



The Zombie Sepsis Game

by Dr Carl Leith van Heyningen for **#EM3**

East Midlands Emergency Medicine Educational Media

v2.1

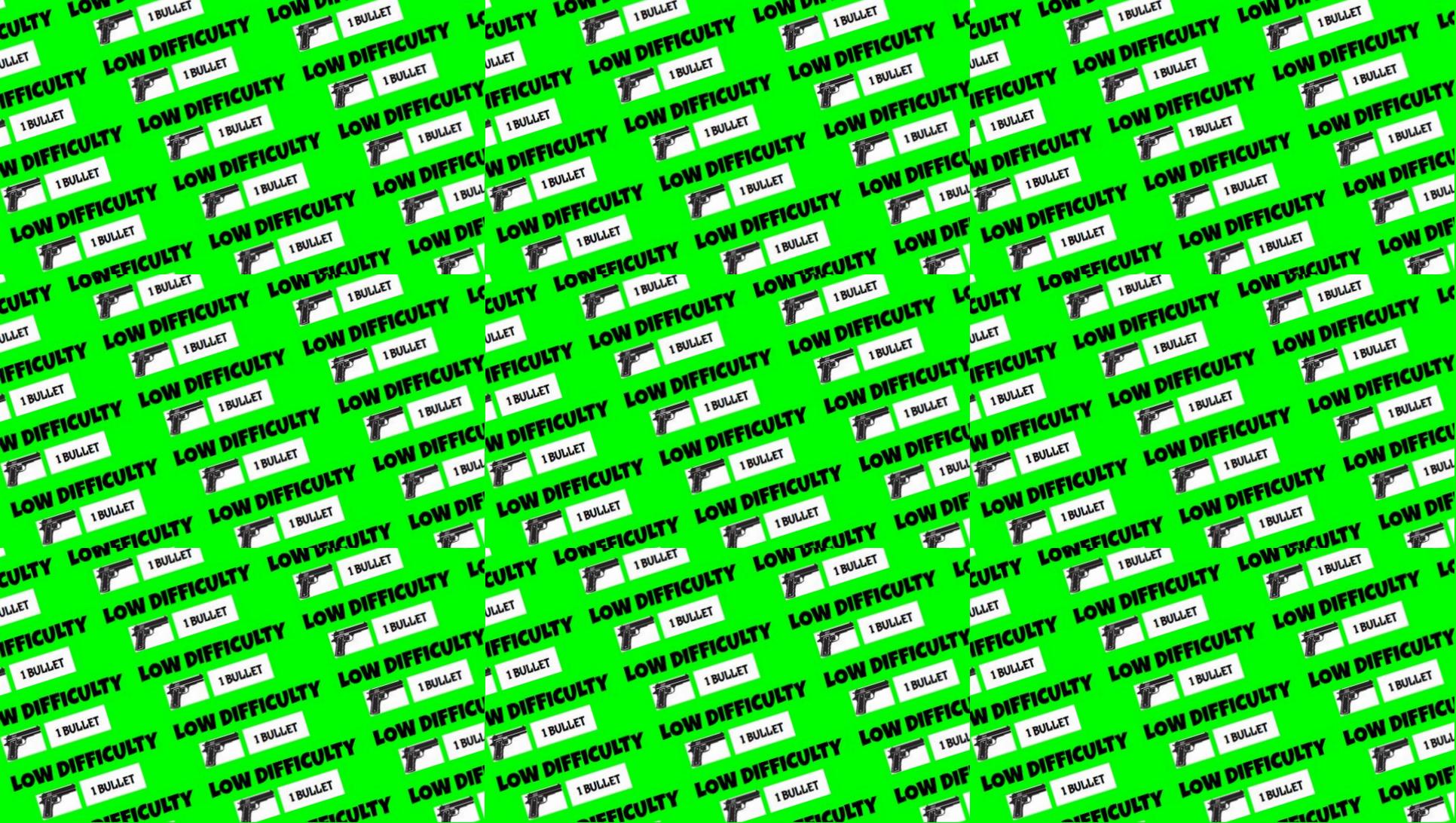
ANSWERS KEY

1) D	10) B	19) Periorbital cellulitis	28) Measles	37) A	46) A	55) A	64) E
2) B	11) D	20) Impetigo	29) Eczema herpeticum	38) B	47) D	56) B	65) C
3) E	12) C	21) Shingles	30) Pharyngitis	39) E	48) B	57) C	66) B
4) D	13) B	22) Tinea capitis	31) Necrotising fasciitis	40) A	49) E	58) C	67) E
5) D	14) B	23) Scabies	32) Otitis externa	41) B	50) D	59) C	68) D
6) C	15) C	24) Umbilical granuloma	33) Staph scalded skin	42) C	51) D	60) D	69) E
7) A	16) B	25) Stevens–Johnson syndrome	34) Herpetic whitlow	43) B	52) D	61) B and D	70) C
8) D	17) B	26) Lyme disease	35) Paronychia	44) B	53) E	62) D	71) B
9) C	18) A	27) Hand foot and mouth	36) Erythema toxicum	45) D	54) E	63) B	72) C

