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Title: The impact of a clinical prediction tool (BuRN-Tool) for child maltreatment on social care outcomes for children attending hospital with a burn or scald injury

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Highlights:

The impact of a clinical prediction tool (BuRN-Tool), designed to calculate a score for likelihood of child abuse or neglect in children attending hospital, was evaluated using data from 17 local authorities. Overall, the introduction of the BuRN-Tool in hospital did not increase the percentage of children receiving social care interventions. A BuRN-Tool-score of \geq 3 was associated with a greater likelihood of social care taking action, either at the time or within 6 months of a burn injury.
Abstract

Burns are common childhood injuries and 10-20% are associated with maltreatment. This prospective before/after study investigated the impact of introducing the BuRN-Tool (a child maltreatment clinical prediction tool), on actions taken by children’s social care department (CSC). Before introduction (pre-intervention): we collected standardised data on cause and characteristics of burns, in four regional hospitals. A BuRN-Tool-score was calculated retrospectively pre-intervention and by the attending clinician post-intervention. CSC involvement and actions taken relative to BuRN-Tool-score were compared pre- and post-BuRN-Tool.

Data were collected for 1688 children from 17 local authorities. The percentage that received a CSC action decreased post-BuRN-Tool (pre: 58.0%, 51/88; post: 37.5%, 33/88, p=0.007). A greater percentage of cases with a BuRN-Tool-score of ≥3 had a CSC action, than those with a BuRN-Tool-score <3, pre-intervention (≥3 70.0%, 35/50; <3 45.8%, 11/24, p= 0.04) and post-intervention (≥3 50.0%, 21/42; <3 19.2%, 5/26, p=0.01). Children with a BuRN-Tool-score ≥3 but no contact/referral recorded by CSC for the burn, and those who had a contact/referral but no action taken, were significantly more likely than those scoring <3 to have new CSC involvement within six months following the burn.

The BuRN-Tool-score ≥3 has the potential to alert clinicians to maltreatment concerns.

Key words: neglect; abuse; safeguarding; child protection; clinical prediction tool; children’s burns.
Introduction

Maltreatment of children is a serious problem. The Crime Survey for England and Wales [1] estimated that 20% of adults experienced at least one form of child abuse before the age of 16 years, including emotional abuse, physical abuse, sexual abuse, or witnessing domestic violence. In the UK, when professionals have concerns about child maltreatment, they should make a referral to their local authority children’s social care (CSC) department, which may result in an assessment and further intervention to protect the child. In England, and other parts of the UK, more and more children are having contact with children’s services. One recent study estimated that as many as 1 in 4 children will have contact with statutory children’s services before their 16th birthday.[1] The number of children subject to assessment following a referral has increased by 21% since 2014/15, while the number of child protection investigations has increased by 129% since 2010.[2] The number of children subject to child protection plans has also increased by 32% over a similar period (2009 – 2020; [2]), while the number of children in care has gone up by 24%. [3]

One of the ways in which child maltreatment may come to the attention of health services is when a child with an injury attends a hospital emergency department (ED). Identifying maltreatment in young children presenting to busy EDs can be a challenge given the high volume of patients, pressure to manage and discharge patients quickly, and a high staff turnover with variable paediatric experience. This could be improved by a standardised injury assessment and the use of a clinical prediction tool to identify child maltreatment, so that health (and CSC workers) can intervene to prevent future maltreatment and optimise the health and wellbeing of these children.

Burns are common childhood injuries, with an estimated 40,000 children in the UK,[4] and 500,000 children in the USA,[5] attending ED with burn every year. The majority of these injuries are unintentional, however international studies have estimated the proportion of children’s burns due to maltreatment at 10 – 25%.[6,7,8,9,10]
The ‘BuRN-Tool’ is a clinical prediction tool to identify burns suspected to have arisen from maltreatment.[11] This tool was developed by a multi-disciplinary team of child health clinicians and researchers from a review of the scientific evidence [12] and an epidemiological study that compared childhood burns from maltreatment with accidental burns (2008-2010).[13] The BuRN-Tool gives a composite score (BT-score) derived from several risk factors in the child’s history and examination recorded on a specific proforma, the BaSAT (Burns and Scalds Assessment Template: S1 Fig). A prospective validation study was conducted in 2014-2015 from 1327 children with burns and a cut off score of three or above was identified as indicating concern for maltreatment.[11] We have previously described the impact of the BuRN-Tool in EDs on the identification of safeguarding concerns in children presenting with burns [14] and the potential value of the BuRN-Tool to clinicians in busy ED departments.[15] The principal findings were that 82% of clinicians surveyed found the standardised data collection format of the BaSAT and the BuRN-Tool a useful adjunct to clinical practice [15] and a BT-score of three or more encouraged discussion of cases of concern with senior colleagues, and increased the referral of children younger than five years with safeguarding concerns to CSC.[14] We now present the impact of the BuRN-Tool on Child Protection assessments and Child Protection interventions undertaken by CSC for children who had attended ED with a burn injury. CSC are located in local authority offices, not in the ED or Burns Units, but hospital-based social workers did attend review meetings to discuss cases of concern referred from hospital settings.

