

Water_Parasites_1980.txt

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100 'TLOTS.BAS: An aid to the differential diagnosis of food and waterborne infectious gastrointestinal
diseases. Programmed in Microsoft Basic 5.1 by L.P.Biese,MD (June 1980)
110 'The diagnostic triage is from: P.J.Kuhn; "It Didn't Quite Look Right, But I Ate It Anyway"; Diagnostic
Medicine,May/June 1980
120 'Therapeutic suggestions are from: J.J.Plorde;"Current Management of Infectious Diarrhea";Drug Therapy
(Hosp.),August 1979
130 WIDTH 80 'Set terminal
140 DEFINT A-Z 'make variable integers
150 NUMBER =22 '# Of codes used
160 DIM LEGAL(NUMBER)
170 DATA "Marked cramps/pain","Fever >99.4","Nausea/Vomiting"
180 DATA "Diarrhea >5/day","WBC in stool","Bloody Stool","Vibrios seen"
190 DATA "Rapid (<6Hr) onset","Delayed onset"
200 DATA 015,115,285,385,386,515,516,535,536,565,566,585
210 DATA 605,612,665,715,735,736,765,785,805,865,885,886
220 '-----
230 ' VARIABLES USED:
240 '
250 ' SYMPTOM$ = Signs/Symptoms (in data list)
260 ' S$ = yes/no string answer
270 ' S = numeric equivalent of S$
280 ' S1-S3 = pseudo-octal disease code
290 ' TRY = counter to exit if useless
300 ' LEGAL = possible disease codes
310 ' CODE = computed disease code
320 '-----
330 CHR$(12)
340 TAB(20)"FOOD AND WATERBORNE DIARRHEAL DISEASES"
350 TAB(20)"=====
360 :: "Please answer Yes or No to each question"
370 :
380 FOR I=1 TO 9
390 READ SYMPTOM$(I)
400 SYMPTOM$(I);TAB(25);
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410     INPUT S$(I): IF LEFT$(S$(I),1)="Y" THEN S(I)=1 ELSE S(I)=0
420
430     NEXT
440 '----- Calculate diagnostic code
450 S1=(S(1))+S(2)*2+S(3)*5           'left digit
460 S2=(S(4))+S(5)*2+S(6)*5           'middle digit
470 S3=(S(7))+S(8)*2+S(9)*5           'right digit
480 CODE=100*S1 + 10*S2 + S3           'Set hundreds,tens & digits
                                        of the final pseudo-octal
490 '----- Test if calculated code is 'legal' (ie.on file)           If so we jump to a line number =
CODE+1000 just                       to get numbers high enough.
500 RESTORE 200
510 FOR I=1 TO NUMBER
520     READ LEGAL(I)
530     IF CODE=LEGAL(I) THEN  CHR$(12): ON I GOTO 1015,1115,1285,1385,
1386,1515,1516,1535,1536,1565,1566,1585,1605,1612,1665,1715,1735,           1736,1765,1785,1805,1865,1885,1886
540     NEXT
550     RESTORE
560 '----- Not 'legal'
570  CHR$(12)
580 TRY=TRY+1:IF TRY = 6 THEN 720           'might as well give up
590 FOR I=1 TO 3: CHR$(7);:FOR J=1 TO 300:NEXT J,I 'Ring bell
600 The signs and syptoms do not resemble one of the usual"
610 patterns... Please review your entries"
620
630 FOR I=1 TO 9
640     READ SYMPTOM$(I)
650     I;"} ";SYMPTOM$(I),S$(I)
660     NEXT
670     RESTORE
680 :INPUT"WHICH NUMBER TO CHANGE           ";X
690 :INPUT"WHAT IS THE CORRECT (YES/NO) ANSWER ";S$(X): IF LEFT$(S$(X),1)="Y" THEN S(X)=1 ELSE S(X)=0
700 GOTO 450
710 '----- No match, quit