ADVICE

Discussion of questions and answers is essential and best led by a senior facilitator. Healthy debate around answers is to be encouraged and where uncertainty remains further discussion via Twitter is welcomed (@carlvanheyning1)

The answers provided are in reference to paediatric practice in the United Kingdom only. They are each informed by the current literature (2019) and where literature is lacking expert opinion. Citations and further reading available upon request. This game can never replace an individual's clinical judgement and is strictly intended for education purposes.



[1] Which is the HALLMARK of late (decompensated) shock?

- (a) Capillary refill of 4 seconds
- (b) Altered mental status
- (c) Depressed anterior fontanelle
- (d) Hypotension
- (e) Absent distal pulses

[2] For delayed use antibiotics, which one should influence you LEAST?

- (a) Availability of follow up
- (b) Height of temperature
- (c) Journey time from hospital
- (d) Upcoming travel abroad

[3] Which well febrile child would you MOST LIKELY give antibiotics to?

- (a) 3 year old with pus on tonsils
- (b) 2 year old with focal crackles
- (c) 1 year old with bilateral wheeze
- (d) 6 month old with coryza
- (e) 4 month old with unilateral otitis media

[4] The paediatric SEPSIS SIX should be completed within...?

- (a) One hour of arrival to hospital
- (b) One hour of transfer to the ward
- (c) One hour of antibiotics being given
- (d) One hour of diagnosis
- (e) One hour of blood test results

[5] Which one of the following is a REASON to treat tonsillitis with antibiotics?

- (a) Positive bacteriology on throat swab
- (b) Children with pus on the tonsils
- (c) Temperature of 40°C (104°F)
- (d) Severe symptoms despite analgesia
- (e) Age under 3 years

[6] Which ANTIBIOTIC would you choose for a suspected late neonatal sepsis?

- (a) IV Ceftriaxone
 - (b) IV Ceftriaxone + amoxicillin
 - (c) IV Cefotaxime + amoxicillin
 - (d) IV Cefotaxime
- (Always check local guidance)

[7] Which one of the following is TRUE regarding antibiotic use in children?

