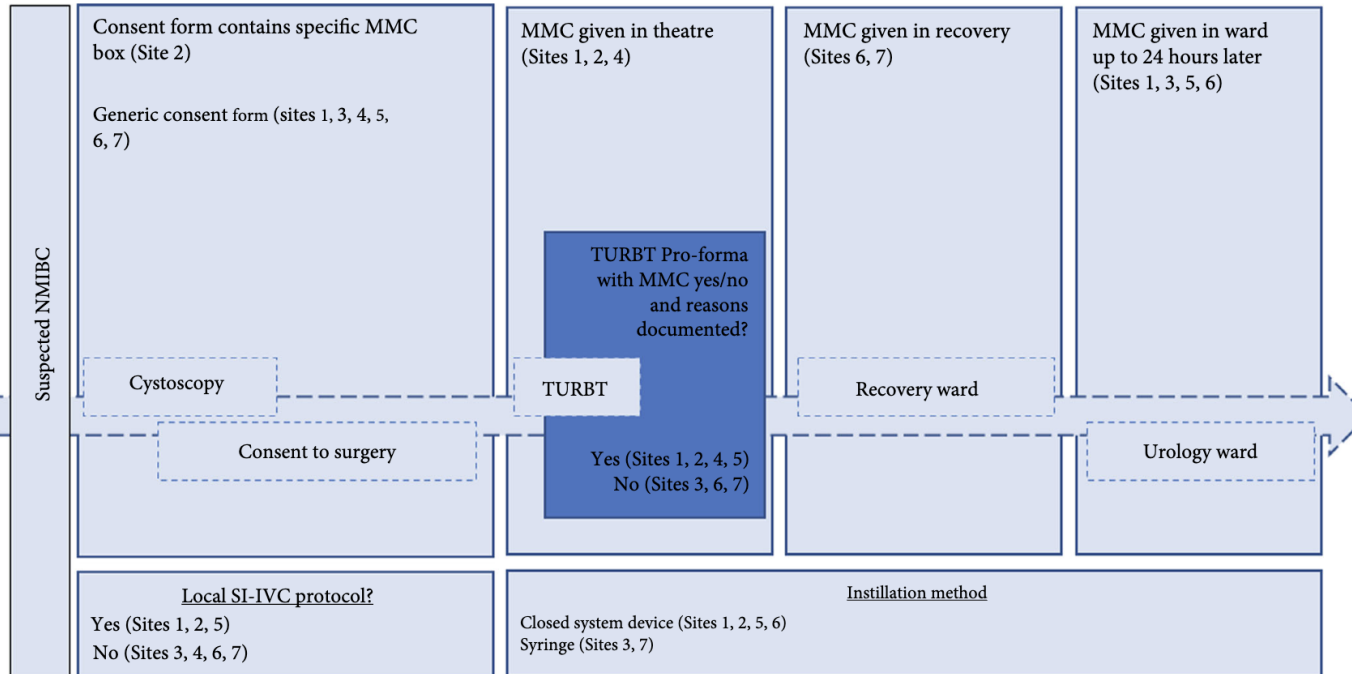
UK specific (consultants, registrars, nurses at each site)

Barriers & Facilitators to single instillations (prescribing & instilling as discrete behaviours)

Original Article

What influences adherence to guidance for postoperative instillation of intravesical chemotherapy to patients with bladder cancer?

Jennifer Dunsmore¹, Eilidh Duncan², Paramanathan Mariappan³ , Marijn de Bruin^{4,5}, Sara MacLennan¹, Konstantinos Dimitropoulos^{1,6}, Veeru Kasivisvanathan⁷, Hugh Mostafid⁸, Alberto Briganti^{9,10}, James N'Dow^{1,6,10} and Steven MacLennan¹ 



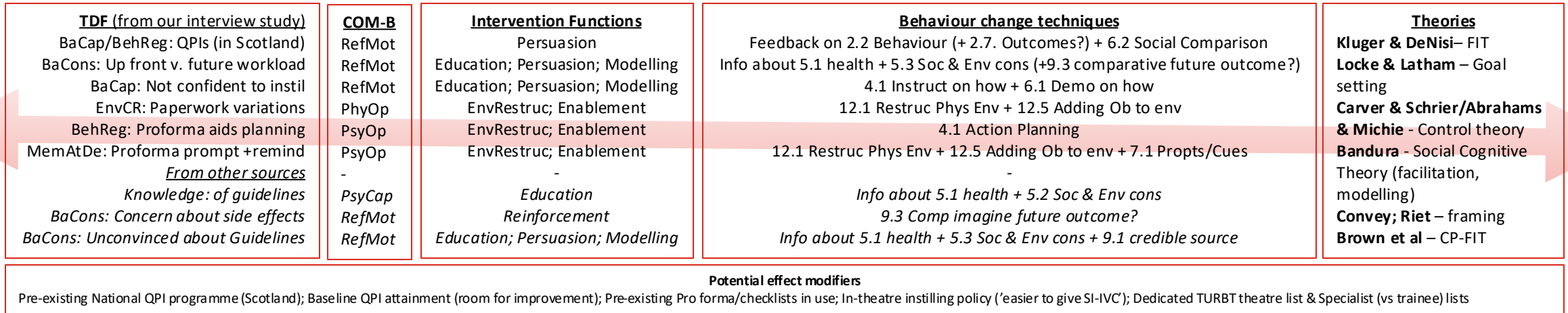
Barriers

- MMC storage & delivery (ward v pharmacy)
- Timing (immediately v in recovery = opportunity loss)
- Key influence of lead (e.g. not convinced of the evidence/benefits)
- Concern about perforations
- Increases workload
- Not enough trained staff

