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Does the development and implementation of a procedure-specific proforma for skin lesion surgery improve quality of operation notes?

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ABSTRACT

Background: Operation notes often have omissions and are difficult to locate in patients notes despite clear guidance from the Royal College of Surgeons (RCS) 'Good Surgical Practice' 2014 outlining what should be included in operation notes. Procedure-specific proformas are rarely used by Plastic surgeons despite being utilised by other specialities. With an alarming rise of incidence of skin malignancies there has been an increase in the number of skin lesions referred to Plastic surgeons for excision. The need for reliable, reproducible, accurate and easily accessible operating notes for skin lesion excision is pivotal for continuity of care and treatment planning. This study aimed at comparing the quality of skin lesion operation notes prior-to and after implementation of a procedure-specific proforma in relation to RCS recommendations.

Methods: Fourteen parameters from the recommendations by the RCS 'Good Surgical Practice' 2014 guidelines were used to audit skin lesion operation notes. The study consisted of a retrospective audit of 80 operation notes and a prospective audit of 80 operation notes following the development and implementation of a skin lesion procedure-specific proforma. We assessed and compared the operation notes overall compliance with the RCS guidelines. Statistical analysis highlighting the difference between both groups was performed using the independent sample *t*-test.

Results: After implementation of the skin lesion procedure-specific proforma, the average compliance with the RCS recommendations increased significantly from 87.5% retrospectively to 98.8% prospec-

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tively (p -value 0.0414). In 6 of the 14 parameters assessed significant improvements with regards compliance to the guidelines was demonstrated.

Conclusion: The development and implementation of a skin lesion procedure-specific proforma has demonstrated a significant improvement in the quality of operation notes within a Plastic surgery department which has the potential to minimise omissions and improve continuity of surgical patient care.

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Introduction

Operation notes play a pivotal role in the record of surgical patient care. They are the only documentation that directly reflects the surgical procedure that was performed in the operating theatre. The Royal College of Surgeons England (RCS) have been clear with their guidance on operation notes, stating that it is the responsibility of all surgeons to 'ensure that accurate, comprehensive, legible and contemporaneous records' are made; sentiments which are also emphasised by the General Medical Council (GMC).^{1,2} Accurate and available operation notes are vital for the immediate post-operative care phase and for future patient encounters; not to mention their potential as a necessity for medico-legal cases. Often operation notes have been found to be substandard.^{1–4} Omissions and errors are common occurrences which have the potential to impact on patient care and safety.⁵

Within the UK there has been an alarming increase incidence of skin malignancies, with Melanoma being the fifth most common cancer diagnosed.⁶ Reciprocally there has been a dramatic increase in the number of skin lesions referred to Plastic surgeons for excision. The need for accurate and easily accessible operating notes for skin lesion excision is vital for planning patient specific appropriate treatment and monitoring, whilst facilitating discussions at local MDT meetings when necessary.

This study aimed to compare the quality of skin lesion operation notes within a Plastic Surgery department prior to, and after, implementation of a procedure-specific proforma. The proforma was developed based on the RCS 'Good Surgical Practice' 2014 guidelines and incorporated some procedure-specific parameters that were identified from the initial audit of operation notes within the department.

Methods

Out of the nineteen recommendations from the RCS 'Good Surgical Practice' 2014 guidelines; fourteen were deemed relevant to typical skin lesion operation notes and were used in the audit [Table 1]. The study was registered with the local clinical audit team. An initial retrospective audit of 80 operation notes within the Plastic surgery department for skin lesions was performed for the period October to December 2017 at a district general hospital. In this group all operation notes were handwritten in the patient paper notes folder with no standardised template utilised. Following the development and introduction of a procedure-specific proforma for skin lesions operation notes, a prospective audit of 80 operation notes utilising the new proforma for the period April to June 2018 was performed [Figure 1]. Hard copies were made available throughout theatres and within the Plastic surgery department and all relevant doctors were briefed about their use during a departmental meeting. A digital copy of the proforma was also saved onto the shared drive for the Plastic surgery department and so was accessible to be printed if required. Operative cases were identified by the audit and coding department on the basis of patients having a surgical procedure for a skin lesion.

Table 1

Operation note criteria outlined by RCS England in ‘Good Surgical practice’ 2014.

RCS Operation Note Guidelines 2014
Date
Time
Elective/emergency procedure *
Name of theatre anaesthetist
Anaesthesia
Names of operating surgeon and assistant
Operative procedure carried out
Incision
Operative diagnosis
Operative findings
Problems/complications
Extra procedure performed and why it was performed *
Details of tissue removed, added or altered
Details of closure technique
Anticipated blood loss *
Antibiotic prophylaxis *
DVT prophylaxis *
Detailed post operative instructions
Signature

*Those not included in the Skin Lesion Operation Note Proforma.