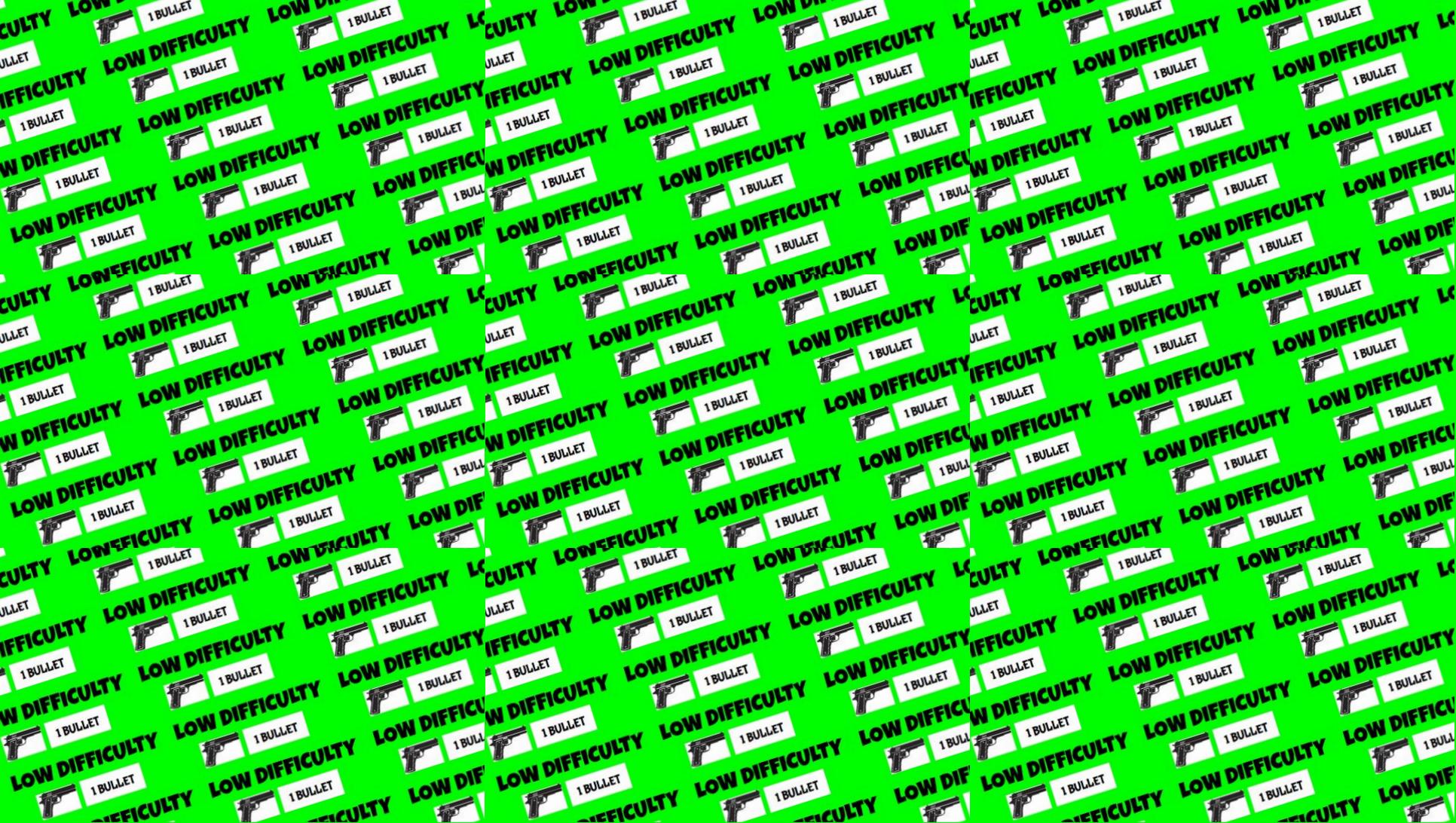
- (a) Oral route achieves good bioavailability
- (b) There is no real harm from their use
- (c) Broad spectrum antibiotics are often best
- (d) Risk of diarrhoea is around 9 in 10

[8] What are the two most important TREATMENTS in undifferentiated shock?

- (a) Fluid and inotropes
- (b) Antibiotics and fluid
- (c) Oxygen and antibiotics
- (d) Oxygen and fluids
- (e) Antibiotics and inotropes

[9] Which one of the following is TRUE regarding IV antibiotics in children?

- (a) Once started continue for at least 48 hours
 - (b) Continue until blood cultures are negative
 - (c) Consider stopping if low index of concern
 - (d) Stop only once bloods are normal
- (Always check local guidance)



[10] Regarding a high temperature of 40°C (104°F) in a 8 month old, which of the following is most TRUE?

- (a) Antibiotics are indicated
- (b) Febrile convulsions are possible
- (c) Teething is a possible cause
- (d) Brain damage is possible

[11] Which of the following is NOT part of the Sepsis Six in children?

- (a) High flow oxygen
- (b) Early fluid resuscitation
- (c) Blood culture sampling
- (d) Urinary catheterisation
- (e) Intravenous antibiotics

[12] Which has been shown to most accurately PREDICT serious infection in children? (i.e. sepsis)

- (a) Tachycardia
- (b) Tachypnoea
- (c) Persistent parental concern
- (d) Capillary refill 3–4 seconds

[13] Which is the LOWER priority in managing a child in septic shock?

- (a) Ensuring high flow oxygen
- (b) Correcting any anaemia
- (c) Administering fluid resuscitation
- (d) Inotropic support
- (e) Empiric antibiotic treatment

[14] Describe the CIRCULATORY STATUS of a pale 6 month old, cool, mottled, CRT 4s, RR 45, HR 180 and systolic BP 85?

- (a) Normal circulatory status
- (b) Early compensated shock
- (c) Late decompensated shock
- (d) Likely supraventricular tachycardia

[15] Which of the following children are NOT at higher risk of serious infection?

- (a) Recent surgery
- (b) Ex-prematurity
- (c) Recent short course of steroids
- (d) Cerebral palsy
- (e) Cystic fibrosis

[16] Which of the following is TRUE? "Always avoid..."

