Studi Literasi "HONEY"

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Dalam acara Seminar dan Workshop Kesehatan Nasional

Update Perawatan Luka Modern dan Prospek Kewirausahaan dalam Bidang Keperawatan/Kesehatan

Curriculum Vitae

Name:

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Education:

Bacelor Degree, School of Nursing, UMY

Master Degree, Master of Nursing, UMY

Professional exp:

Koord IT, School of Nursing, UMY

Anggota bidang Diklat, DPP InWOCNA (2017 – now)

Wakil Ketua DPW DIY Jateng InWOCNA (2018 – now)

Tujuan

Dapat mengenali Prinsip Moist Wound Healing

Mengetahui sejarah Madu

Mengetahui Studi Literasi: Madu

bit.ly/2Ta1sDH

mohon diisi

Luka

Terputusnya struktur, fungsi kulit dan jaringan dibawahnya yang disebabkan karena beberapa hal (pembedahan, trauma, penyakit vascular, infeksi, tekanan menetap)

Problem luka → luka kronik, resisten terapi, resiko thd pasien

Problem → penurunan QoL, high cost

Problem penghambat penyembuhan luka

Lokal	Sistemik
Tekanan menetap	Usia
Keropeng	Obesitas
Trauma	Penyakit kronis (DM, anemia)
Edema	Malnutrisi
Infeksi > koloni bakteri	Imunodefisiensi
Inkontinensia > maserasi	Merokok, kesehatan menurun, stress
Kurang oksigen > masalah vaskular	Insufisien vaskular