The aim of this study was to investigate the impact of the BuRN-Tool on the CSC outcomes for children attending ED with a burn. The objectives were to measure contact/referrals recorded by CSC and the resulting assessments or interventions taken by CSC, CSC involvement in the six months following the burn injury, and to explore the relationship between BT-score and CSC involvement pre and post introduction of the BuRN-Tool in clinical practice.

We hypothesise firstly that a greater percentage of the cases scoring ≥3 would be recorded by CSC, secondly that a greater percentage of the children with a score ≥3 would receive a CSC action following introduction of the BuRN-Tool in clinical practice.
Material and methods

Study design

This study used a prospective multicentre before and after design to compare the CSC outcomes for children with a burn injury before and after the introduction of the BuRN-Tool intervention.

Population

Children <16 years of age presenting with a burn injury at four EDs and two regional burns units at four hospitals across England and Wales over a period of three years from April 2015 to March 2018 were recruited to the study, herein referred to as centres A-D. In the two centres with burns units there are emergency attendance units where children may be seen on first attending with their burn. Burns Units can accept direct admissions, especially when transferred from a district hospital (where the BuRN-Tool may not have been used). Burn injury information was collected throughout the study using a structured proforma (the BaSAT: S1 Fig). Victims of household fires were excluded, as they were for the original BuRN-Tool validation, because it is difficult to show associations with child abuse and neglect from the injuries caused. Burns from housefires are a clinically different group, often with smoke inhalation as the major problem.

Intervention

The intervention, a clinical prediction tool (BuRN-Tool: Fig 1) designed to identify potential cases of child abuse or neglect,[13,14] was added to the BaSAT once a minimum of 200 children had entered the study from each hospital site. Based on previous research [13] sample size calculations were carried out during the study planning stage and both this and medical attendance data from PERUKI (Paediatric Emergency Research in the United Kingdom & Ireland) suggested that 200 cases from each study centre would both provide enough power and be feasible in the time frame available for data collection. The BuRN-Tool was used by clinicians to manually calculate a BT-score depending on
answers to seven elements within the BaSAT. In one centre the BT-score was automatically calculated from fields in the BaSAT which was incorporated into the child’s electronic clinical record. Each of the seven elements within the BuRN-Tool received a weighted numerical score. If the total BT-score reached a threshold of three or above, the BuRN-Tool recommended that local safeguarding pathways were followed. The CSC department was not informed about the BT-score if a referral was made.

Fig 1. Burns Risk assessment of Neglect and maltreatment in children Tool (BuRN-Tool)

Prior to the introduction of the BuRN-Tool, each of the seven elements were recorded on the BaSAT as part of the clinicians’ standardised assessment, and a derived BT-score was calculated retrospectively by the research team for each case entering the study.

The clinical teams were provided with standardised training on the use of the BaSAT and BuRN-Tool. This training was provided online for new staff joining clinical teams following the introduction of the BuRN-Tool.

Social care data collection

CSC outcomes were collected from the local authorities in which the children were resident. The local authority for each child was identified using postcode information held in hospital electronic records and an Office for National Statistics look-up table.[16] All local authorities were approached individually by email and telephone to seek their permission to access their data and access arrangements were made to ensure anonymity of cases and to suit preferences of each organisation. Data sharing agreements were drafted for those hospital centres and local authorities who requested them.