- (a) Amoxicillin in tonsillitis
- (b) Ampicillin in tonsillitis
- (c) Paracetamol in chickenpox
- (d) Ibuprofen in chickenpox

[17] Which of the following is NOT a mimic of Kawasaki's Disease?

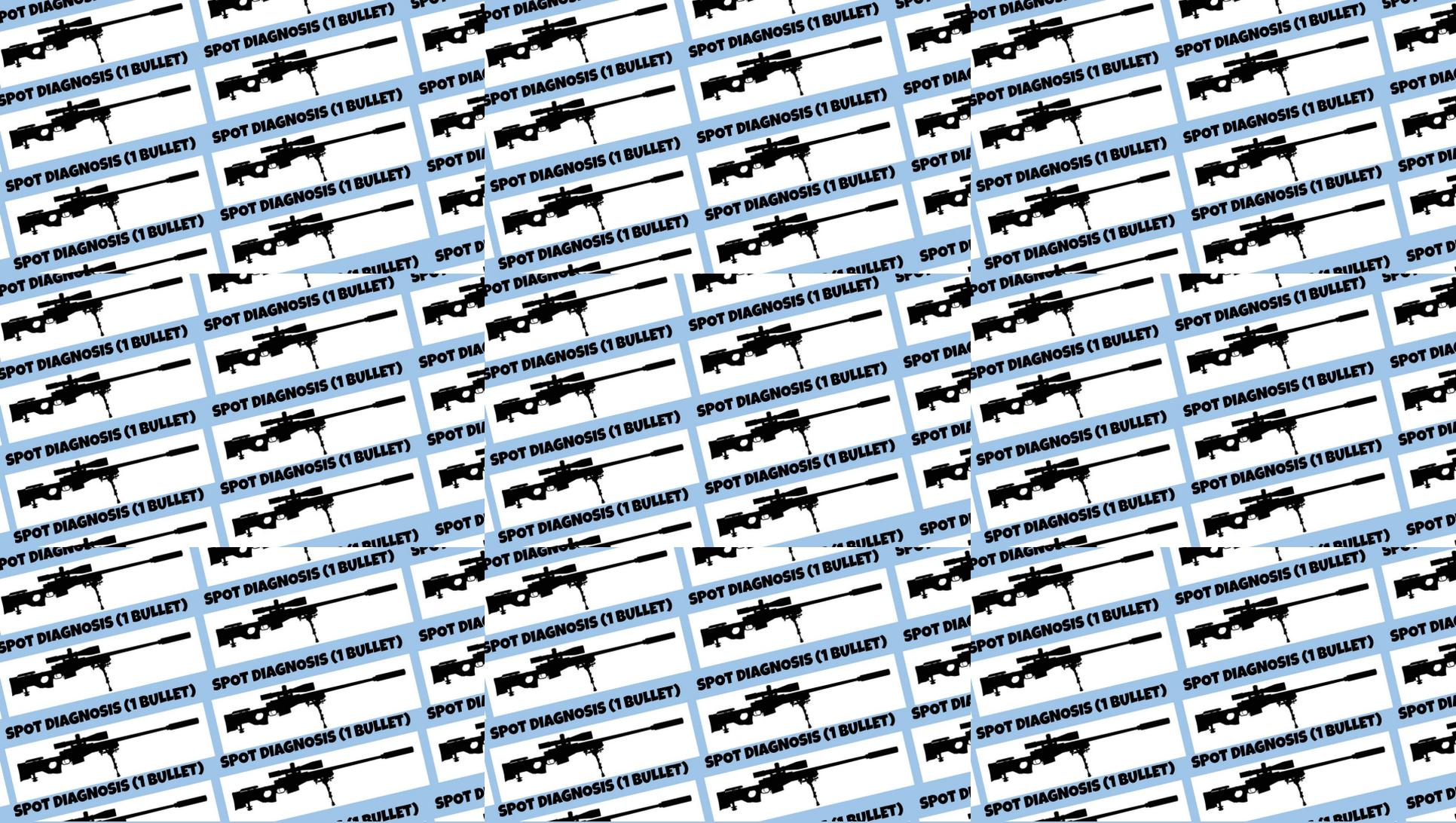
- (a) Measles
- (b) Enterovirus
- (c) Scarlet fever
- (d) Toxic shock syndrome

[18] Which of the following is TRUE regarding neonatal sepsis?

- (a) Fever may not always be present
- (b) Antibiotics are overused
- (c) Newborns if born term are fully immunocompetent from birth
- (d) Blood tests are accurate at ruling out infection in newborns











[37] What is the most likely cause of PNEUMONIA in a vaccinated 1 year old?