Facilitators





- Easy to use instilling devices
- Documentation (reminders in consent forms, op notes)
- QPI programme (Scotland – don't like missing targets, accounting reasons, improvement plans)

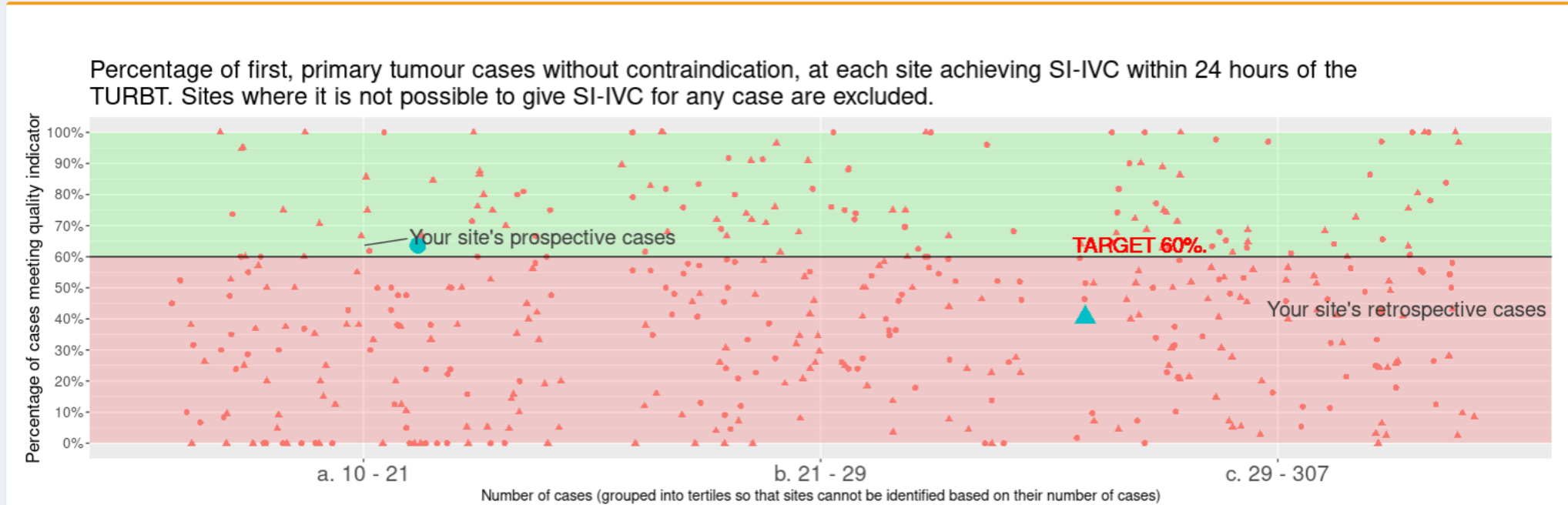
Intervention development map



Dashboard (a)

Quality indicator 2: Single instillation of intra-vesical chemotherapy (SI-IVC) within 24 hours of the TURBT

 60% Is the target level for this indicator	 100 Is the number of eligible cases registered at your site for both phases	 43.8% Is your achievement rate for this indicator for both phases	 44.3% Is the average achievement rate for this indicator across all sites in the study
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SI-IVC given within 24 hours

Compare

Participating sites

Select tumour grade

All

Select Cohort

All

Select Continent

All

Scatter plot of all sites

Bar chart: retro vs pro comparison

Enter site ID

59344

Enter site PIN

Dashboard (b)

Guideline & evidence reminder

Behavior change statement addressing beliefs about consequences

Why give SI-IVC? High level evidence shows that SI-IVC reduces the risk of recurrence by 35% (HR 0.65 [95%CI 0.58-0.74]) and 5-year absolute recurrence rates by 14% (from 59% to 45%) in patients presumed to be at low or intermediate risk of recurrence (expected EORTC recurrence score < 5) ([Sylvester et al 2016](#)).

Urology staff note that due to competing demands, instilling SI-IVC can be difficult to achieve in theatre or on the recovery or urology ward ([Dunsmore et al 2021](#)). However, it is important to remember that patients who receive SI-IVC are less likely to have a recurrence or require a repeat TURBT which will reduce both the department's future workload, and yours. This will also save costs ([Fiefer et al 2010](#)).

Guidelines Strongly Recommend that patients with tumours presumed to be at low risk and in those with small papillary recurrences detected more than one year after previous TURBT, should be offered one immediate chemotherapy instillation ([Babjuk et al 2019](#)).

What should we aim for? Given it is not possible to accurately predict grade for all tumours at first TURBT ([Mariappan et al 2017](#)), aiming to give SI-IVC in at least 60% of your site's TURBTs will reduce early recurrences and 5-year recurrence rates.