Masalah

Keterlambatan dalam mengidentifikasi dan koreksi faktor etiologi

↓

Ketidak konsistenan petugas kesehatan & klinik → perawatan luka

↓

Kurangnya Evidence based → wound management

↓

Luka kronik menetap & high cost

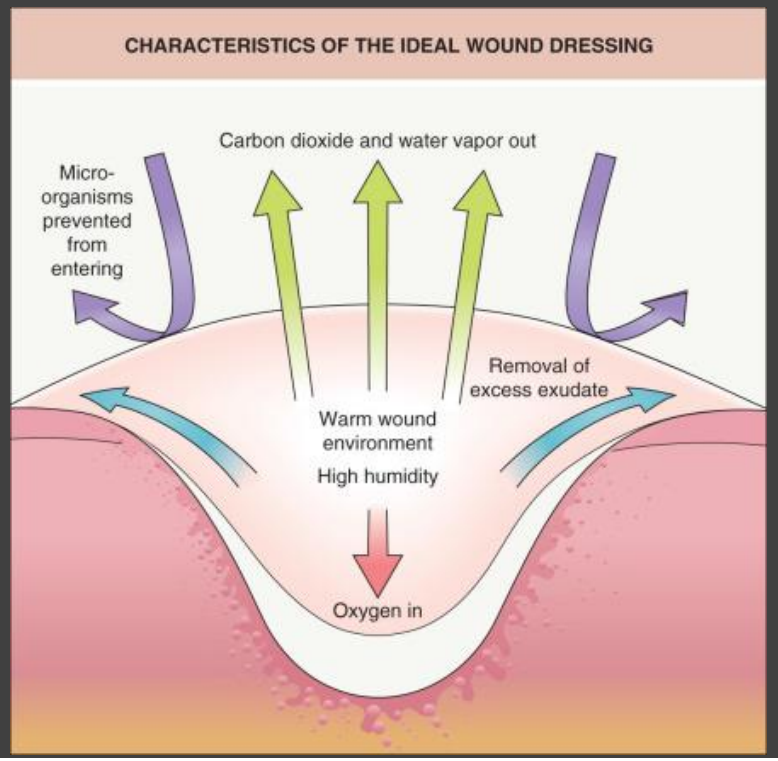
Perawatan Luka efektif

- Koreksi faktor etiologi
- Suport sistemik
- Terapi topical berdasar bukti

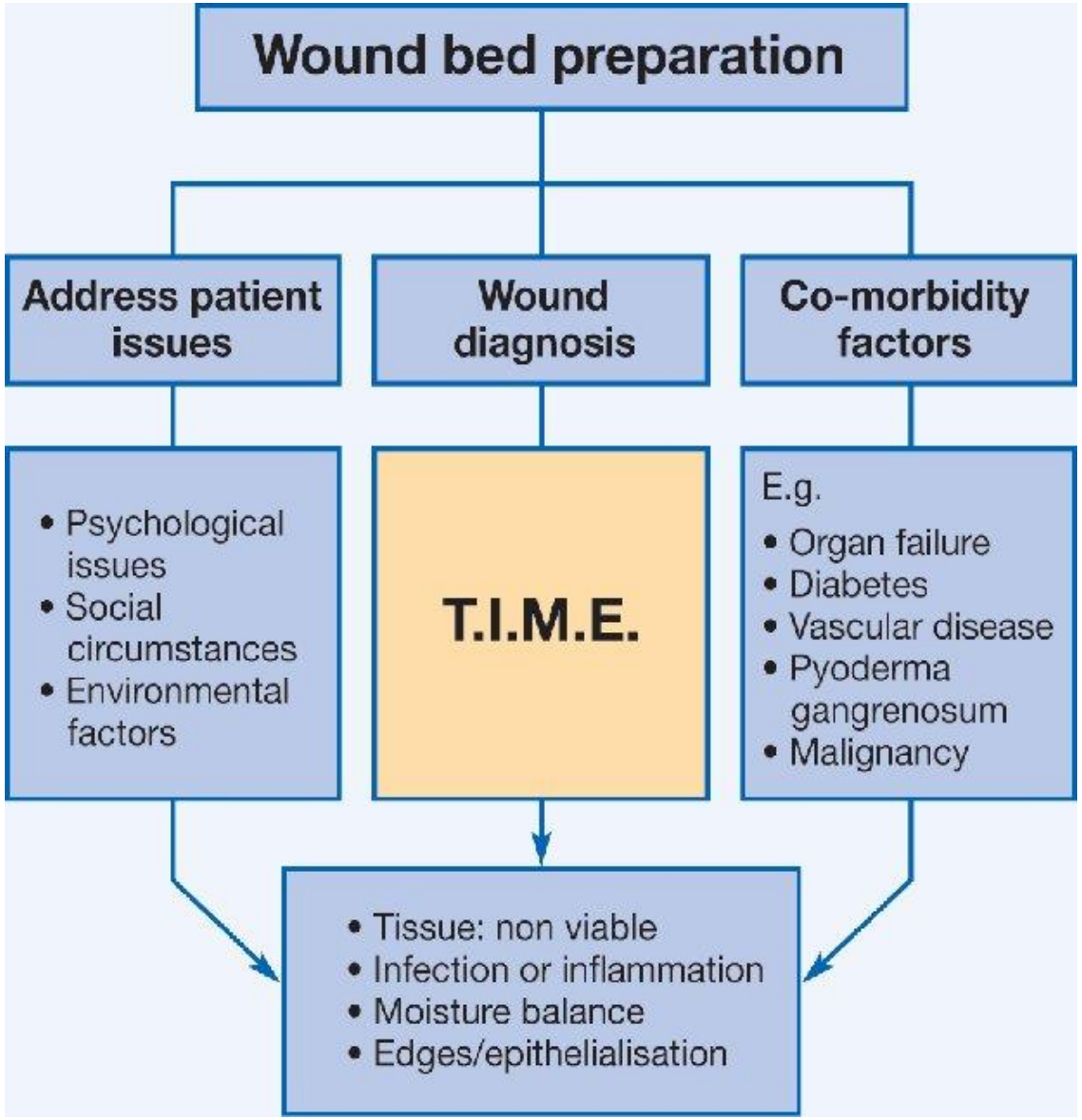
Pemecahannya

Wound care berbasis bukti → MOIST WOUND HEALING

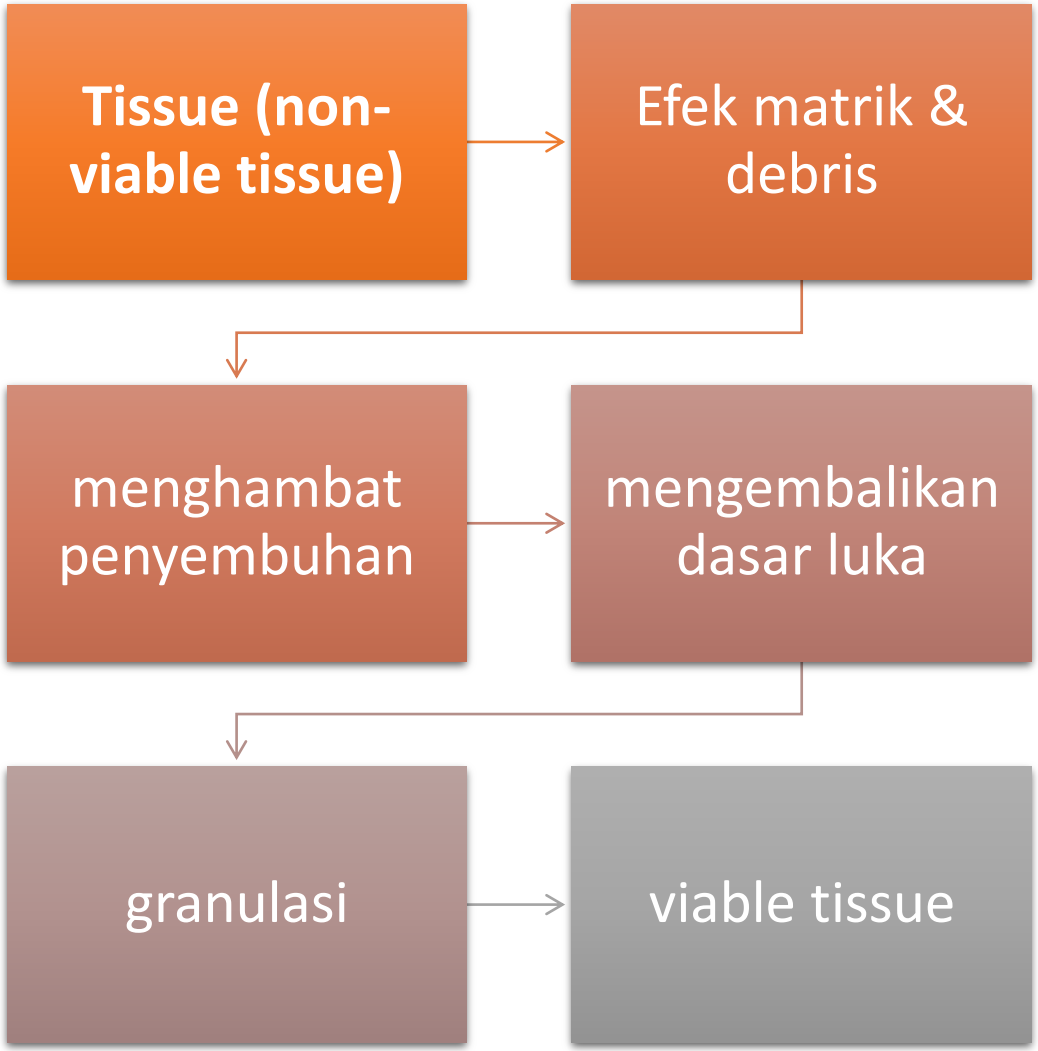
Keuntungan Moist Wound Healing



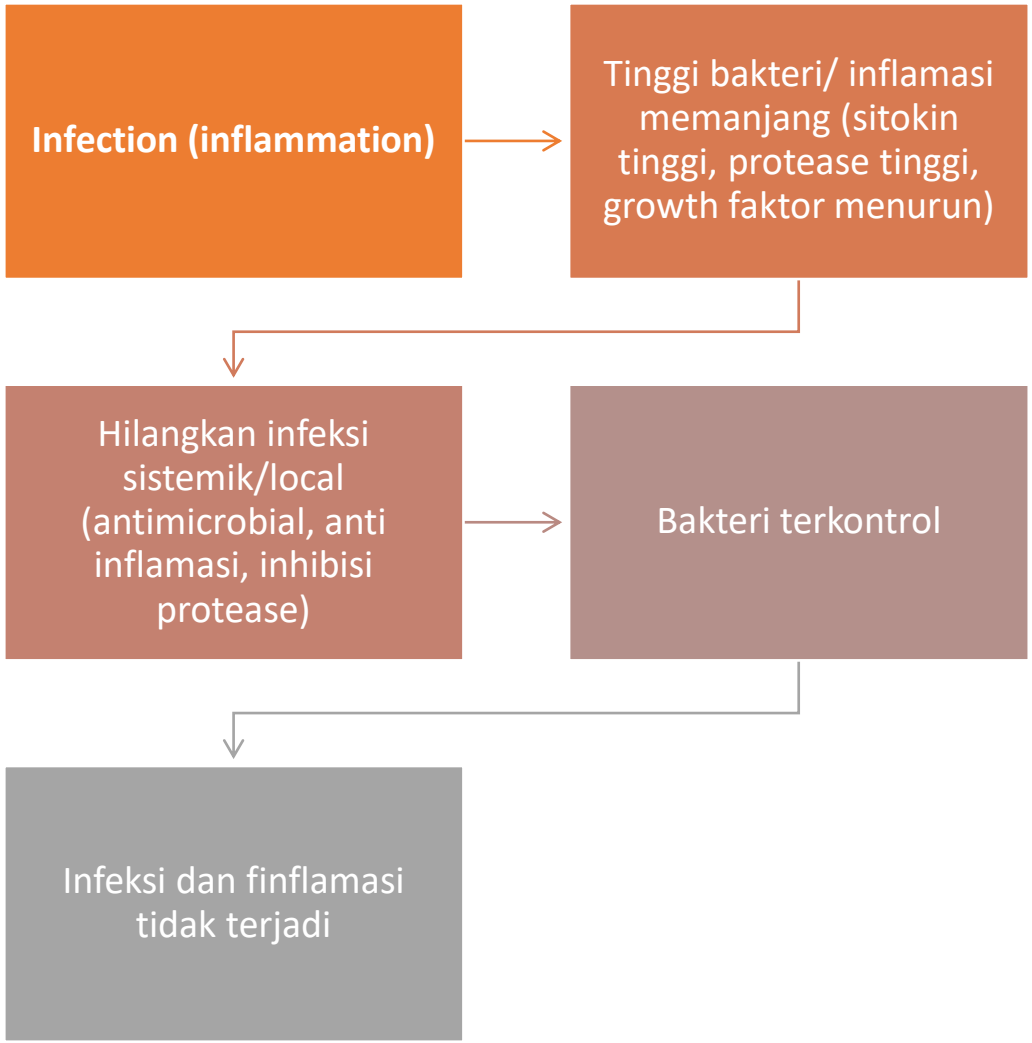
- Lembab: mencegah luka kering
- Meningkatkan migrasi sel
- Proses autolysis
- Mengurangi resiko infeksi
- Melindungi luka dari agen luar
- Proses fibrolisis berkurang
- Penggantian balutan berkurang
- Kenyamanan pasien
- Kosmetik
- Waktu perawatan
- Biaya