- (a) Virus
- (b) Streptococcus pneumoniae
- (c) Haemophilus influenzae type b (Hib)
- (d) Pneumocystis jiroveci
- (e) Chlamydia

[38] What is the most likely BACTERIAL cause of pneumonia in a 6 week old?

- (a) Chlamydia
- (b) Streptococcus pneumoniae
- (c) Haemophilus influenzae type b (Hib)
- (d) Mycoplasma
- (e) Pneumocystis jiroveci

[39] Which age group with pneumonia is most typically affected by MYCOPLASMA?

- (a) Premature babies
- (b) Infants under 3 weeks
- (c) Infants 3 weeks to 3 months old
- (d) Preschool children
- (e) School aged children and adolescents

[40] Which of the following is most helpful in GUIDING empirical treatment for bacterial pneumonia in children?

- (a) Age and vaccination status
- (b) Bloods including blood culture
- (c) Chest X-ray findings
- (d) Detailed physical examination

[41] Compared to sepsis in adults, which of the following is more COMMON for paediatric septic shock?

- (a) Hypotension is more common
- (b) Adrenal insufficiency is more common
- (c) Warm shock is more common
- (d) Death is more common

[42] Which one of the following is a REASON to treat otitis media with antibiotics?

- (a) Temperature of 40°C (104°F)
- (b) Red bulging tympanic membrane
- (c) Age under 3 months
- (d) Untreated bacterial otitis media is dangerous
- (e) It prevents recurrence

[43] Which of the following is TRUE in paediatric septic shock?

- (a) Hypotension develops gradually
- (b) Infants have higher fluid resuscitation requirements compared to adults
- (c) Adrenaline cannot be given peripherally
- (d) Fluid boluses are given 100 ml a time

[44] Which of the following is FALSE regarding Scarlet fever in children?

- (a) Treatment with antibiotics is justified
- (b) If untreated complications are common
- (c) A strawberry tongue is typical
- (d) The rash occurs with perioral sparing
- (e) Rates of rheumatic fever are increasing in the UK

[45] Which ANTIBIOTICS would you choose for a suspected central line infection?

- (a) IV Ceftriaxone
 - (b) IV amoxicillin
 - (c) Lock in IV meropenem
 - (d) IV Vancomycin
- (Always check local guidance)**



[46] For a 6 month old with suspected gastroenteritis, mottling, HR 160, CRT 3s, BP 85 (systolic) their INITIAL TREATMENT is...?

- (a) Oral rehydration, if tolerated
- (b) IV maintenance fluids
- (c) IV access, 20ml/kg normal saline
- (d) IO access, 20ml/kg normal saline

[47] What feature of this 8 month infant with suspected gastroenteritis makes you CAUTIOUS about the diagnosis?

- (a) Only three wet nappies in 24 hours
- (b) Vomiting after every other feed
- (c) Not feeding in the emergency department
- (d) No contact history with vomiting or diarrhoea
- (e) Frequent watery stools

[48] Which of the following statistics are most TRUE?

"For children in A&E;% have fever, of which% have bacterial infection, of which% have sepsis."

- (a) 50%, 25% and 10%
- (b) 30%, 10% and 1%
- (c) 10%, 30%, 1%
- (d) 10%, 50%, 25%

[49] 8 year old, high temperature, diarrhoea, red lips, diffuse macular rash, no urine output, drowsy, hypotensive. Which of the following is most TRUE?

- (a) Self limiting infection
- (b) Early sepsis
- (c) Severe sepsis
- (d) Septic shock
- (e) Toxic shock

[50] In 2019 paediatric sepsis in the UK is presenting more commonly...?

- (a) In the adolescent age group
- (b) In the hospital setting
- (c) With a non-blanching rash
- (d) With a history diarrhoea and vomiting
- (e) With a clear contact source

[51] What is the most important STEP in assessing the well febrile child?

- (a) Determining if a high fever above 40°C (104°F) responds to antipyretics
- (b) Determining if a borderline tachycardia responds to antipyretics
- (c) Finding a source for the fever
- (d) Safety netting the family on discharge

[52] In a child with neurodisability and also febrile, what is MOST reassuring?