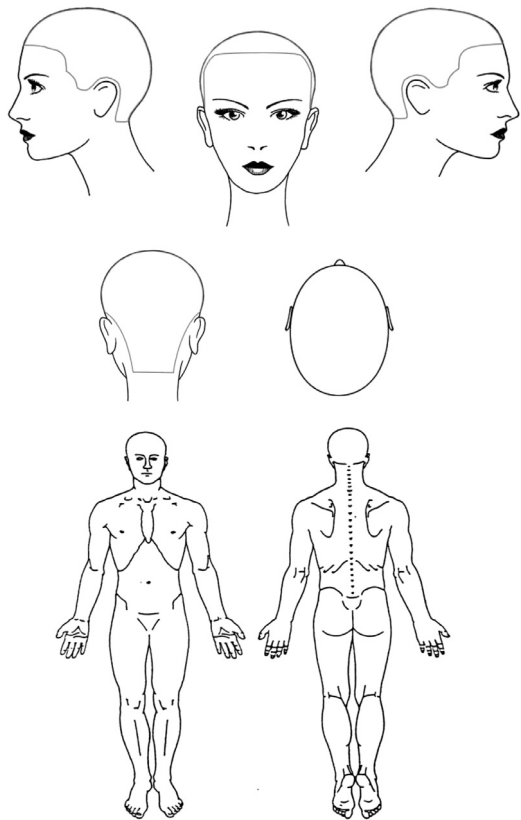


Figure 1. Skin lesion procedure-specific proforma.

Patient Sticker	SKIN LESION OPERATION NOTE
Date and Time: _____ Surgeon(s): _____ Anaesthetic: _____	
<p>1 Procedure :</p> <p>Punch / Incision / Excision Biopsy / Wide Local / C+C / Shave</p> <p>Site (Please draw overleaf as well):</p> <p>Indication:</p> <p>Margins: Marker: Histology <input type="checkbox"/></p> <p>Depth:</p> <p>Direct Closure / Local Flap / SSG / FTSG</p> <p>Donor site (if graft)</p> <p>Sutures used:</p> <p>Deep: Superficial:</p> <p>Dressings</p>	<p>2 Procedure :</p> <p>Punch / Incision / Excision Biopsy / Wide Local / C+C / Shave</p> <p>Site (Please draw overleaf as well):</p> <p>Indication:</p> <p>Margins: Marker: Histology <input type="checkbox"/></p> <p>Depth:</p> <p>Direct Closure / Local Flap / SSG / FTSG</p> <p>Donor site (if graft)</p> <p>Sutures used:</p> <p>Deep: Superficial:</p> <p>Dressings</p>
<p>3 Procedure :</p> <p>Punch / Incision / Excision Biopsy / Wide Local / C+C / Shave</p> <p>Site (Please draw overleaf as well):</p> <p>Indication:</p> <p>Margins: Marker: Histology <input type="checkbox"/></p> <p>Depth:</p> <p>Direct Closure / Local Flap / SSG / FTSG</p> <p>Donor site (if graft)</p> <p>Sutures used:</p> <p>Deep: Superficial:</p> <p>Dressings</p>	<p>4 Procedure :</p> <p>Punch / Incision / Excision Biopsy / Wide Local / C+C / Shave</p> <p>Site (Please draw overleaf as well):</p> <p>Indication:</p> <p>Margins: Marker: Histology <input type="checkbox"/></p> <p>Depth:</p> <p>Direct Closure / Local Flap / SSG / FTSG</p> <p>Donor site (if graft)</p> <p>Sutures used:</p> <p>Deep: Superficial:</p> <p>Dressings</p>
<p>GP Nurse Check Plastic Dressings Clinic OPD Antibiotics Special Instructions</p> <p>.....</p> <p>Name and Signature</p>	

Figure 1. Continued

Table 2

Overall compliance with the RCS recommendations prior-to and after implementation of the procedure specific proforma.

	Retrospective (N = 80)	Prospective (N = 80)
Mean	87.5%	98.8%
Median	95%	100%
Range	50%–100%	95%–100%
<i>p</i> -value		0.0414

Table 3

Specific parameters from the RCS recommendations that showed change following the implementation of the procedure specific proforma.

	Retrospective (N = 80)	Prospective (N = 80)	<i>p</i> -value
Date	100%	95%	0.0431
Time	100%	95%	0.0431
Names of operating surgeon and assistant	83%	96%	0.0046
Operative diagnosis (indication & findings)	63%	100%	<0.0001
Margins	90%	99%	0.0162
Details of tissue removed, added or altered	50%	100%	<0.0001
Details of closure technique (including sutures used)	90%	100%	0.0035
Signature	85%	100%	0.0003

The parameters assessed compared the operation notes overall compliance with the RCS guidelines and whether or not the actual documentation within the operation notes reflected these recommendations clearly. Operative diagnosis, indication and findings were analysed as a single parameter as they were recorded as such throughout the operation notes. An additional parameter for margins was included on the proforma and analysed across both groups as this was deemed essential and specific to skin lesion operation notes. The statistical analysis for the difference between the two groups was performed using the independent sample *t*-test through Microsoft Excel© data analysis software based on the null hypothesis that there is no difference between the standard of operation note prior-to and after implementation of the procedure specific-proforma.