Wound bed preparation
Address patient issues
Wound diagnosis
Co-morbidity factors
• Psychological issues
• Social circumstances
• Environmental factors
T.I.M.E.
E.g.
• Organ failure
• Diabetes
• Vascular disease
• Pyoderma gangrenosum
• Malignancy
• Tissue: non viable
• Infection or inflammation
• Moisture balance
• Edges/epithelialisation

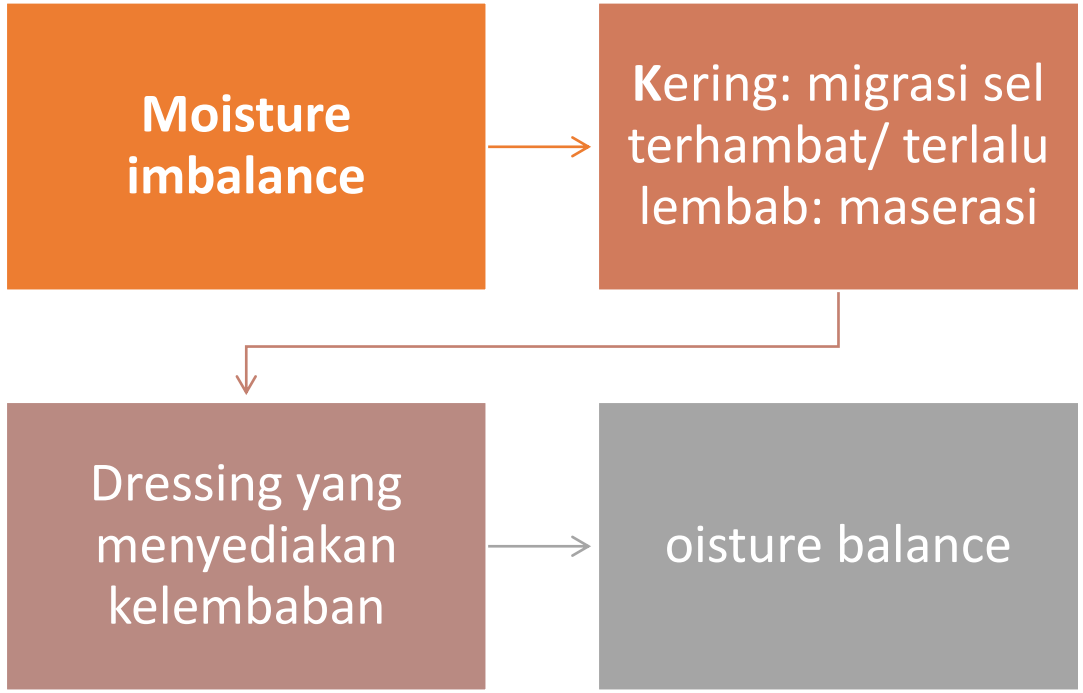