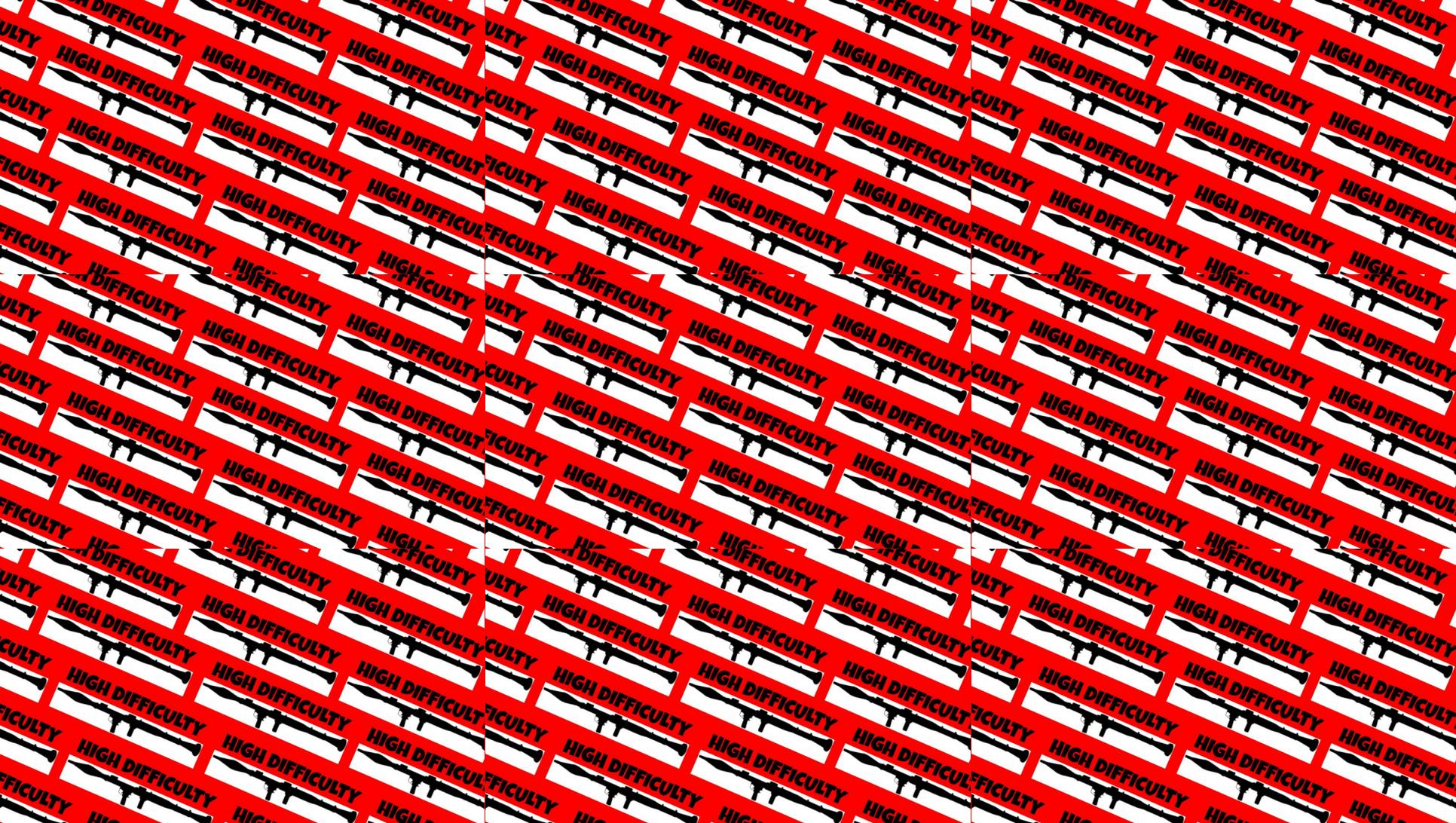
- (a) The temperature is low or normal
- (b) The vital signs (HR, Sats, RR) are normal
- (c) They appear well at the bedside
- (d) The parent is not concerned
- (e) They have not been in hospital recently

[53] Which of the following is TRUE regarding a child with neurodisability?

- (a) They tend to present earlier in illness
- (b) Cold hands & feet are always abnormal
- (c) They tend to mount higher temperatures
- (d) They tend to have an obvious source
- (e) They may respond poorly to simple viruses

[54] Regarding adrenaline in paediatric sepsis, which is TRUE?

- (a) It must be started in intensive care
- (b) It should not be used until anaesthetic support has arrived
- (c) It requires central access to deliver
- (d) It commonly causes side effects
- (e) Intubation & ventilation is likely to follow



[55] Regarding blood cultures, which of the following is TRUE?