Please access the individual case report using the reports module in the left hand panel in REDCap (requires REDCap access - if you are not a study collaborator please contact the lead collaborator at your site if you wish to have access to the case lists). You can identify which cases did not have SI-IVC and by clicking on the record ID in the report, go into the record and review details of the case

How can we improve? You can implement evidence based strategies to improve SI-IVC instillation rates ([Dunsmore et al 2021](#))

Rationale for targets

- Include "+/- post-operative intravesical chemotherapy" on the theatre booking request/ operation name.
- Include in patient consent process pre-operatively.
- Include in theatre briefing.
- Include statement on operative proforma to be completed for all patients – "For SI-IVC yes/no". An example TURBT operative proforma can be downloaded [here](#).
- Surgeon (or trainee) to complete prescription and drug order if SI-IVC not given in theatre.
- Resources and infrastructure to consider:
 - Surgeons or trainees complete instillation in theatre or recovery if possible
 - Trained nurses for SI-IVC instillation if not done in theatre
 - Use of pre-mixed "closed system" devices to reduce cytotoxic risk
 - Dedicated pharmacist/ liaison pharmacist

Access to reporting proforma

Strategies for improvement

Can we review the cases to get more detail? You can use the case report summary in the left hand panel in REDCap to see the individual cases at your site that make up this quality indicator outcome.

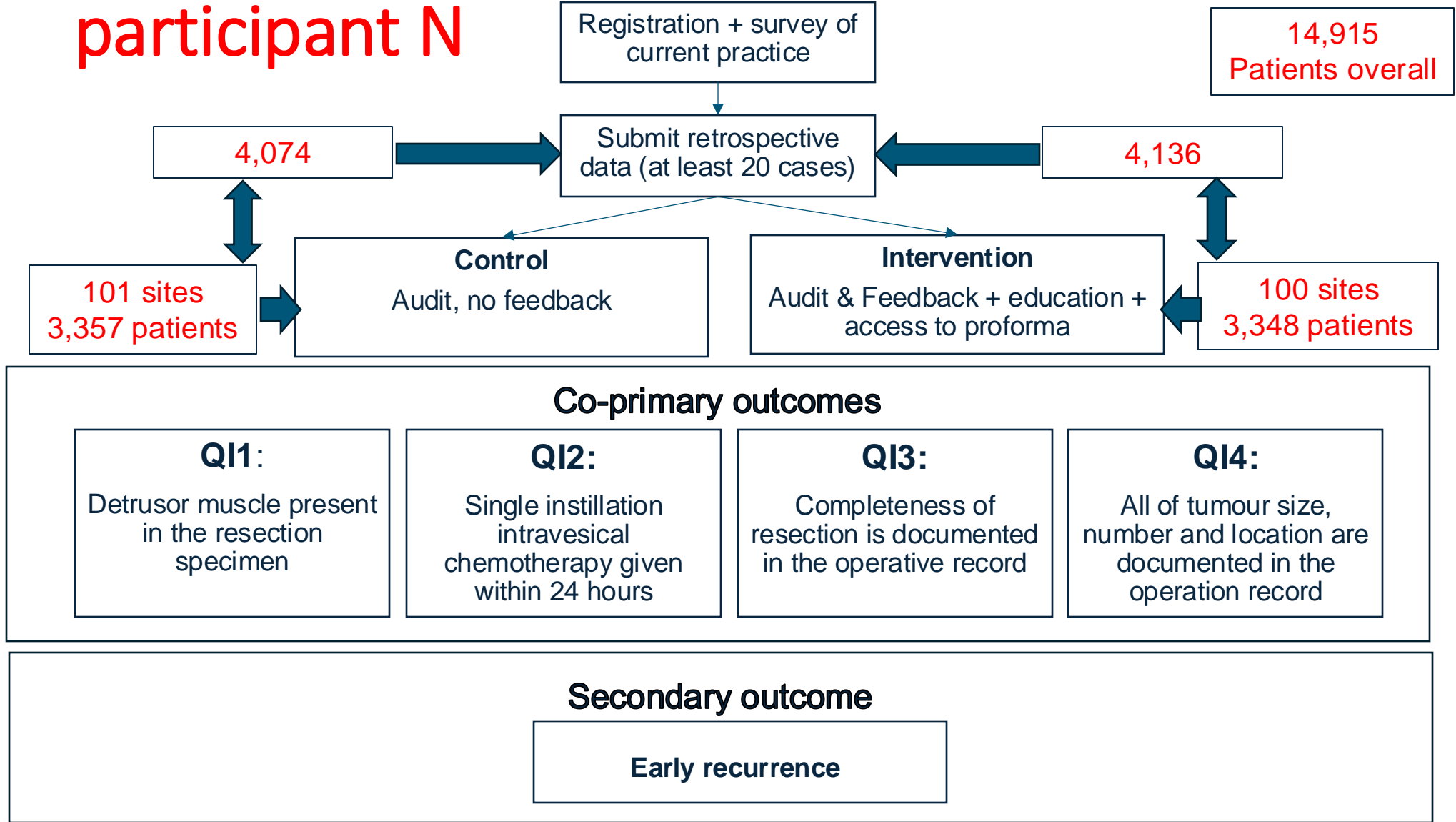
Protocol

Audit, Feedback, and Education to Improve Quality and Outcomes in Transurethral Resection and Single-Instillation Intravesical Chemotherapy for Nonmuscle Invasive Bladder Cancer Treatment: Protocol for a Multicenter International Observational Study With an Embedded Cluster Randomized Trial