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720 CHR$(12)
730 THERE IS NO MATCH WITH ANY PATTERN ON FILE"
740 FOR THE ACUTE DIARRHEAL INFECTIOUS AGENTS"
750     -----":
760     You may wish to consider":
770         1} Chronic infectious agents and carrier states"
780         such as S.typhi, E.histolytica etc."
790
800         2} Non-infectious agents (eg. antibiotics) and"
810         disease states such as malabsorption etc.
820 END
830 '===== DIAGNOSTIC TEXTS: LINE # = CODE+1000 =====' This constitutes a 'Jump Table' to
preserve the code number and still get to the text on file.
1015 GOTO 2005 'GIARDIA
1115 GOTO 2100 'GIARDIA
1285 GOTO 2115 'INVASIVE COLI & SHIGELLA
1385 GOTO 2220 'CAMPYLOBACTER & YERSENIA
1386 GOTO 2220 'CAMPYLOBACTER & YERSENIA
1515 GOTO 2370 'CHOLERA
1516 GOTO 2370 'CHOLERA
1535 GOTO 2435 'S.TYPHI & V.PARAHOMO.
1536 GOTO 2435 'S.TYPHI & V.PARAHOMO.
1565 GOTO 2370 'CHOLERA
1566 GOTO 2370 'CHOLERA
1585 GOTO 2435 'S.TYPHI
1605 GOTO 2585 'TOXIGENIC E.COLI
1612 GOTO 2925 'B.CEREUS & STAPH
1665 GOTO 3035 'AMOEBA
1715 GOTO 3145 'VIRUS
1735 GOTO 2825 'V.PARAHOMO.& S.TYPHI
1736 GOTO 2435 'V.PARAHOMO.
1765 GOTO 3320 'S.ENTERIDITIS
1785 GOTO 2435 'S.TYPHI
1805 GOTO 3225 'C.PERFINGENS & E.COLI
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1865 GOTO 3320 'S. ENTERIDITIS

1885 GOTO 2220 'YERSENIA

1886 GOTO 2220 'CAMPYLOBACTER

2000 '===== DIAGNOSTIC AND TREATMENT TEXTS =====

~~~~~ Giardia

~~~~~

2005 The protozoa Giardia lamblia is suggested."

2010 -----":

2015 Very common, but seldom diagnosed. Transmission is usually"
2020 preson to person in children, family groups and institutions"
2025 but many large waterborne epidemics have been documented and"
2030 domestic pet resevoirs are known."

2035

2040 The hallmark is marked flatulence with or without explosive"
2045 bouts of watery diarrhea and abdominal pain. The organism can"
2050 be readily demonstrated in the stool."

2055

2060 Specific Treatment suggested is:"

2065

2070 Quinacrine (Atabrine) 100 mg, tid for 5 days (adult)"

2075 6-7 mg/kg/day PO in 3 divided doses for 5 days (children)"

2080 Or:"

2085 Metronidazole (Flagyl) 250 mg., tid for 10 days (adult)

2090 15 mg/kg/day PO in 3 divided doses for 10 days (children)"

2095 GOTO 3465

2100 Giardia lamblia infection without significant pain occurs in"

2105 both chronic and low dose/and/or low virulent forms"

2110 :GOTO 2015' ~~~~~ Shigella and invasive E.coli ~~~~~

2115 Both Shigella species and invasive E.coli show a similar clinical"
2120 course, but Shigella ususally produces a more voluminous watery"
2125 diarrhea and has a longer (12-50 hr.) incubation.":

2130 Both organisms produce disease by invading the colonic mucosa and"
2135 inciting an intense neutrophilic response. Invasive E.coli strains"

2140 are uncommon and Shigella is the most probable for these symptoms"