For each child within the study, information was sought on any Child Protection CSC involvement during the six months before or six months following the burn injury (including any record of domestic violence), and any CSC involvement as a direct result of a contact/referral for the burn were recorded on the project proforma (S1 File). These data were collected to enable the research team to
corroborate CSC involvement prior to or at the time of the burn, to ensure that any CSC assessment or intervention outcome recorded was due to the burn and not ongoing interventions. Six months was considered appropriate as a follow up period as a proxy measure for ‘missed Child Protection cases’ and a time frame that was close to the burn incident. Safeguarding issues beyond that time frame were assumed to be more likely to be related to changing circumstances for the child and family. Data for Child in Need activities related to disabilities or asylum seeking were not collected.

Whether a contact/referral from an external agency was recorded in CSC records for the burn injury, who this came from and any assessments or interventions (referred to as ‘CSC actions’ herein) arising as a result, were recorded in detail as follows: if there was any assessment undertaken (i.e. a Child in Need assessment, a Child Protection enquiry or child protection meeting held (i.e. a strategy meeting or Child Protection conference as defined by UK legislation, Child Protection Act 1989, section 47) [17]), or any intervention: i.e. support actions including any contact made with the family by a social worker (home visit, telephone call or letter), whether other community support services or other health services were recommended, a new Child in Need (or Child in Need of Care and Support, in Wales) plan, a new Child Protection plan (or Child Protection Registration, in Wales), or whether there was a decision that the child should be looked after. A looked after child is a child living in any out-of-home placement organised by the local authority with the parent’s agreement or via a court order or (in some cases) still living at home while subject to a court order.

Data cleaning

There were a number of children who were treated at an ED in one centre and a burns unit in another, and hence had two BaSATs completed for the same injury. If the safeguarding referral decision did not match between these two records but one record recorded a safeguarding referral to CSC or Hospital Safeguarding team (HSG) this record was retained together with the BuRN-Tool score that reflected child maltreatment concern for that record. If the centres were at different points in the study cycle
and children had one record completed pre and one post BuRN-Tool intervention, both records were
excluded from the study.

**Analysis**

**Data ascertainment**

The number of local authorities from which CSC data were obtained and the percentage of eligible
cases that these data represent were calculated for each hospital centre.

**Demographics**

The characteristics of the population for which CSC outcomes were collected was described before
and after the BuRN-Tool was introduced. Demographic characteristics included the child’s age and BT-
score, gender, burn type, and CSC involvement for Child Protection reasons during the six months
preceding the injury.

**Contact/referrals received by CSC**

The percentage of burn injuries with a contact/referral documented in the CSC records was described
according to whether a referral was recorded on the BaSAT and the nature of the referral.

The percentage of burn injuries that had a contact/referral before and after the BuRN-Tool was
introduced was compared by age (for children less than five years or older than five years), by
BT-score: i) <3 (below the threshold of concern), ii) BT-score ≥3 (above the threshold of concern), or
iii) where the score was missing / incomplete. The sensitivity and specificity for contact/referral to CSC
were calculated for a BT-score ≥3.

**CSC actions taken**

The percentage of contact/referrals that resulted in CSC actions were compared before and after the
introduction of the BuRN-Tool and were compared for i) those scoring <3 and ≥3, ii) between those
<5 and ≥5 years of age and iii) between those with a previous CSC involvement for child protection concerns in the six months prior to the burn and those without.

To gain an understanding of whether cases of maltreatment had potentially been missed we analysed the contact/referrals recorded by CSC and CSC actions taken in the six months after the burn incident according to the BT-score in two groups of children, namely; for the children who were referred to CSC but no CSC assessment or intervention was implemented and for the cases that were not referred to CSC.

**Statistical methods**

Numerical demographic variables were described using means and were compared before and after the BuRN-Tool introduction using two-tailed t-tests. All comparisons of percentages were conducted using non-parametric Chi-square tests. Multivariable logistic regressions were conducted on demographic differences pre and post intervention, and the effect of the BuRN-Tool score and demographic characteristics on contact/referrals recorded by CSC. Odds ratios and 95% confidence intervals are reported in S1 Table. Significance level was set to P<0.05. All analyses were conducted in Stata v 15.1.[918] Sensitivity and specificity calculations of contact/referral and BT-score of ≥3 was calculated using MedCalc online software.[19]

**Ethical and Study Approvals**

This was an unconsented study. Ethical approval for the study was obtained for data collected between April 2015 and March 2016 (MREC 13/WA/0003) and from April 2016 to March 2018 (MREC 15/WA/0259). Approval from Confidentiality Advisory Group (CAG 1-06(PR7)/2013 and 15/CAG0203) was received to enable data collection from case notes for research with waived consent. Study approval was gained from the Association of Directors of Children’s Services in England, and Local Safeguarding Children Boards in Wales. SOCSCI ethical approval SREC/1878 May 2016, ADCS ref. RGE180123:18/03/2018)
Results