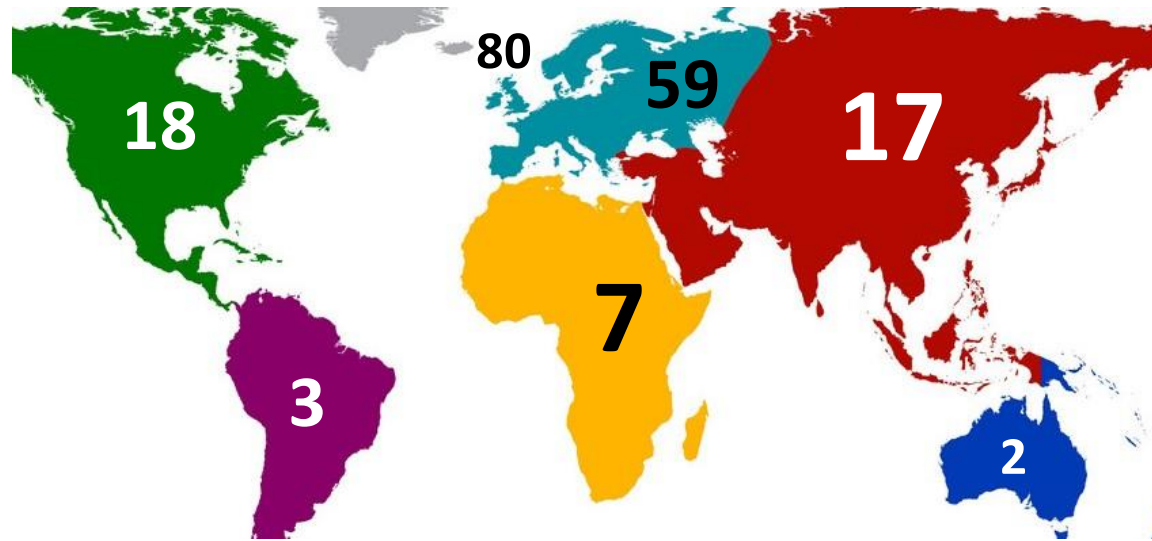
Kevin Gallagher^{1,2,3}, BSc (Hons), MRCS, MBChB, MSc, PhD; Nikita Bhatt^{2,4}, MMed, MCh, MBBS; Keiran Clement^{2,5}, BMedSci (Hons), MBChB; Eleanor Zimmermann^{2,6}, BSc, BMBS; Sinan Khadhour^{2,7}, BSc (Hons), MBBS, PhD; Steven MacLennan⁷, BA (Hons), MRes, PhD; Meghana Kulkarni^{2,8}, BSc (Hons), MBBS, MRCS; Fortis Gaba^{2,9}, MBChB, MPhil; Thineskrishna Anbarasan^{2,10}, MBChB; Aqua Asif^{2,3}, BSc (Hons), MBChB; Alexander Light^{2,11}, BSc (Hons), MBBS, MRCS; Alexander Ng^{2,3}, BSc, MBBS; Vinson Chan^{2,3}, MBChB; Arjun Nathan^{2,3}, BSc, MBBS, MRCS; David Cooper⁷, MA, MSc, PhD; Lorna Aucott⁷, BSc (Hons), PhD; Gautier Marcq^{12,13}, MSc, MD; Jeremy Yuen-Chun Teoh¹⁴, MBBS; Patrick Hensley¹⁵, MD; Eilidh Duncan⁷, BSc (Hons), MSc, PhD; Beatriz Goulao⁷, BSc (Hons), MSc, PhD; Tim O'Brien¹⁶, BA, BM BCh, DM; Matthew Nielsen¹⁷, MS, MD; Paramanathan Mariappan¹⁸, MBBS (Hons), CBU (Mal), PhD; Veeru Kasivisvanathan^{2,3}, BSc, MBBS, PhD

Design & participant N

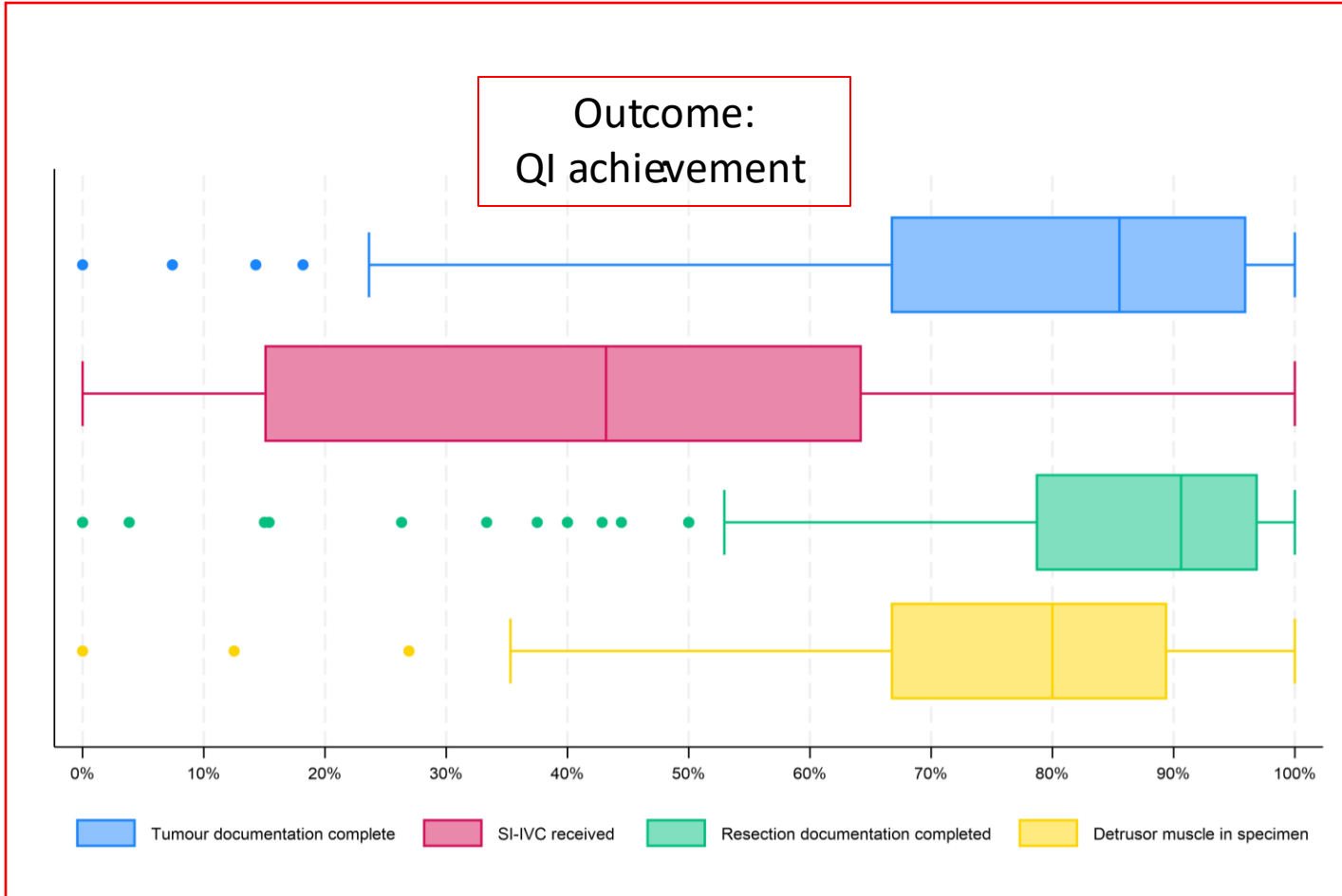
- *NOTES**
- Intervention delivered at cluster level
 - Monthly reminder
 - Accessible to all surgeons in site
 - Site lead responsible for communicating to team
 - Survey of changes implemented