- (a) They may be sampled during IO access
- (b) They should never be taken after antibiotics start
- (c) Antibiotics should not stop until results are back
- (d) If sepsis is suspected, taking blood cultures must be the first action taken
- (e) >10 ml blood is necessary for a useful result

[56] SIRS (Systemic Inflammatory Response Syndrome) in adults includes two or more of the following, EXCEPT...?

- (a) Tachypnoea and tachycardia
- (b) Prolonged capillary refill
- (c) Hyperglycaemia (>8.3)
- (d) Lymphocytosis (>12)
- (e) Acutely Altered mental state

[57] In addition to antibiotics, what may ALSO target the underlying infection?

- (a) Temperature control
- (b) Blood sugar control
- (c) Source control
- (d) Infection control
- (e) Damage control

[58] In paediatric severe sepsis which is TRUE?

- (a) Aggressive early volume resuscitation does little to improve outcome.
- (b) Aggressive early volume resuscitation is associated with cerebral oedema
- (c) Over 150ml/kg volume may be needed in the initial 24 hours of resuscitation
- (d) Boluses of 10 ml/kg fluid are advised

[59] Which are the most COMMON SYMPTOMS in toxic shock syndrome (staphylococcal)?

- (a) Desquamation of digits
- (b) Altered mental state
- (c) Vomiting, diarrhoea, abdominal pain
- (d) Mottled skin and warm peripheries

[60] Regarding death from paediatric sepsis which of the following is TRUE?

- (a) The average age is 3 months
- (b) Most deaths occur after 72 hours
- (c) Early death is more common amongst those with comorbidities than without
- (d) Mortality is >10% for those septic children in paediatric intensive care

[61] Which are CONTRAINDICATIONS to lumbar puncture in a septic child?

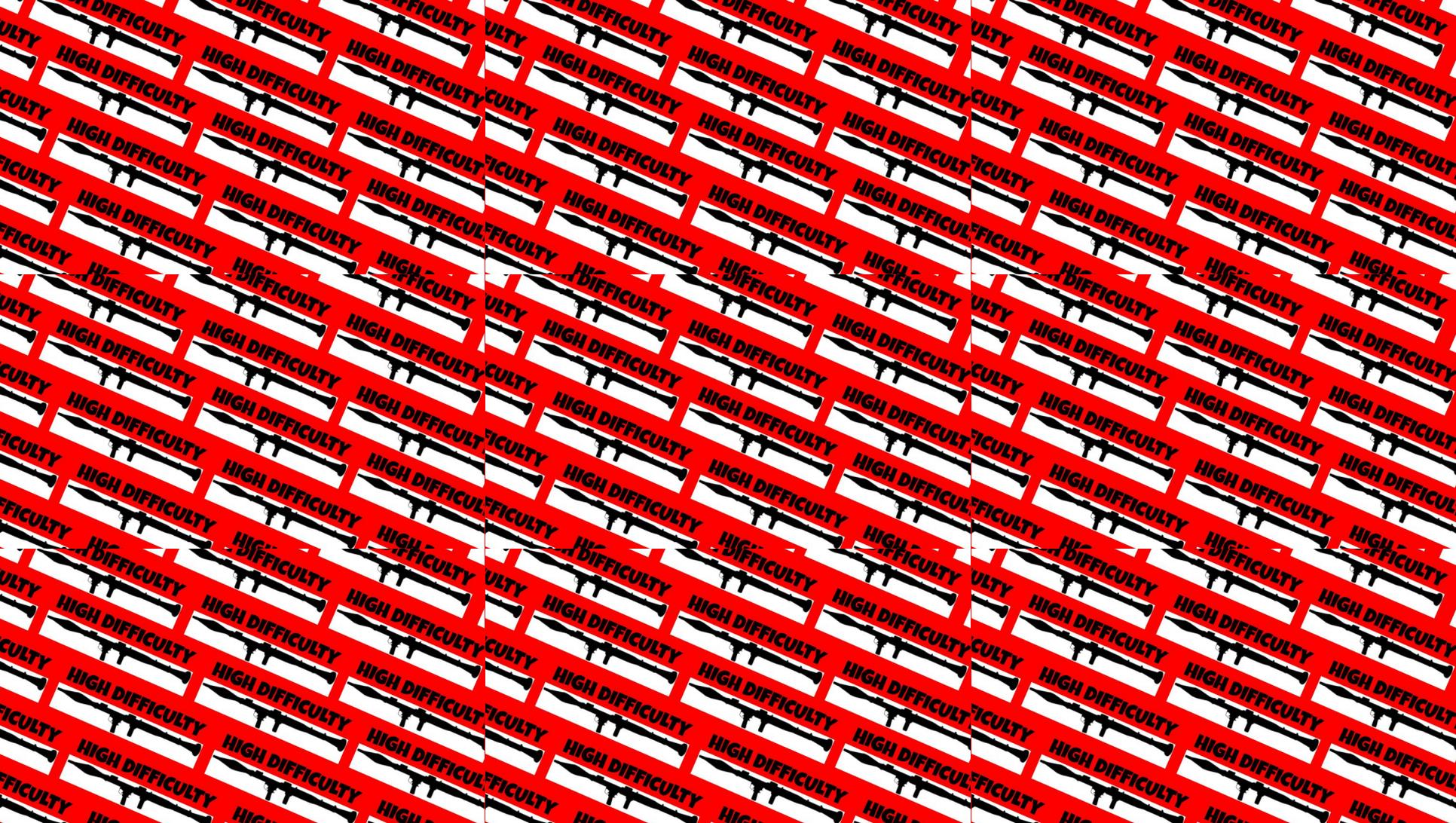
- (a) GCS less than 15
- (b) Widespread purpuric rash
- (c) Tachycardia and prolonged capillary refill
- (d) Flexed arms and extended legs
- (e) Full blood count suggestive of anaemia