Data ascertainment

After exclusions there were 2406 eligible burn incidents and 1688 (70.2%) were followed up with CSC (Table 1). Two centres included regional burns units and children came from a wide geographical area, and there were often small numbers of children from many of the local authorities. We prioritised the follow-up of children from the local authorities that served the main catchment area of each hospital centre, as many of the peripheral local authorities were unable to participate in the study. The percentage of children with burns for whom it was possible to follow-up in CSC records ranged from 86.7% in Centre B to 41.7% in Centre D (Table 1).

Demographics

Age, gender, burn type, previous CSC involvement and BT-score of the population followed up by CSC were not significantly different pre- and post-introduction of the BuRN-Tool (Table 2). These lack of differences pre and post remain in multivariable analysis adjusting for all other variables (see S1 Table A).

Contact/referrals received by CSC

Overall, 11.0% (88/802) of burn incidents had a contact/referral documented in CSC records before the BuRN-Tool was introduced, and this did not change afterwards: 9.9% (88/886) (p=0.48) (Table 3). The source of the contact/referral documented in CSC records varied. Contact/referrals from the study centres were recorded for 62 incidents before and 64 incidents after the BuRN-Tool was introduced (Table 3), but of these only 59.7% (37/62) pre- and 48.4% (31/64) post-BuRN-Tool were marked on the BaSAT as having been referred to CSC or HSG (Fig 2).

There were 26 burn incidents pre-BuRN-Tool and 24 post-BuRN-Tool that were documented as being referred from other sources (e.g. ambulance services, multi-agency safeguarding teams, members of
the public). Of these, three (pre) and eight (post) were also recorded on the BaSAT to have been
referred to CSC or to HSG. The percentage of <5 year-olds with a contact/referral was significantly
greater than for those older than 5 years both before and after the introduction of the BuRN-Tool
(pre-BuRN-Tool <5 years 12.4% vs. ≥5 years 7.8%, p=0.05; post-BuRN-Tool <5 years 11.3% vs. ≥5 years
6.5%, p=0.04).

Fig 2. Number and percentage of burn injuries with contact/referral documented by Children’s
Social Care (CSC) and source of the referral.

Source of referral from a study centre or from another source, recorded by CSC, according to the
safeguarding referral recorded by the clinician completing the BaSAT, pre- and post-BuRN-Tool
introduction.

A significantly greater percentage (p<0.001) of contacts/referrals recorded by CSC had a BT-score ≥3
(pre 56.8%, 50/88; post 47.7%, 42/88) than a BT-score <3 (pre 27.3%, 24/88; post 29.5%, 26/88) or
had an incomplete or missing score (pre 15.9%, 14/88; post 22.7%, 20/88) (Table 4). However, there
was no evidence of a difference (p=0.34) between the percentage of cases scoring ≥3 that had a
contact/referral recorded by CSC pre- (24.6%, 50/203), vs post-BuRN-Tool (20.6%, 42/203).

For the 1512 children who had no contact/referral recorded in CSC records, there was no evidence of
a difference (p=0.80) between the percentages of BT-scores (≥3, <3 or missing) before and after the
BuRN-Tool was introduced (Table 4). The effect of age, BuRN-Tool score and prior CSC involvement
remained significant factors in multivariable analysis adjusting for all three factors (S1 Table B).

Following the introduction of the BuRN-Tool, the sensitivity of a BT-score ≥3 for CSC contact/referral
was 61.8% (95% CI 49.2%-73.3%) and specificity 75.6% (95% CI 72.1%-78.8%) (missing data excluded).

**CSC actions taken**

The percentage of cases with a contact/referral recorded by CSC that had a CSC action was significantly
lower (p=0.007) post-BuRN-Tool (37.5%, 33/88), than pre-BuRN-Tool (58.0%, 51/88). Cases with a BT-
score \( \geq 3 \) had more CSC actions taken than those scoring <3, both before (\( \geq 3 \) 70.0\%, <3 45.8\%, \( p=0.04 \)) and after (\( \geq 3 \) 50.0\%, <3 19.2\%, \( p=0.01 \)) the BuRN-Tool was introduced (Table 5).