Participating sites



Results – retrospective, observational



Outcome: Early Recurrence

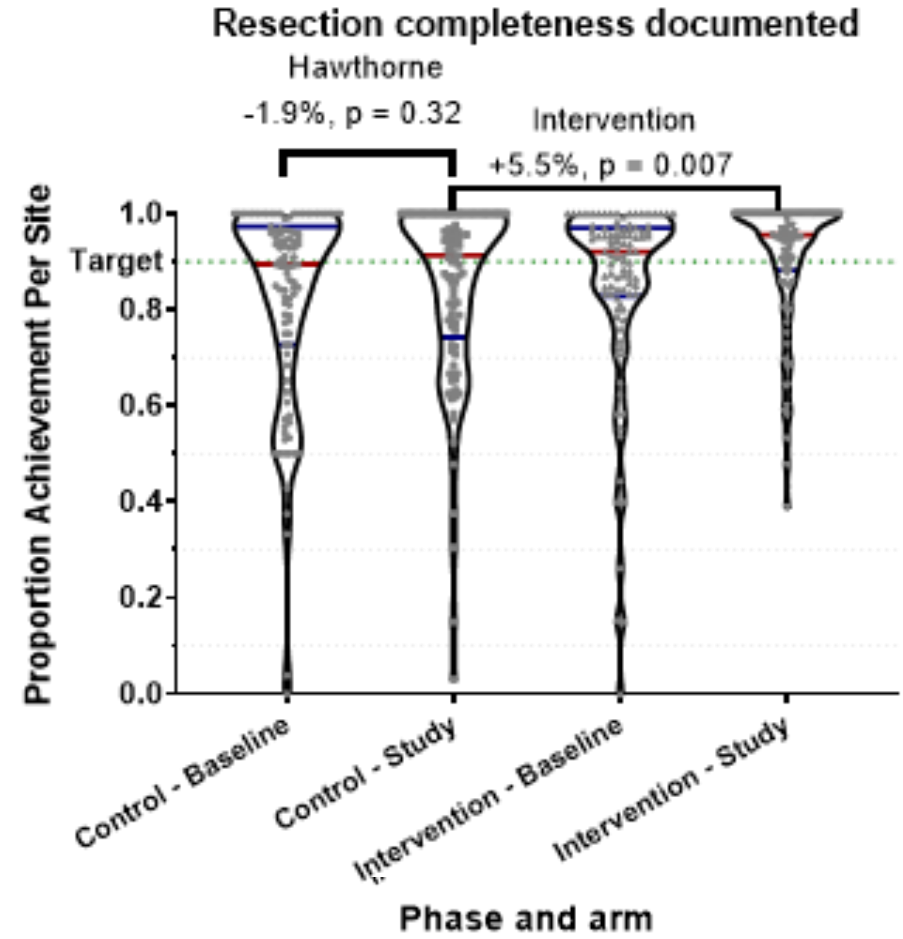
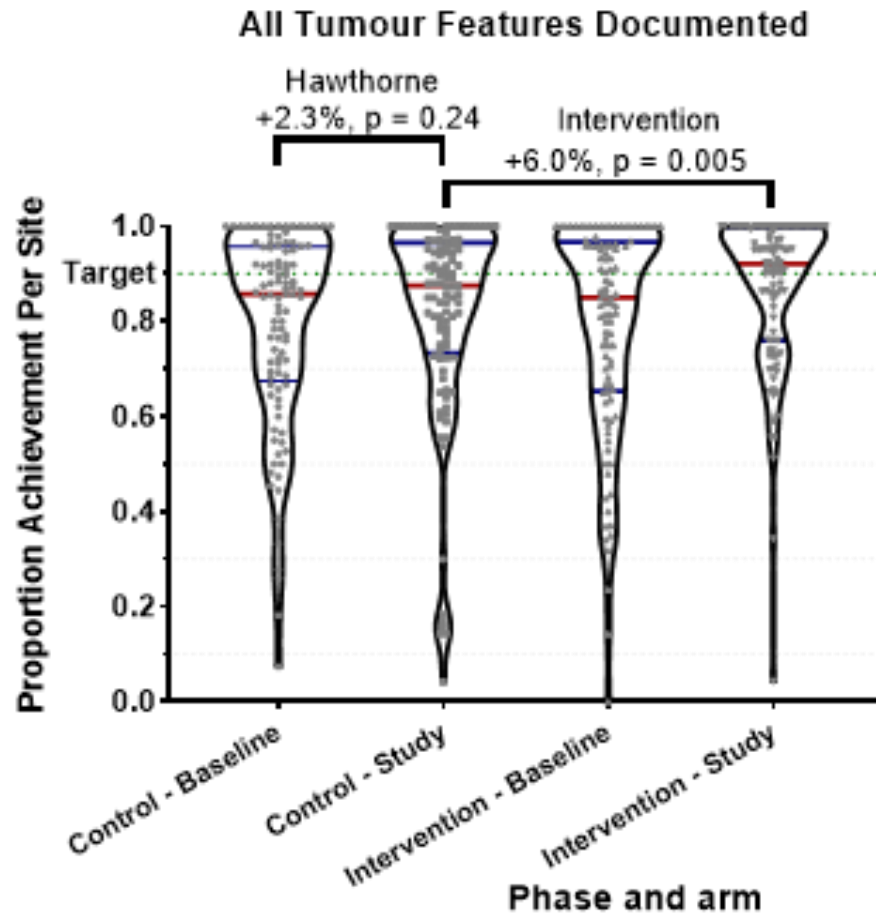
AUC without SITE
0.66