Observasi Klinik: T for Tissue



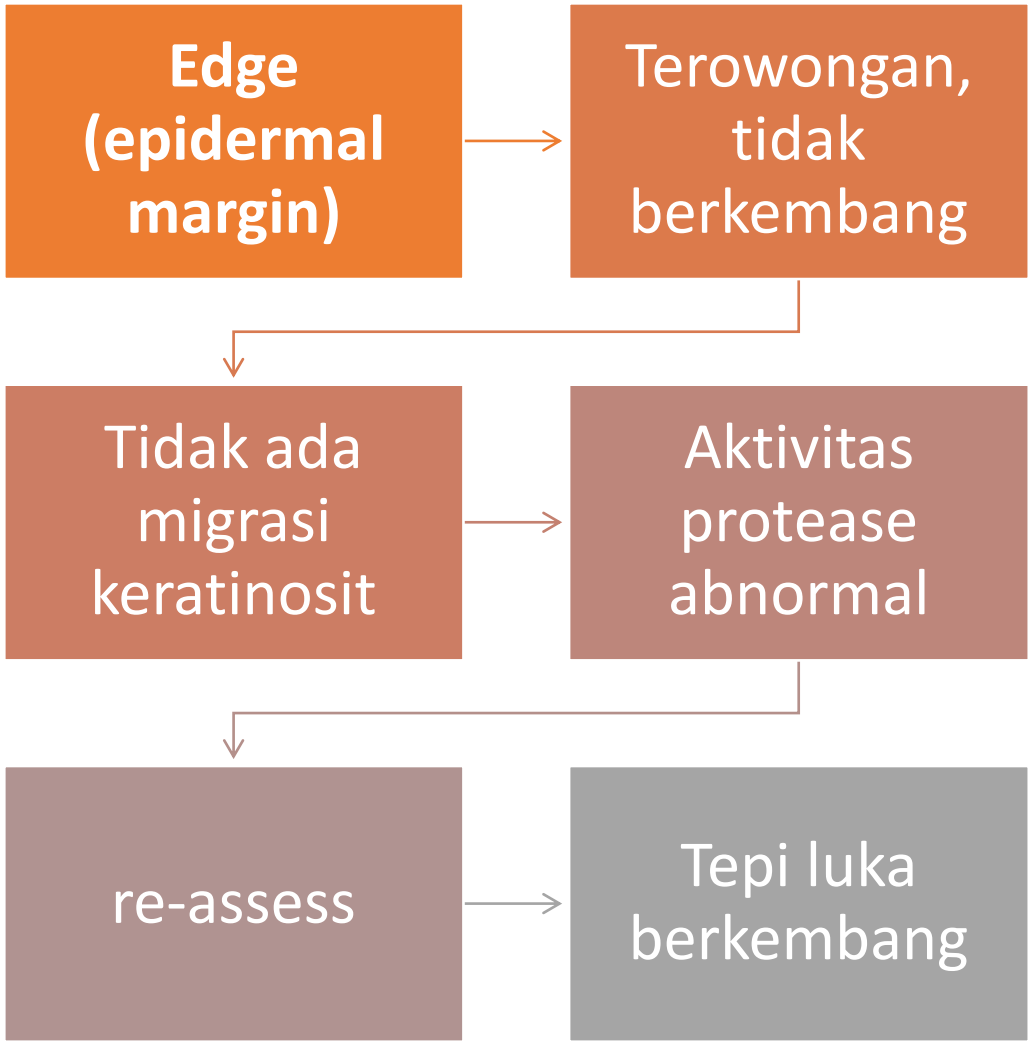
I for Infection



M for Moisture imbalance



E for Epidermal margin



Studi Literasi: EBN

MADU

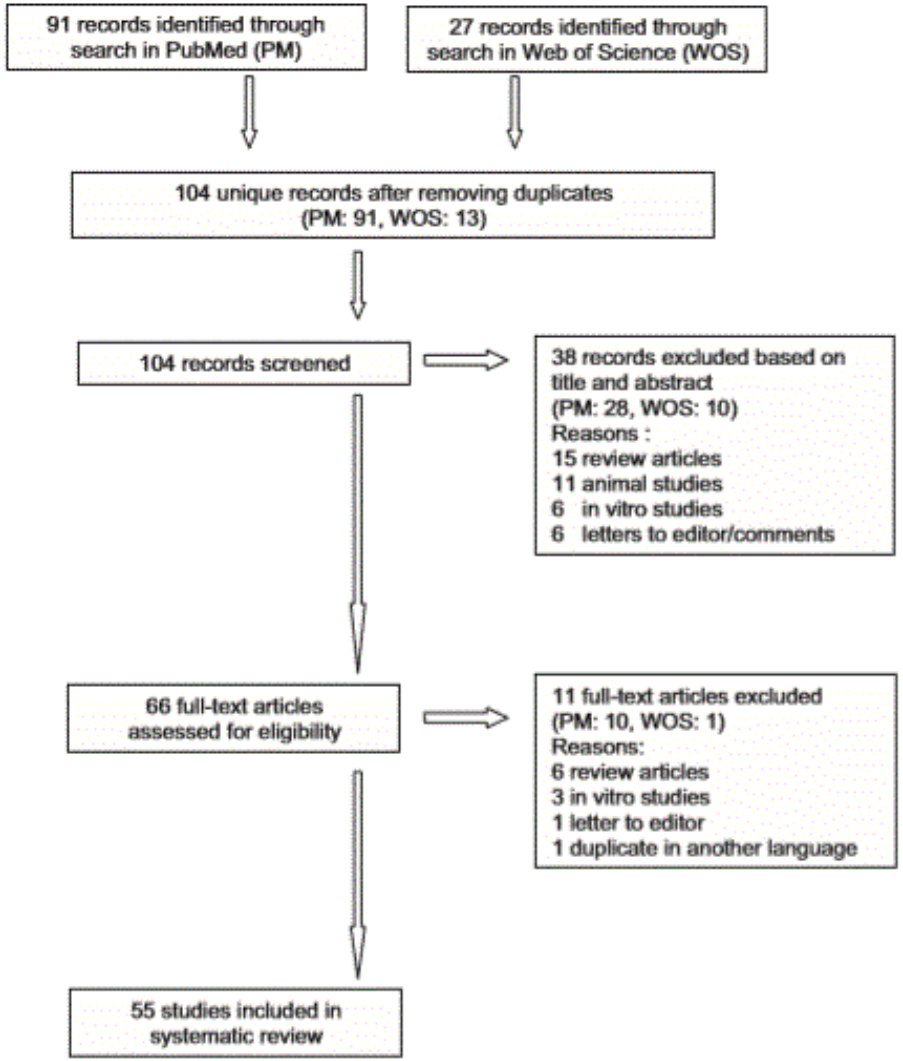
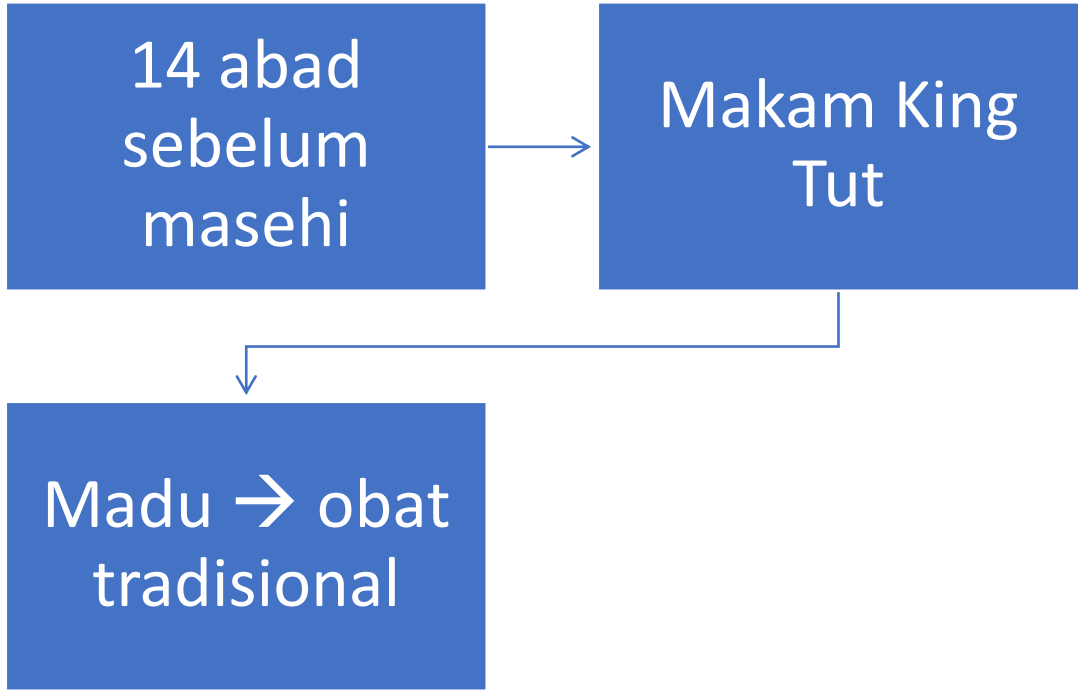


Fig. 1 – Flowchart of included studies.

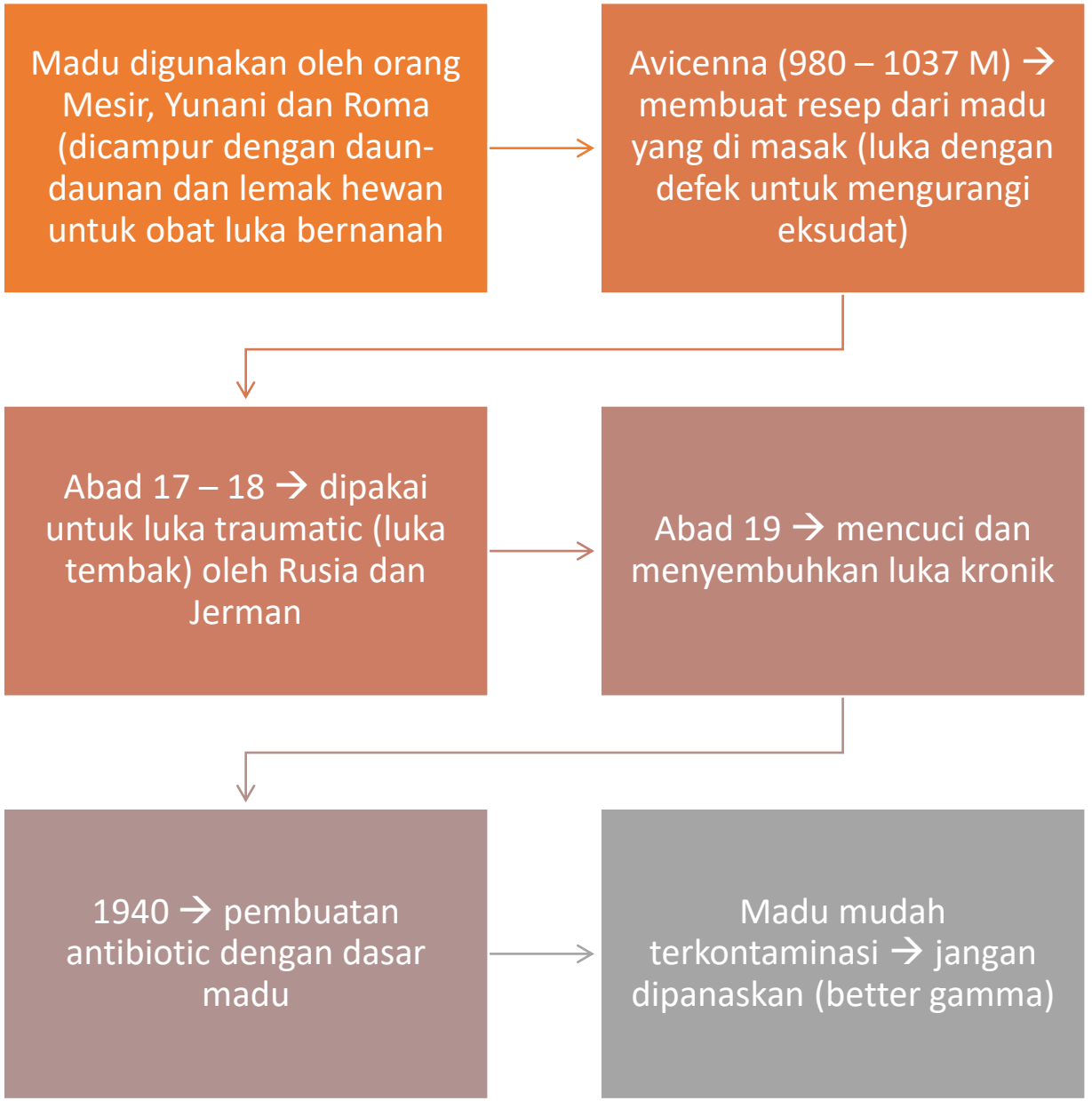
Table 2 – Categories of outcome parameters.