There was no evidence of a difference in the percentage of contact/referrals to CSC who had a CSC action when broken down by age, either pre (\(<5 \text{years} 60.9\%, 42/69; \geq5 \text{years} 47.4\%, 9/19, p=0.29\)), or post (\(<5 \text{years} 40.3\% 29/72; \geq5 \text{years} 25\%, 4/16, p=0.25\) introduction of the BuRN-Tool.

There were 36 (18 pre- and 18 post-BuRN-Tool) children who had ongoing CSC involvement from the six months before the burn. Eight of these children had CSC involvement for child protection concerns but no plan implemented, 8 had a Child in Need plan, 15 had a Child Protection plan and five were looked after children. There was no significant evidence of a difference between the percentage of CSC actions undertaken between those who had ongoing Child Protection involvement or not either pre- (Child Protection involved 50.0\%, 9/18; not involved 60.0\%, 42/70, \( p=0.44 \)) or post-BuRN-Tool (Child Protection involved 27.8\%, 5/18; not involved 40.0\%, 28/70, \( p=0.34 \)).

Throughout the study there were 70 children referred to CSC who received no CSC action. In the six months following the burn injury, 38.9\% (14/36) of those children who had a BT-score \( \geq 3 \) were subsequently referred to CSC for safeguarding concerns, a significantly higher percentage than the 14.7\% (5/34) of those with a BT-score <3 that were subsequently referred (\( p=0.02 \)). Similarly, where a contact/referral for the burn had not been recorded by CSC (\( n=1512 \)), a greater percentage of children with a BT-score \( \geq 3 \) had new CSC involvement in the six months following the burn injury (14.6\%, 46/314) compared to those who had a BT-score <3 (8.2\%, 76/932) or those with missing or incomplete BT-scores (6.4\%, 17/266) (\( p=0.006 \)).

**Discussion**

The BuRN-Tool intervention in hospitals did not change the percentage or characteristic of contacts/referrals recorded by CSC and, contrary to expectations, fewer cases received an assessment or intervention from CSC after the BuRN-Tool was introduced. However, the BuRN-Tool threshold (BT
score \( \geq 3 \) was associated with a greater proportion of children who would, following a referral, be subject to further actions by CSC.

The BT-score cut off of three is supported by the finding that a contact/referral to CSC was made for significantly more children with a BT-score \( \geq 3 \) than for those with a score <3 and for those who were referred; CSC assessment, support and Child Protection interventions were more likely for those with a BT-score \( \geq 3 \) than <3 both before and after the BuRN-Tool was introduced. Furthermore, children with a BT-Score \( \geq 3 \) who were not referred to CSC were subsequently more likely to receive a CSC assessment or child protection intervention in the six months after the burn than those with a BT score <3. It is therefore reasonable to hypothesise that the BuRN-Tool has the capability to identify children about whom CSC would be more likely to take further action post-referral. Our previous publication[14] estimated that 1 in 3 cases with a BT-score \( \geq 3 \) were referred to HSG or CSC for child protection concerns and in this study cohort, CSC recorded a contact/referral for half of the cases with a BT-score \( \geq 3 \). These findings suggest that if ED clinicians had followed the recommendations for a BT-score \( \geq 3 \) more closely, some children could potentially have been assessed by CSC sooner.

Why the CSC actions taken in response to contact/referrals reduced following the introduction of the BuRN-Tool remains unclear, but may be related to information sharing challenges between health and CSC. Referral pathways were difficult to follow directly from clinical records. Cases marked as ‘referred’ to CSC in clinical records did not directly correlate with those cases which had a contact/referral recorded within CSC records, and it is likely that some complexity exists in the information sharing, recording and decision-making processes. The mechanism by which the BuRN-Tool might influence CSC practice and decision-making is not well understood. BT-scores were not disclosed in the contact/referrals to CSC and it is possible that, with training for CSC intake teams, and provision of a BT-score to CSC this could make a difference to prioritisation of cases for intervention.

Nationally, CSC services are undertaking increasing numbers of child protection investigations, without a commensurate increase in the number of child protection plans. This could suggest that
many families are being assessed on the basis of suspected maltreatment unnecessarily. Such actions are not ‘cost-free’, either for professionals, in terms of resources, or for the families, in terms of disruption to family life and emotional trauma. Alternatively, it is possible that staffing and resources simply cannot meet the higher demand of increased referrals. However, it must also be noted that CSC budgets have been increased over the past decades, and there are more children and family social workers too. Yet these increased budgets have increasingly been used for statutory services, including child protection investigations and spending on children in care, with less money available for early help and family support. Throughout the BuRN-Tool derivation, validation and impact studies the baseline and post intervention rates of referral to CSC have remained remarkably similar in both intervention and control centres. This does not mean, of course, that the ‘right children’ are necessarily being referred and assessed, or that every child protection investigation is carried out fully and to the same extent. Such questions are beyond the scope of this article. What is important to highlight is that the introduction of the BuRN-Tool did not increase the number of contact/referrals made, and therefore did not contribute to the increasing workload of CSC.