AUC with SITE
0.74

Mixed effects logistic regression for early recurrence after first TURBT for NMIBC

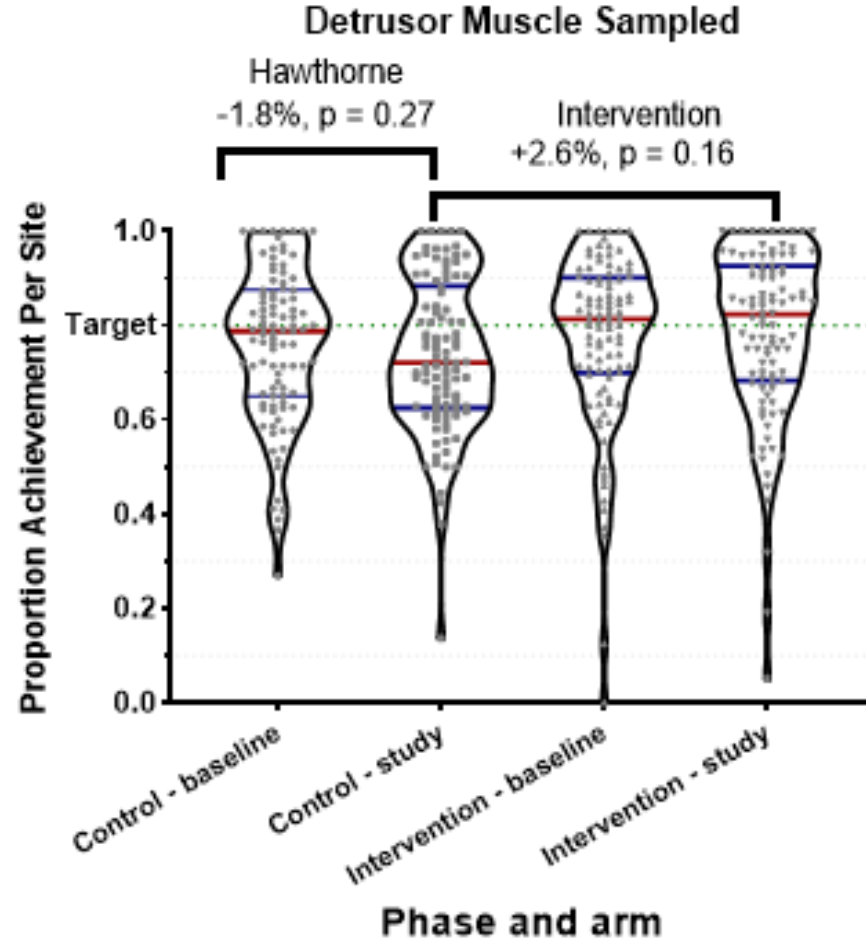
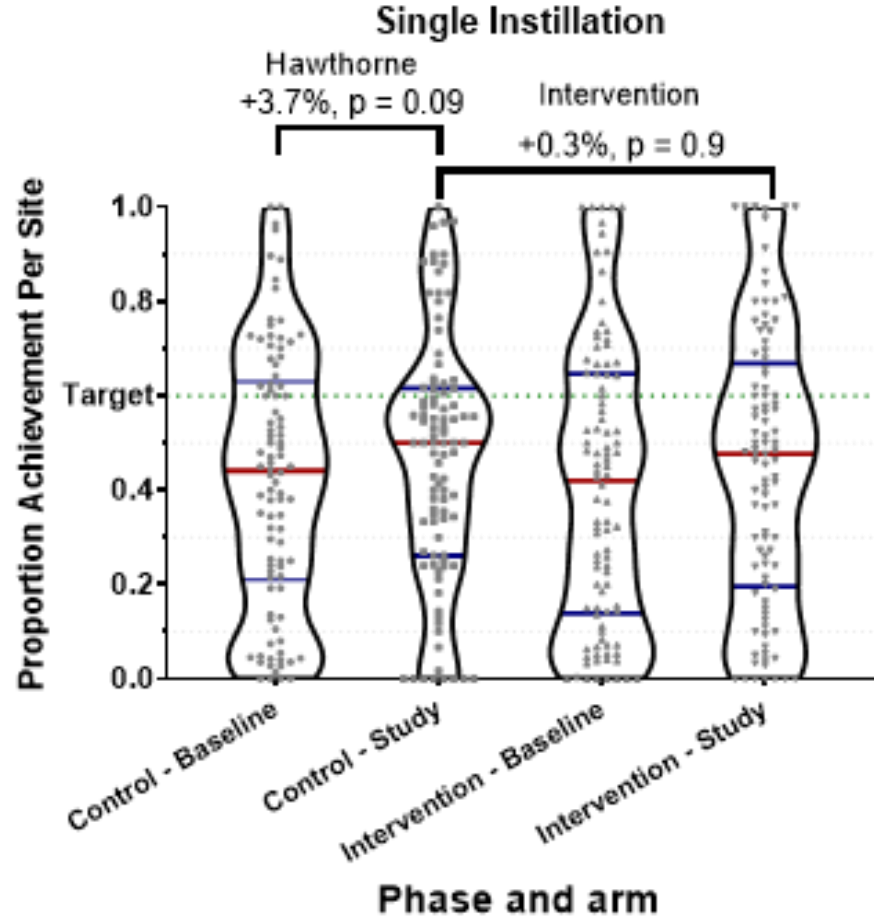
Tumour feature	OR	p-value
Diameter(cm)		
<1	1.00	
1-3	1.63	<0.001
3-7	2.55	<0.001
>7	2.42	0.003
No. Tumours		
1	1.00	
2 to 3	1.49	<0.001
>3	1.92	<0.001
Stage		
Ta	1.00	
Tis	2.00	0.015
T1	1.90	<0.001
Grade		
low	1.00	
high	1.44	<0.001
Random intercept – site	0.36	<0.001