Results

With the implementation of the Skin lesion procedure-specific proforma the overall average compliance with the RCS recommendations increased from 87.5% retrospectively to 98.8% prospectively (*p*-value 0.0414) [Table 2].

Both groups were found to be 100% compliant in recording operative procedure, incision, anaesthetic type, closure technique and post operative instructions. All cases utilised a local anaesthetic (LA) so no anaesthetist was present and hence not recorded. None of the 160 operation notes included in the study had any problems or complications recorded. Recording of the date and time were the only parameters that were recorded as showing no improvement; this was found to go from 100% retrospectively to 95% prospectively which was significant (*p*-value 0.0431). All other parameters were found to significantly improve with the implementation of the procedure-specific proforma [Table 3].

Discussion

The GMC and RCS have emphasised the importance of accurate documentation with the RCS England 'Good Surgical Practice' 2014, specifically highlighting recommendations to ensure operation notes adhere to set standards.¹ There has been a variety of work published in the literature exploring how operation notes can be improved when utilising proformas to ensure consistency whilst minimising omissions.^{3,7} In addition the use of generic proformas for operation notes has shown improvements with regards compliance with the recommendations from the RCS guidelines whilst benefiting

patient care post surgery, through their role in facilitating continuity of care within the multidisciplinary team (MDT); justifying their use.^{3,7,8} Moreover, the development of procedure-specific proformas has the potential to improve operation note standards by ensuring they are precise and consistent, with easy reproducibility whilst aiming to eliminate omissions. Specialities such as orthopaedics and general surgery have already demonstrated the benefits of procedure-specific proformas in their practice.^{9,10}

Our study aimed to improve operation note documentation related to skin lesion operations which are increasingly common procedures carried out within a Plastic surgery department and as such encountered by all grades of surgeons. These operations often involve patients with multiple lesions and depending on the tissue diagnosis a variety of defined excision margins are required to ensure adequate surgical excision and therefore treatment. In addition these operation notes are utilised within the skin cancer MDT to discuss the need for follow up or further treatment planning and as such there is a need for the documentation to be detailed, complete and easily identifiable in the patient notes. The district general hospital had no information technology (I.T.) platform or digital system for the recording of patient notes in place and so paper notes were still being utilised. We therefore designed our proforma to be printed out on blue paper to facilitate easy location of the operation notes within the patient paper case notes. When designing our procedure-specific proforma we included anatomical diagrams so surgeons were able to draw the position of the lesions and tissue donor sites operated on, to further enhance the detail of the documentation and aid with post surgical care. The vast majority of the skin lesion operations performed at our district general hospital are done using LA and all are on an elective basis so the procedure-specific proforma was tailored toward this; hence the exclusion of parameters from the RCS guidance deemed less relevant to elective LA procedures such as DVT and antibiotic prophylaxis.

After implementation of the skin lesion procedure specific proforma, the average compliance with the RCS recommendations increased significantly from 87.5% retrospectively to 98.8% prospectively (p -value 0.0414). Of note five parameters from the RCS recommendations showed no change and were maintained at 100%; six parameters showed significant improvement and two parameters showed a worse adherence to the guidelines recommendations.

The parameters that were found to have significantly improved following the introduction of the proforma were names of operating surgeon and assistant, operative diagnosis (indication and findings), margins, details of tissues removed added or altered, details of closure technique and signature. Although we were not surprised with the proforma demonstrating improvement across so many of the recommendations made by the RCS; we were surprised with the results of the retrospective study showing omissions as low as 50% in some parameters. This highlighted the need for a sustainable intervention with regards skin lesion operation notes and arguably justifies the implementation of a procedure-specific proforma. We feel the main reason for these results is the fact that the proforma has clear sections for each of the recommendations included and so acts as a prompt for the surgeons completing the documentation ensuring each parameter is included to minimise omissions.

The two parameters, date and time of the surgery which went from 100% retrospectively to 95% prospectively (p -value 0.0431) highlighted that the new proforma is not without its limitations. Despite there being a clear sign posted section for these parameters human factors still play a role in the completion of the documentation. Perhaps developing or integrating a digital version of the proforma where users are unable to save or sign off the document unless every section is completed may help mitigate against such human factors. This has been supported in some studies which have suggested that electronic notes are superior as they can not only act as proformas minimising omissions but also aid with legibility.^{8,9}

We are aware that this study has some limitations as the grade and experience of the surgeon completing the operation note was not considered in either study. We cannot identify if this has had an impact on the standard of operation note or for the need of targeted education and training sessions for more junior surgeons; something that could perhaps be considered in further studies.

In conclusion we feel our study has demonstrated the benefits of the development and implementation of a skin lesion procedure-specific proforma and supports its use to aid adherence to recommended standards, provide standardised, reliable documentation reducing variability and aid with continuity of patient care with potential benefits with regards litigation in the medico-legal set-

ting. We acknowledge integration into routine practice may take time with the need for resources and funding to develop potential electronic versions however the potential application of procedure-specific operation note proformas are extensive and could be utilised to improve patient outcomes across all specialities.

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Ethical approval

N/a

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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