Outcome group	Outcome parameter
Antibacterial effect	Reduction or eradication of bacteria
Healing stimulating properties	Reduction in wound size, healing time, complete healing, stimulation of granulation tissue and epithelialisation
Debriding effect	Reduction in slough, necrosis and debris
Anti-inflammatory effect	Reduction in redness, oedema, exudates and histopathologic inflammation.
Odour reducing capacity	Reduction in bad smell
Wound pain	Reduction in pain that was already present before honey was applied

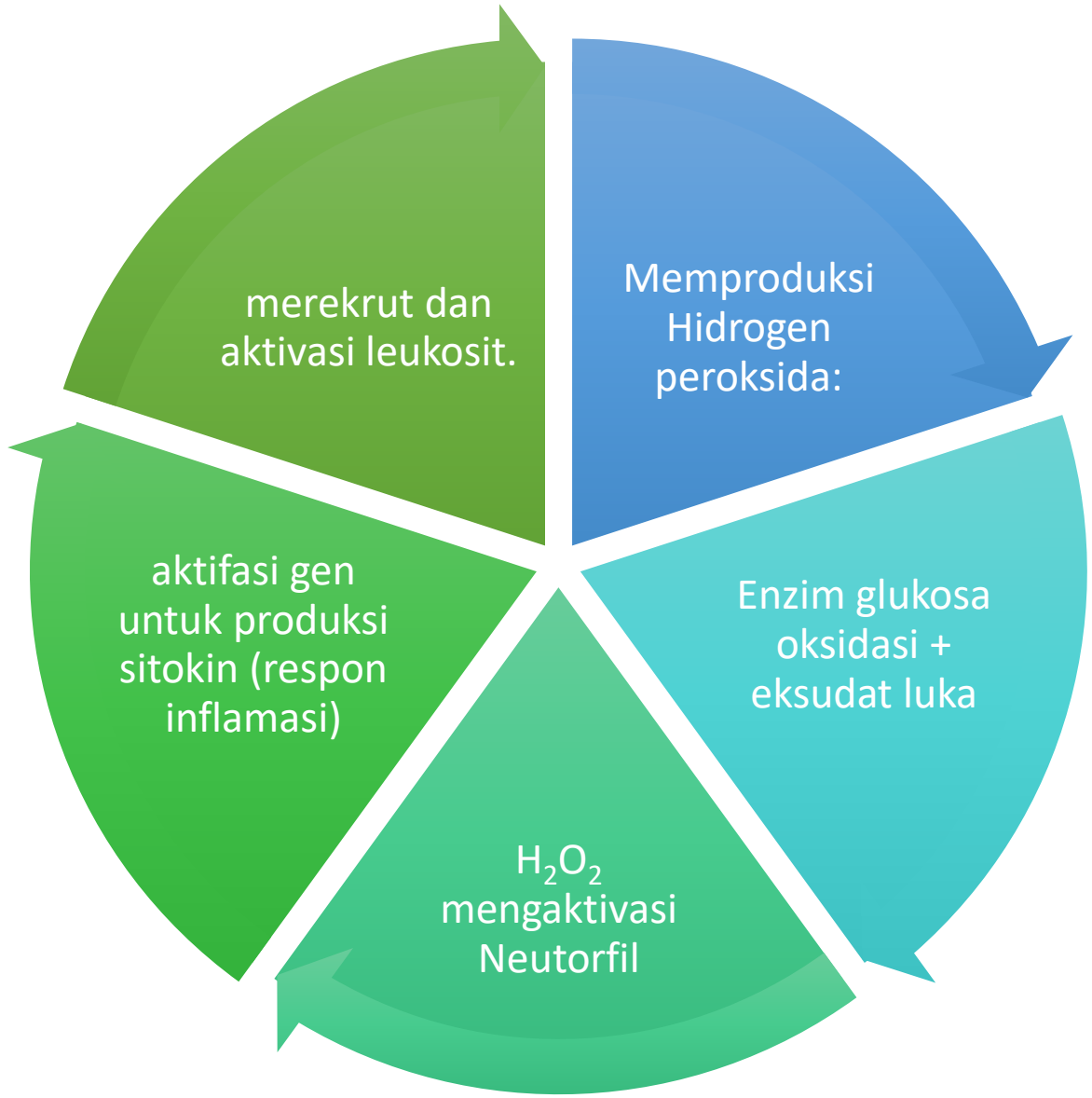
Sejarah madu (L. Vandamme et al, 2013)



2600 – 2200 SM → Edwin Smith papyrus (tulisan di lembaran pohon lontar)



Fungsi madu (Antimikrobial)



Fungsi Madu (Antimikrobial)

Flavanoid (phytochemicals)

mencegah kerusakan jaringan

mengurangi pembentukan radikal bebas superoksida (proses fagositosis: makrofag dll)

Cont..

Water activity rendah (0.56 – 0.62): bakteri tumbuh (0.94 – 0.99)

- Cairan luka akan terserap madu: osmosis
- Bakteri akan mati

Tingkat keasaman Madu (3.2 – 4.5): bakteri tumbuh di pH 7.2 – 7.4

Mengurangi bau

Mempercepat pertumbuhan jaringan

Islam memandang Madu?

An Nahl 69:

ثُمَّ كُلِي مِن كُلِّ الثَّمَرَاتِ فَاسْلُكِي سُبُلَ رَبِّكِ ذُلُلاً يَخْرُجُ مِن بُطُونِهَا شَرَابٌ مُّخْتَلِفٌ أَلْوَانُهُ فِيهِ شِفَاء لِلنَّاسِ إِنَّ فِي ذَلِكَ لآيَةً لِّقَوْمٍ يَتَفَكَّرُونَ

kemudian makanlah dari tiap-tiap (macam) buah-buahan dan tempuhlah jalan Tuhanmu yang telah dimudahkan (bagimu). Dari perut lebah itu keluar minuman (madu) yang bermacam-macam warnanya, di dalamnya terdapat obat yang menyembuhkan bagi manusia.

Sahih: Al Bukhari

Kesembuhan dari penyakit itu dengan melakukan tiga hal : berbekam, minum madu dan dibakar dengan besi panas. Tetapi aku melarang umatku membakar dengan besi panas itu.