QI Results – cluster RCT



— 25th and 75th centiles — Median

QI Results – cluster RCT

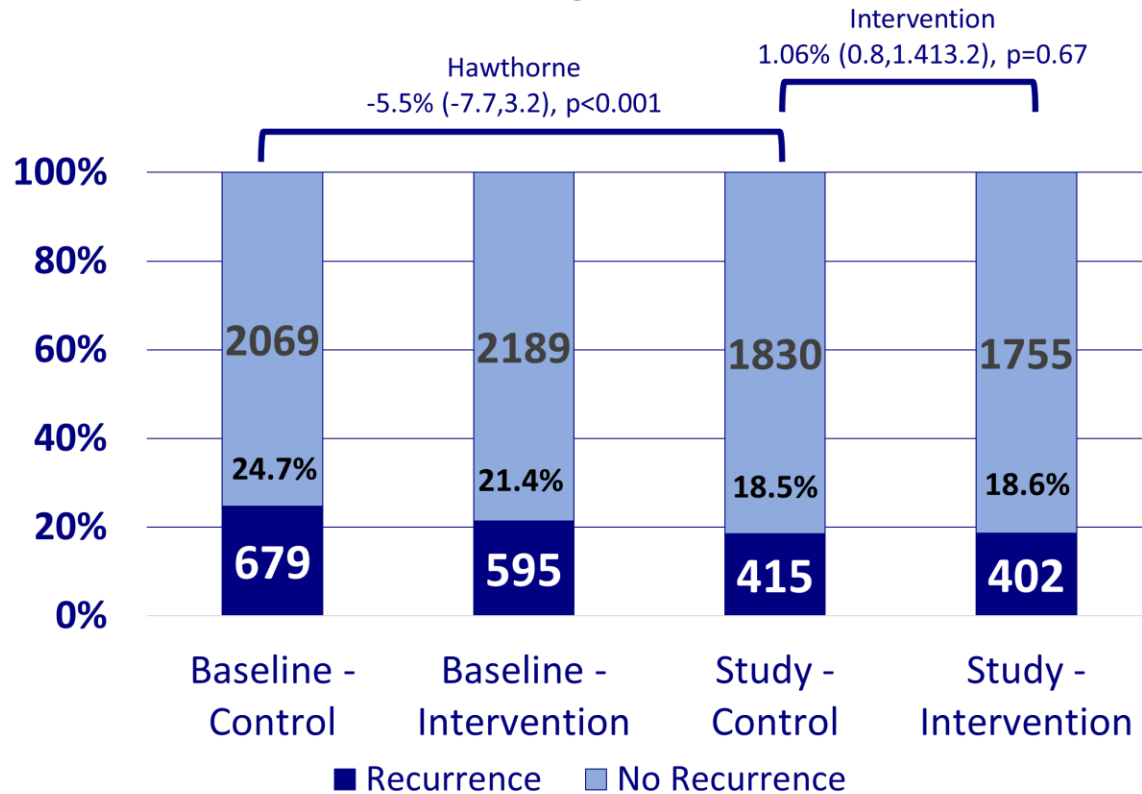


— 25th and 75th centiles

— Median

Recurrence Results – cluster RCT

Early Recurrence

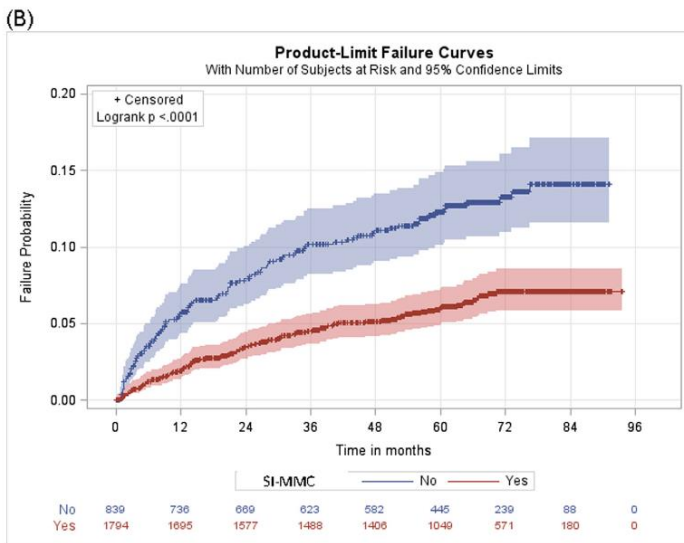
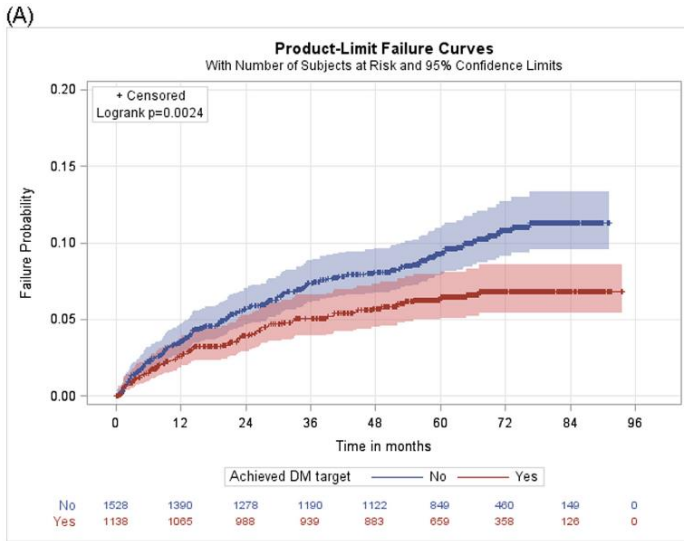


Intervention: No effect | Hawthorne: Sig benefit

**Intervention:
No effect**

**Hawthorne:
-6%
(25% RRR)
P<0.001**

NMIBC & National QPIs



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journal homepage: euoncolology.europeanurology.com



Achieving Benchmarks for National Quality Indicators Reduces Recurrence and Progression in Non-muscle-invasive Bladder Cancer

Paramanathan Mariappan^{a,b,}, Allan Johnston^c, Matthew Trail^d, Sami Hamid^d, Graham Hollins^e, Barend A. Dreyer^f, Sara Ramsey^g, Luisa Padovani^g, Roberta Garau^g, Julia Guerrero Enriquez^h, Alasdair Bodenⁱ, Gianluca Maresca^j, Helen Simpson^j, Rami Hasan^{a,c}, Claire Sharpe^k, Benjamin G. Thomas^l, Altaf H. Chaudhry^k, Rehan S. Khan^l, Jaimin R. Bhatt^c, Imran Ahmad^{cm}, Ghulam M. Nandwani^d, Konstantinos Dimitropoulos^l, Lydia Makaroff^{h,o}, Johnstone Shaw^p, Catriona Graham^q, David Hendry^c, for the members of the Scot BC Quality OPS Clinical Collaborative*

QPI Program embedded in national framework (NHS Scotland)

QPIs improvements over time

DM in sample & SI-IVC both associated with reduced recurrence AND progression @ 5 years

Fig. 4 – Time to progression between (A) Centres achieving the DM target and those that did not, and (B) Patients who received SI-MMC and those who did not. DM = detrusor muscle; SI-MMC = single instillation of Mitomycin C.

Conclusions

Audit & feedback + education + access to reporting proforma

v audit participation alone:

- improves tumour documentation
- improves resection documentation
- no impact on SI-IVC
- no impact on DM sampling

Audit participation appears to reduce recurrence rates
(mechanism unclear: more mindful surgery?)

Variation in improvements across sites

- Process evaluation required?

Learning from implementation science:

- Mean baseline achievement was relatively high in 3/4 QIs (ceiling effects?)
- Contamination? Some sites in control arm started using proforma
- Did participants watch the surgery educational videos? Then what?
- Dynamic dashboard vs e.g. monthly reports showing trends
- In contrast to Scottish QPI program:
 - No consequences (no improvement plans, escalation, no public report)
 - No centralized/visible leadership,
 - Short term v long term, mandated process

RESECT & Scottish QPIs provide evidence that auditing TURBT quality can improve guideline adherence and patient outcomes.

National audits using simple feedback tools have potential to improve NMIBC outcomes through improving quality



Rosetrees Trust

Supporting the best in medical research



THE
BLADDER CANCER
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