Sýkt sár

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Lykilatriði varðandi sýkt sár

1. Tilurð sýktra sára er háð eiginleikum sýkla og hæfni einstaklinga til að verjast sýklum.
2. Samspil sýkla og sjúklinga í sárum er ekki alltaf ávísun á sýkingu. Frekari skilgreininga er þörf.
3. Sýklafræðilegt mat á sárum er eitt og sér ekki fullnægjandi til að greina að um sýkingu er að ræða. Fara þarf fram heildrænt mat á sjúklingi til að komast að "réttustu" niðurstöðu fyrir hann.

Hvernær eru sár sýkt og hvenær eru sár ekki sýkt?

1. Mengun: sýklar komast á endanum í öll sár. Ef kringumstæður eru sýklum í óhag hefur vera þeirra í sári ekki áhrif á vöxt og viðgang sárs
2. Sýklun: sýklar í sárum vaxa og dafna en hafa ekki skaðleg áhrif á gróanda sára
3. Sýking: sýklar vaxa og sækja inní vefi sjúklings. Það veldur ónæmissvari, stöðvun sárgróanda og skaddar vefi.

Hefðbundin skilmerki sýkinga

- Mikilsvert framtak 1994
- Reynt að skilgreina þætti sem einkenna sárasýkingar
- Þrátt skilgreiningu eru mörg ljón í veginum
- Endurskoðun talin þörf
- Delfí ferlið

Criteria for wound infection

Traditional criteria
- Abscess
- Cellulitis
- Discharge (serous exudate with inflammation; seropurulent; haemopurulent; pus)

Suggested additional criteria
- Delayed healing (compared with normal rate for site/condition)
- Discolouration
- Friable granulation tissue that bleeds easily
- Unexpected pain/tenderness
- Pocketing at base of wound
- Bridging of the epithelium or soft tissue
- Abnormal smell
- Wound breakdown

Adapted from Cutting and Harding, 1994[1]

Cutting et al.: Clinical identification of wound infection: a Dephi approach. EWMA Position Document 2005

http://www.ewma.org/pdf/fall05/pos_doc_eng.pdf

Clinical identification of wound infection: a Delphi approach

KF Cutting[1], RJ White[2], P Mahoney[3], KG Harding[4]

Delfí aðferðafræði er byggð á "consensus"

- Sérfræðingar gefa álit á tilteknu máli á grundvelli þekkingar og reynslu
- Hópurinn (sem er anonym) velur aðra sérfræðinga til liðsins
- Niðurstöðum skipt í fáa flokka með greinargerð
- Niðurstöður sendar á spurningaformi til allra meðlima hópsins að meta vægi einstakra þátta
- Einstaklingar hópsins flokka á talna skala (vanalega frá 0 til 10) mikilvægi tiltekins hlutar
- Mikilvægi er flokkað á grunni fyrirliggjandi upplýsinga, hvað er: ekki, meðal eða mjög mikilvægt
- Hópmeðlimir endurmeta skor sitt í ljósi niðurstöðu hópsins alls
- Tekin er niðurstaða um "sáttina" (consensus)

Jones & Hunter: Consensus methods for medical and health services research. BMJ 1995;311:376-80

Í þessu tilfelli er Delfí-hópurinn

- 54 einstaklingar
- Frá mörgum löndum
- Læknar, hjúkrunarfræðingar, fótaaðgerða-fræðingar og klínískir sérfræðingar
- Stofnaðir voru 6 hópar með 8-10 meðlimum
- Skipt með sér verkum

Delphi ferlið um sárasýkingar

Table 1 | **The Delphi process**

Round	
1	Panel members were asked to list the clinical indicators of infection relevant to one wound type group
2	Criteria from round 1 were collated by the researcher. A new list was returned to panel members with instructions to score each criterion according to importance (0=not important; 9=highly important).
3	Mean, median and standard deviation values were generated from collated responses. Clinically similar criteria and those that demonstrated a correlation coefficient ≥0.7 were merged. Criteria scoring <4 were deleted as they were considered to be of little or no significance by virtue of their low score. Reduced lists were returned to panellists with an invitation to review their own score in light of the group position.
Final	Where scores had been revised in round 3, data was amended and new means, medians and standard deviations generated. Criteria were grouped into three bands according to their scores: 4-5 (important), 6-7 (very important), 8-9 (diagnostic). The structure of these bandings was driven by the data.