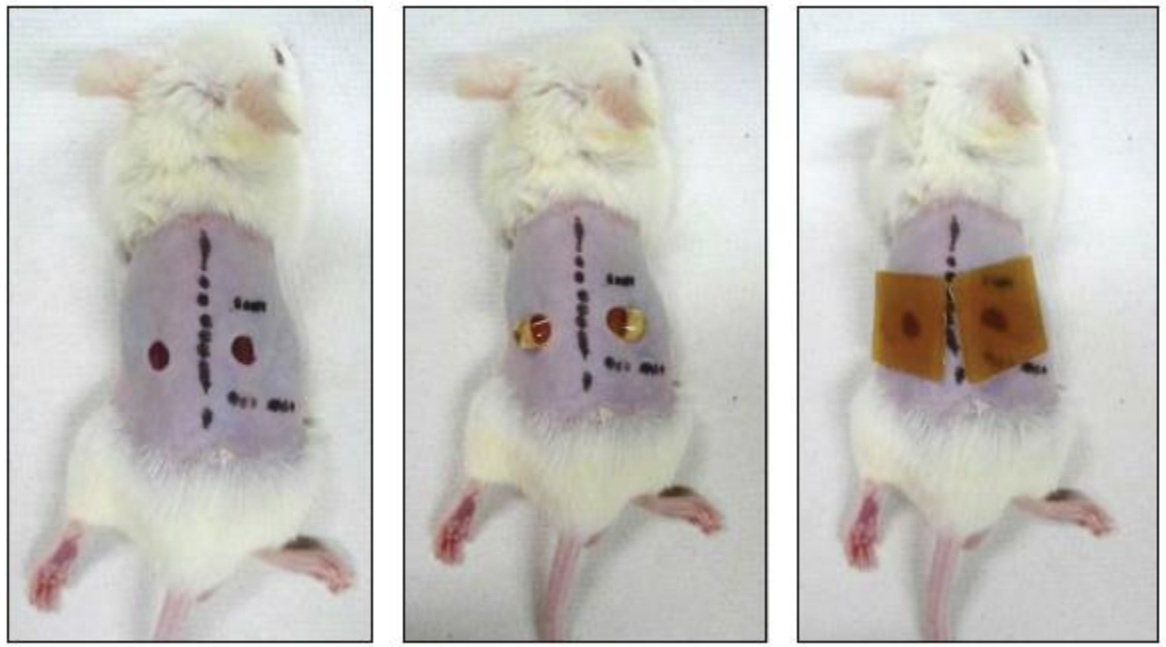
Topikal Berbasis Bukti (Madu)

- Penelitian Mukai et al. (2015)
- Acacia (*Robinia pseudoacacia*) + HCD
- Manuka (*Leptospermum scoparium*) + HCD
- Chinese milk vetch (*Astragalus sinicus*)+ HCD
- HCD → kontrol

Komposisi Madu

- Komposisi Madu
  - 17.3% air
  - 82.1-82.7 % karbohidrat total
  - 0.2-0.4% protein
  - 0.2% arang
  - 0-0.1 % lipid
  - Densitas energi 330-333 kkal/100 g

Cont..



(a) (b) (c)

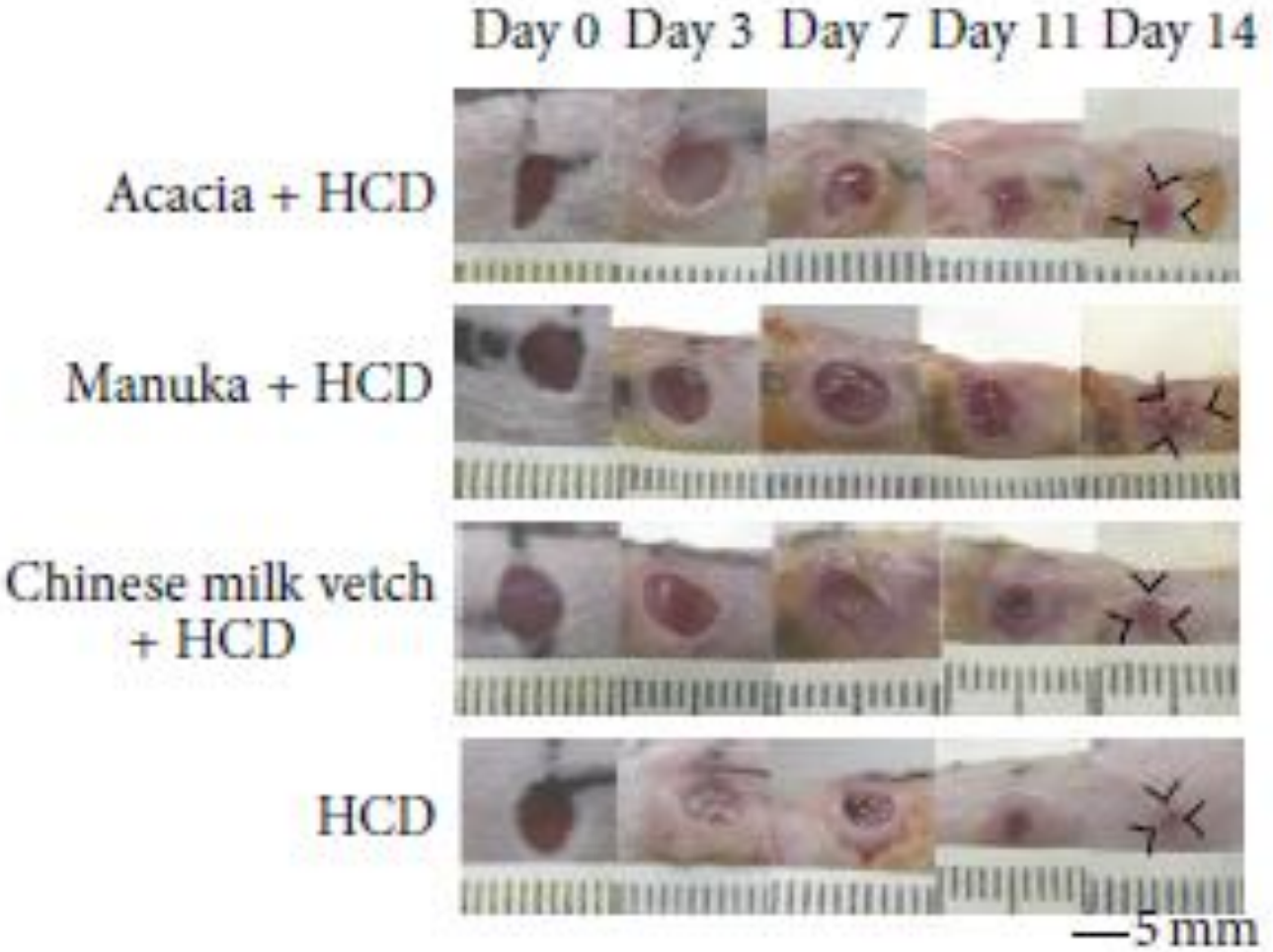
Diskusi

EKSPERIMEN

- Mudah dilepas
- Episode inflamasi berulang
- Bahan HCD menghambat fungsi anti-inflamasi dari madu
- Penggunaan campuran madu + hydrocolloid tidak dianjurkan

KONTROL

- HCD control susah → menempel di tepi luka (scar)
- Makrofag dan re-epitelisasi lebih banyak di kelompok control


Day 0
Day 3
Day 7
Day 11
Day 14
Acacia + HCD
Manuka + HCD
Chinese milk vetch + HCD
HCD
5 mm

Madu Manuka untuk PA & MRSA (Kilty et al., 2011)

- Biofilm Pseudomonas aeruginosa (PA) & Stapilococcus aureus (SA) → chronic rhinosinusitis (CRS)
- Enzim methylglycoxal (MGO) → agen antibakteri madu Manuka
- Mencari konsentrasi efektif (EC) madu manuka pada (PA) dan (SA) secara planktonic dan bakteri yang diisolasi
- Hasil MRSA (SA)
  - Planktonic: 0.08 – 0.3mg/dL
  - Biofilm Isolasi: 0.5 – 3.6mg/dL
- Hasil PA
  - Planktonic: 0.15 – 1.2mg/dL
  - Biofilm Isolasi: 1.8 – 7.3mg/dL

Background: *Pseudomonas aeruginosa* (PA) and *Staphylococcus aureus* (SA) biofilms are associated with poor chronic rhinosinusitis (CRS) disease control following surgery. Manuka honey (MH) has been shown to be both an effective in vitro treatment agent for SA and PA biofilms and nontoxic to sinonasal respiratory mucosa. Methylglyoxal (MGO) has been reported to be the major antibacterial agent in MH. The effect of this agent against SA and PA biofilms has yet to be reported. Our objective was to determine the in vitro effect of MGO against biofilms of SA and PA, via in vitro testing of MGO against bacterial biofilms.