[62] Which one is most TRUE in children?

- (a) Ibuprofen should always be avoided in chicken pox
- (b) Aspirin should always be avoided in fever
- (c) Amoxicillin should always be avoided in tonsillitis
- (d) Ceftriaxone should always be avoided in newborns

[63] Which of the following is the most APPROPRIATE route for initial antibiotics and fluid in severe septic shock?

- (a) Intravenous infusion pump
- (b) Intraosseous route
- (c) Intramuscular route
- (e) Via central venous access



[64] In a well child with febrile neutropenia & central venous line (CVL)...?

- (a) The CVL should be quickly removed
- (b) Blood results should be awaited before commencing antibiotics
- (c) Ceftriaxone should be started immediately
- (d) Peripheral blood cultures must be sent
- (e) Antibiotics must be started within an hour

[65] Which of the following does NOT significantly increase the risk of sepsis?

- (a) Recent surgery
- (b) Recent chemotherapy
- (c) Parents reporting recurrent chest infection managed with oral antibiotics
- (d) Parents reporting serious concern
- (e) Parents reporting no wet nappies

[66] Regarding paediatric sepsis, which of the following is TRUE?

- (a) NICE red flags are highly specific
- (b) Sepsis protocols decrease mortality
- (c) Lactate is a sensitive marker
- (d) CRP is a sensitive marker
- (e) Capillary refill is a sensitive marker

[67] Which one of the following is TRUE?

- (a) Crackles suggest bacterial pneumonia
- (b) Focal changes on CXR suggest bacteria
- (c) IV antibiotics are needed for lobar pneumonia if the child is admitted to the ward
- (d) Empyema responds to oral antibiotics
- (e) Recurrent confirmed pneumonia needs IX

[68] Which of the following is TRUE regarding Kawasaki disease?

- (a) It does not affect kids under 1 year
- (b) IVIG reduces heart damage to 5%
- (c) Skin peeling is needed for diagnosis
- (d) Even after 10 days IVIG can be helpful

[69] Which child with ?pneumonia are you MOST LIKELY to give IV antibiotics?

- (a) 3 year old with focal crackles
- (b) 3 year old with temperature >40°C
- (c) 3 year old with bilateral wheeze
- (d) 3 year old with left lower zone dullness
- (e) 3 year old saturating 84% in air

[70] Which child with otitis media would you NOT give antibiotics to?

- (a) Well 4 month old
- (b) 1 year old with bilateral infection
- (c) 2 year old with unilateral infection
- (d) 2 year old with perforation + exudate
- (e) 2 year old systemically unwell

[71] Which of the following situations MOST warrants IV antibiotics in children?

- (a) Pyelonephritis
- (b) Orbital cellulitis
- (c) Bacterial lymphadenitis
- (d) Bacterial pneumonia
- (e) Recurrent urinary tract infection

[72] Which ONE of the following most justifies prescribing antibiotics in children?

- (a) Preventing quinsy in tonsillitis
- (b) Preventing mastoiditis in otitis media
- (c) Preventing complications of scarlet fever
- (d) Protecting child with no focus
- (e) Providing likely benefit without harm