HIGH	Mean score 8 or 9
MEDIUM	Mean score 6 or 7
LOW	Mean score 4 or 5

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Bráð sár

ACUTE WOUNDS – PRIMARY	ACUTE WOUNDS – SECONDARY
Cellulitis Pus/abscess	Cellulitis Pus/abscess
Delayed healing Erythema ± induration Haemopurulent exudate Malodour Seropurulent exudate Wound breakdown/enlargement	Delayed healing Erythema ± induration Haemopurulent exudate Increase in exudate volume Malodour Pocketing Seropurulent exudate Wound breakdown/enlargement
Increase in local skin temperature Oedema Serous exudate with erythema Swelling with increase in exudate volume Unexpected pain/tenderness	Discolouration Friable granulation tissue that bleeds easily Increase in local skin temperature Oedema Unexpected pain/tenderness

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Sár í sykursjúkum

Cellulitis Lymphangitis Phlegmon Purulent exudate Pus/abscess	Blue-black discolouration and haemorrhage (halo) Bone or tendon becomes exposed at base of ulcer Delayed/arrested wound healing despite offloading and debridement Deterioration of the wound Friable granulation tissue that bleeds easily Local oedema Sinuses develop in an ulcer Spreading necrosis/gangrene Ulcer base changes from healthy pink to yellow or grey
Crepitus in the joint Erythema Fluctuation Increase in exudate volume Induration Localised pain in a normally asensate foot Malodour Probes to bone Unexpected pain/tenderness	

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Slagæða- eða bláæðasár

Cellulitis Pus/abscess	Cellulitis
Change in colour/viscosity of exudate Change in wound bed colour* Crepitus Deterioration of wound Dry necrosis turning wet Increase in local skin temperature Lymphangitis Malodour Necrosis – new or spreading	Delayed healing despite appropriate compression therapy Increase in local skin temperature Increase in ulcer pain/change in nature of pain Newly formed ulcers within inflamed margins of pre-existing ulcers Wound bed extension within inflamed margins
Erythema Erythema in peri-ulcer tissue – persists with leg elevation Fluctuation Increase in exudate volume Increase in size in a previously healing ulcer Increased pain Ulcer breakdown	Discolouration eg dull, dark brick red Friable granulation tissue that bleeds easily Increase in exudate viscosity Increase in exudate volume Malodour New onset dusky wound hue Sudden appearance/increase in amount of slough Sudden appearance of necrotic black spots Ulcer enlargement

* *black for aerobes, bright red for Streptococcus, green for Pseudomonas*

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Þrýstings-sár

Cellulitis
Change in nature of pain Crepitus Increase in exudate volume Pus Serous exudate with inflammation Spreading erythema Viable tissues become sloughy Warmth in surrounding tissues Wound stops healing despite relevant measures
Enlarging wound despite pressure relief Erythema Friable granulation tissue that bleeds easily Malodour Oedema

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Brunasár:
-yfirborðs/grunn- -fullþykktar-

Cellulitis Ecthyma gangrenosum	Black/dark brown focal areas of discolouration in burn Cellulitis Ecthyma gangrenosum Erythema Haemorrhagic lesions in subcutaneous tissue of burn wound or surrounding skin Increased fragility of skin graft Loss of graft Onset of pain in previously pain-free burn Spreading peri-burn erythema (purplish discolouration or oedema) Sub-eschar pus/abscess formation Unexpected increase in wound breadth
Black/dark brown focal areas of discolouration in burn Erythema Haemorrhagic lesions in subcutaneous tissue of burn wound or surrounding skin Malodour Spreading peri-burn erythema (purplish discolouration or oedema) Unexpected increase in wound breadth Unexpected increase in wound depth	Discolouration Friable granulation tissue that bleeds easily Malodour Oedema Opaque exudate Rapid eschar separation Rejection/loosening of temporary skin substitutes Secondary loss of keratinised areas
Discolouration Friable granulation tissue that bleeds easily Sub-eschar pus/abscess formation Increased fragility of skin graft Increase in exudate volume Increase in local skin temperature Loss of graft Oedema Onset of pain in previously pain-free burn Opaque exudate Rejection/loosening of temporary skin substitutes Secondary loss of keratinised areas	

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Ecthyma gangrenosum

- Húðsýking sem dreifist frá yfirborði niður í dýpri lög húðar
- Byrjar sem bullae þar sem myndast drep í miðju og fellur saman.
- Drep myndast með svörtum örvef
- Oftast orsakað af *P. aeruginosa*
- Fyrst og fremst í ónæmis-bíluðum einstaklingum (æxli, bruni etc)
- Í einstaklingum með daufkirningafæð (neutropenia) eru margar bakteríur sem geta valdið eða sveppir (t.d. Candida spp. og Mucor spp.)

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Að lokum

- Nálgast sár á gagnreyndan (evidence-based) hátt eftir því sem að því verður við komið
- Rækta sár þegar það virðist viðeigandi
- Beita viðeigandi sýklalyfjum
- Muna eftir að horfa á sjúkling heildrænt (holistic) en ekki einungis á sár