Methods: An established biofilm model was used to determine the effective concentration (EC) of MGO against 10 isolates of methicillin-resistant SA (MRSA) and PA. The EC of MGO was also determined against planktonic (free-swimming) MRSA and PA.

Results: For MRSA, the EC against planktonic organisms was a concentration of 0.08 mg/mL to 0.3 mg/mL whereas against the biofilm MRSA isolates, the EC ranged f 0.5 mg/mL to 3.6 mg/mL. For PA, the EC against plankt organisms was a concentration of 0.15 mg/mL to 1.2 mg for planktonic organisms whereas against the biofilm isolates, the EC ranged from 1.8 mg/mL to 7.3 mg/mL.

Conclusion: MGO, a component of MH, is an effective timicrobial agent against both planktonic and biofilm M and PA organisms in vitro.

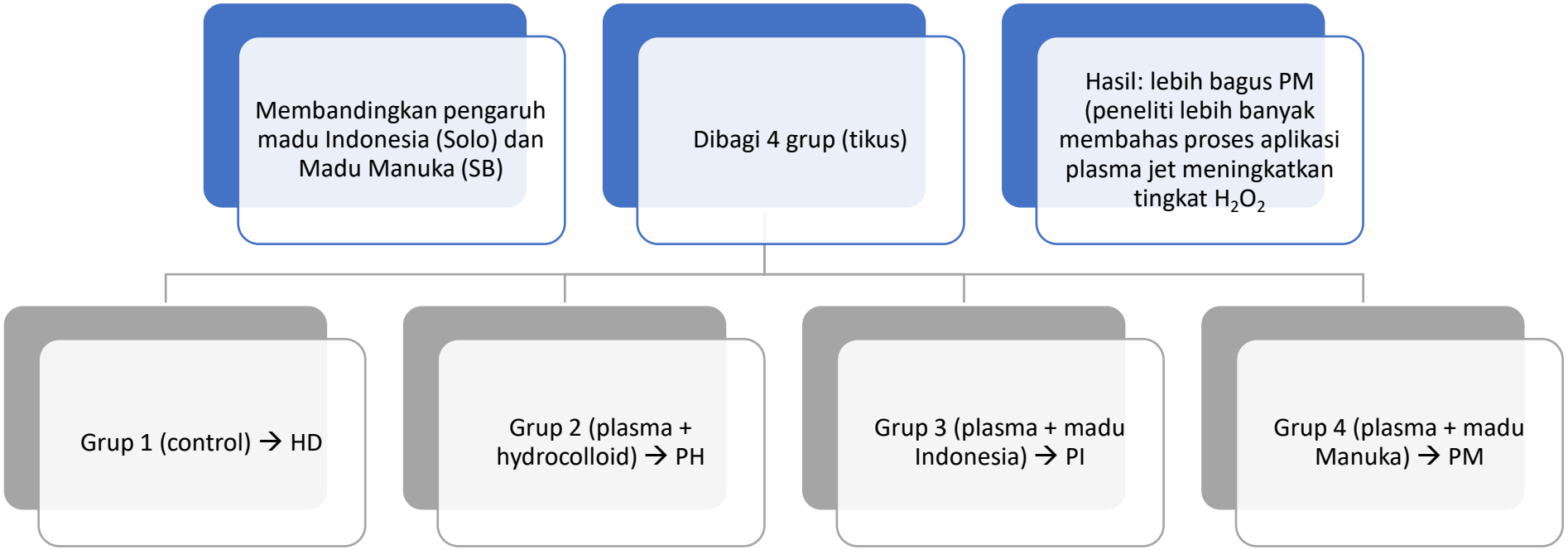
Key Words:
bacteria; biofilm; manuka honey; methylglyoxal; sinusit

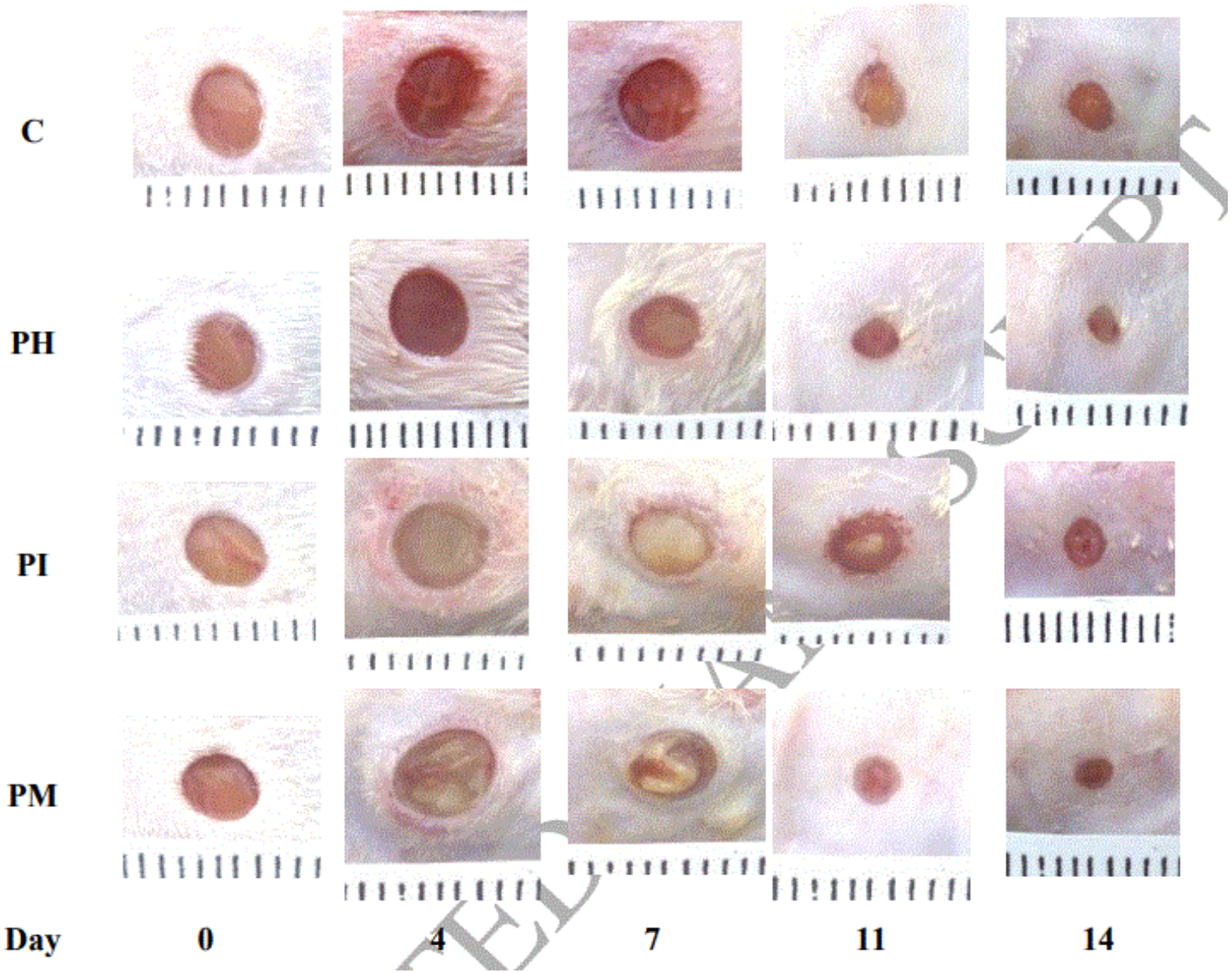
How to Cite this Article:
Kilty SJ, Duval M, Chan FT, Ferris W, Slinger R. Me glyoxal: (active agent of manuka honey) in vitro act against bacterial biofilms. *Int Forum Allergy Rhinol*, 1:348–350