For children already known to CSC for child protection concerns, social workers may make decisions more heavily reliant on prior contextual knowledge of the family than the detail of the current referral. Previous referrals to CSC (particularly from external agencies) have been highlighted as a key factor in CSC decision making. The BuRN-Tool score is heavily weighted by cases with previous Child Protection concerns, which is deemed by healthcare workers as a cause for concern and as an indicator that CSC should be alerted to such cases, and it is possible that this introduces a potential bias within the tool. However, this study found no increased likelihood of an assessment or action where there had been some involvement from CSC in the six months prior to the burn.

Undertaking this research demonstrated the difficulties in evaluating the impact of clinical prediction tools applied in the healthcare setting on a safeguarding outcome taken by local authorities. This may explain why there is limited literature on outcomes or effectiveness of such prediction tools.
The outcome measure of further involvement in term of actions taken by CSC is likely to be affected by the different thresholds for intervention applied by different safeguarding teams. Despite extensive logistic challenges in collecting CSC outcomes from the multiple local authorities, we were able to collect outcome data for 70.2% of the eligible attendances. The sample was demographically comparable to the overall population in the previously published paper [14] that analysed Child Protection referrals as recorded within clinical notes. However, we were unable to follow up all children because of lack of permission from local authorities, with anxieties about confidentiality, concurrent Ofsted (Office for Standards in Education, Children’s Services and Skills) inspections, and lack of administrative resources to facilitate data collection. The study team took the pragmatic decision to focus on the local authorities with the largest number of children attending hospital with a burn injury and found that obtaining permission and support from the local Safeguarding Board was key to gaining access to the necessary data. Some CSC teams had more available resource than others to take part in the research (e.g. available staff or computer access for a visiting researcher). Secondly, it was challenging to capture the referral pathways taken because the recording of referrals across agencies was inconsistent. It is conceivable that the referral was made by one of the multiagency partners and not recorded as arising directly from the hospital.

The strengths of the study were the prospective design and the large sample size from four regional hospitals. A dedicated researcher, or CSC staff member, collected the outcomes from CSC records according to a structured proforma. The limitations were the missing data from some local authorities and the low follow-up rate for one of the four centres. CSC departments, team managers and social workers were not aware of the BT-score, which had the advantage of blinding them to the relative risk of cases (BuRN-Tool score) referred to them. Co-ordination of this study across health and CSC was challenged by the number of local authorities involved, the lack of resources and coinciding work pressures on CSC that prevented their participation, and the inconsistencies between health and CSC records. The study was not powered as an equivalence or no difference trial.
Conclusion

A contact/referral to CSC was made for significantly more children with a BT-score ≥3 than for those with a score <3 and for those who were referred; CSC assessment, support and Child Protection interventions were more likely for those with a BT-score ≥3 than <3 both before and after the BuRN-Tool was introduced. The finding that the percentage of children who received CSC action following contact/referral for the burn injury significantly decreased post-BuRN-Tool, warrants further investigation and does not justify widening the use of the BuRN-Tool at this stage. However, the BuRN-Tool has shown some potential to help identify which children with burns will likely receive a CSC response, and could help clinicians and CSC practitioners identify who these children are at an earlier stage. Further research should explore why this might be and whether a positive impact could be achieved if CSC practitioners were aware of the evidence base of the tool and the significance of a BT-score ≥3.

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Author contributions

VB: Investigation, Data curation, Formal analysis, Writing – original draft, Writing – review & editing

LH: Writing – review & editing

DW: Writing – review & editing

AE: Funding Acquisition, Writing – review & editing

AK: Funding Acquisition, Supervision, Formal analysis, Writing – original draft, Writing – review & editing

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Supporting information captions

S1 Fig. Burns and Scalds Assessment Template (BaSAT)

S1 File. Children’s Social Care (CSC) outcomes data collection pro-forma

S1 Table. Multivariate logistic regression results