- Biofilm Pseudomonas aeruginosa (PA) & Stapilococcus aureus (SA) → chronic rhinosinusitis (CRS)
- Mencari berapa banyak bakteri mati (in vitro)
- Hasil
  - Planctonic: 100% mati
  - MRSA: Sidr 73%, Manuka 63%
  - PA: Sidr 91%, Manuka 91%

Madu manuka & sidr untuk PA dan MRSA (Alandejani et al., 2009)

Madu Indonesia vs Madu Manuka (Wayuningsih, 2018)




C
PH
PI
PM
Day
0
4
7
11
14

RCT penggunaan madu pada flapping (V. Robson, 2012)

- 70 pasien Ca Kepala dan Leher → treatment flapping (microvascular free tissue transfer)
- 56 pasien setuju → inform consent (IC) RCT (6 tidak hadir saat IC, 8 menolak, 7 dari pasien setuju tidak hadir saat randomisasi)
- 49 responden → 25 **honey dressing (HD)**, 24 **conventional dressing (CD)**
- Hasil
  - Positif terinfeksi: 36% HD, 38% CD
  - Ditemukan MRSA: 28% HD, 25% CD
  - Rata-rata LoS: (12, 10 – 21 hari HD), (18, 13 – 28 hari CD)
  - Biaya: hampir sama
  - Perawat & pasien: prefer ke HD

Mukositis (kumur dengan madu) (Cho et al., 2015)

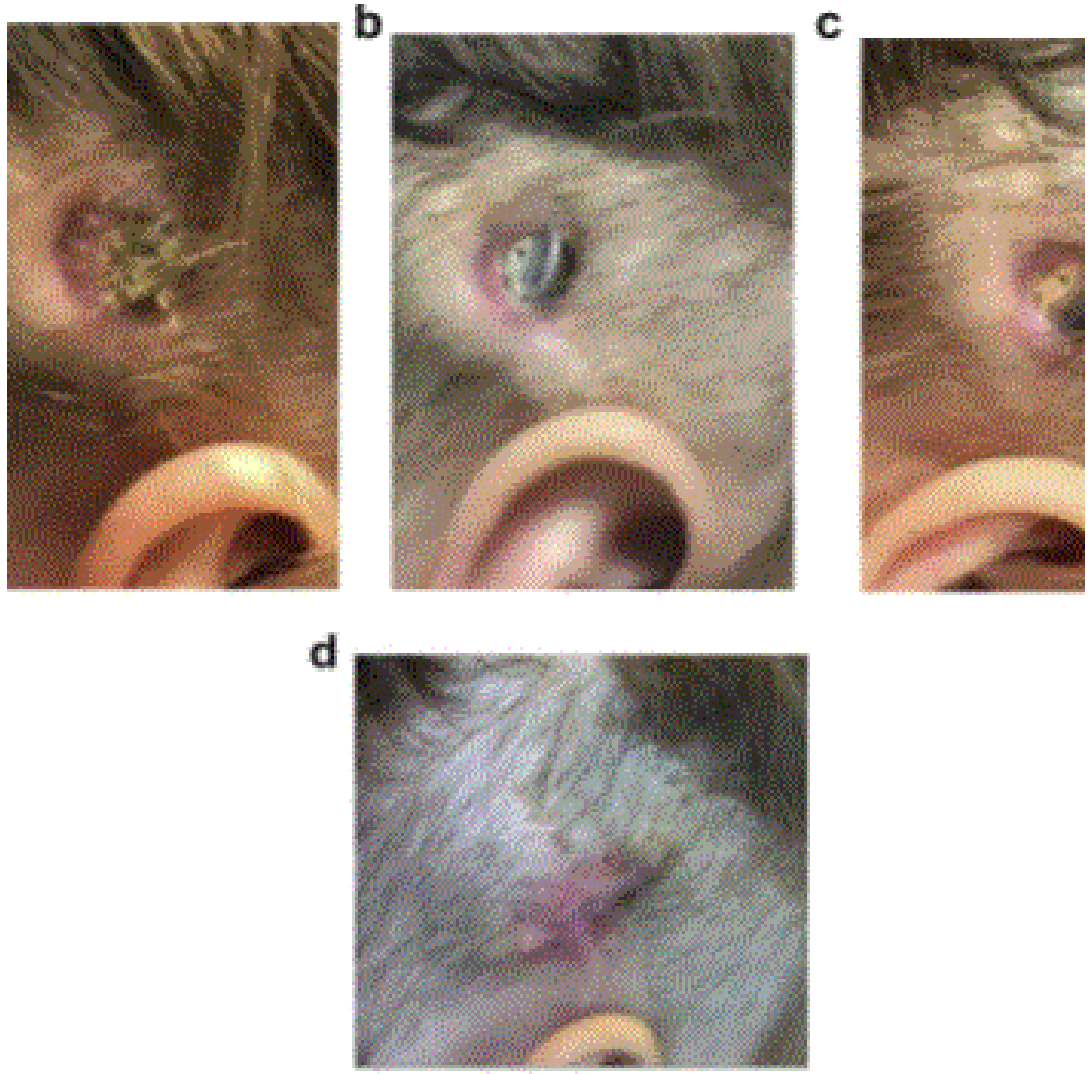
- Pasien Ca Kepala dan Leher (radioterapi/kemoterapi)
- RCT (eksperimen vs kontrol)
- 9 studi (476 pasien)
  - Angka insiden: **sedang – berat** (rata-rata **menurun** pada kelompok **eksperimen** di minggu ke 3)
  - Onset**: lebih singkat** kelompok **ekperimen**
  - **Tidak ada perbedaan**: pengalaman **nyeri** dan **koloni bakteri**
  - Penurunan berat badan: **kontrol** lebih tinggi

Case Study (Anya et al., 2018)

- 3 Kasus (implant koklear device)
- KASUS 1
- 2 tahun
- bilateral SSHL
- cefdinir, topical bacitracin and peroxide debridement
- beberapa minggu jadi tambah buruk
- gel madu (TheraHoney) + IV: cefepime
- seminggu kemudian sembuh

Cont...

- KASUS 2
- 11 tahun
- bilateral SSHL (karena congenital cytomegalovirus)
- Rirwayat pasang usia 5 tahun kanan, 7 tahun kiri.
- Ada luka (MSSA +)
- terapi IV cefazolin
- Memburuk
- Operasi
- terapi TheraHoney 22 hari → sembuh



Cont...

- Kasus 3
- 5 tahun
- implant telinga kanan 2 tahun yll.
- Ulcer 3 x 3.5 cm, memburuk (eritema, purulent banyak). → peroxide debridemen, IV antibiotic, antibiotic rawat jalan → tidak mempa
- alat bantu dengar (kiri) dicopot 3 bulan → luka masih ada
- TheraHoney → beberapa minggu → luka sembuh

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mohon diisi

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