2145 It is more common in summer and is usually due to food and dairy"

2150 products contaminated with excreta.
2155
2160 Fluid replacement is usually necessary. Specific antibiotics are:"
2165
2170 Tetracycline 2.5gm PO in a single dose (not rec.for children)"
2175
2180 Trimethoprim sulfamethoxazole (Bactrim or Septra) 160/800 mg PO"
2185 q 12hr for 5 days (adult) or 10/50 mg/kg/day PO in 2 divided"
2190 doses for 5 days (children)":
2195 Ampicillin (not always sensitive) 0.5-1.0 gm PO q 6hr for 5 days"
2200 or 100 mg/kg/day in 4 divided doses for 5 days (children)"
2205 :
2210 GOTO 3440' ~~~~~ Campylobacter and Yersinia ~~~~~
2220 The Vibrio organism Campylobacter and Yersinia enterocolytica"
2225 can both produce a similar clinical picture and be difficult"
2230 to distinguish under the microscope without control organisms"
2235
2240 Yersinia may produce ileitis, severe enterocolitis or sepsis and"
2245 can mimic acute appendicitis or mesenteric lymphadenitis. It"
2250 is occasionally accompanied by erythema nodosum."
2255
2260 Campylobacter has about the same incubation period (2-10 days)"
2265 but tends to have a more grossly bloody stool. it is more"
2270 common during summer among pre-schoolers and secondary house-"
2275 hold contacts. Periumbilical pain and cramping just prior to"
2280 defecation is common along with grossly bloody stools."
2285
2290 Most cases are probably undiagnosed due to the fastidious media"
2295 needed to culture these organisms and their relative rarity"
2300 While most patients recover spontaneously it should be noted"
2305 that there is appoximatly a 25% relapse rate."
2310
2315 INPUT" <hit 'return' to see more> ";Q\$
2320 CHR\$(12)

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2325 Dehydration is usually not a problem, but if present, it should"
2330 be treated in the usual manner. Erythromycin 0.5 Gm PO q 6 hr."
2335 for 5 days is usually specific (50 mg/kg/day in 4 divided doses"
2340 in children)

2345

2350 SHIGELLA presents a similar picture but usually without severe"
2355 pain. You may wish to rerun the program indicating 'No' for pain"
2360 to review that condition.":::

2365 GOTO 3465' ~~~~~ Vibrio cholera ~~~~~

2370 CHOLERA is suggested and immediate treatment is necessary. The"
2375 vibrio forms may not be readily appreciated.

2380

2385 Cholera is marked by effortless vomiting without nausea or pain"
2390 and voluminous 'rice-water' stools (10-15 liters/day) rapidly"
2395 leading to dehydration, shock and death."

2400

2405 Tetracycline is specific but intravenous fluid replacement and"
2410 electrolyte management are paramount."

2415

2420 FOR I=1 TO 5: CHR\$(7);:FOR J=1 TO 150:NEXT J,I 'ring bell'

2425 CONTACT YOU LOCAL HEALTH DEPARTMENT FOR FURTHER HELP !!"

2430 GOTO 3465' ~~~~~ S.typhi and V.parahemo ~~~~~

2435 Both Salmonella typhi and Vibrio parahemolyticus infections"
2440 result in a similar clinical behavior.

2445

2450 The usual clinical picture of S.typhi is mild fever,nausea,"
2455 diarrhea (with or without blood) and persistent anorexia"
2460 weakness and fever. A transient rash may be present though"
2465 seldom recognized. The disease tends to have a protracted"
2470 debilitating course of several weeks."

2475

2480 The pathology is ileal rather than colonic and consists of an"
2485 intracellular invasion of the organism in the ileal mucosa and"
2490 spread to mesenteric lymph nodes and the portal circulation. A"

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2495 mono-nuclear reaction is typical but wbc are usually present."
2500
2505 Because a large 'dose' of the organism is needed, transmission"
2510 is usually via a 'common-source' rather than direct person-to"
2515 person"
2520
2525 Vibrio hemolyticus should not represent a significant diagnostic"
2530 dilemma: It is spread by raw seafood/shellfish, usually during"
2535 the summer months among travelers from the Far East."
2540
2545 INPUT"<to review V.parahemo. type 'V', else type 'return'>";Q\$
2550 IF LEFT\$(Q\$,1)="V" THEN GOSUB 2825 ELSE CHR\$(12)
2555 TREATMENT: consists mainly of supportive measures. It is usually"
2560 recommended that antibiotic therapy be withheld until definative"
2565 culture reports are available since antibiotics are not necessary"
2570 and significantly prolong the shedding period of viable bacteria,"
2575 due to their 'protected' intracellular location."
2580 FOR I=1 TO 6::NEXT:GOTO 3465' ~~~~~ Toxigenic E.coli ~~~~~
2585 Toxigenic (in contrast to 'invasive' and enteropathogenic) E.coli"
2590 strains have only recently been recognized thru several epidemics."
2595 In actuality, they appear to be the normal-flora in a given area "
2600 and are only abnormal for the tourist. This is probably the leading"
2605 cause of tourist diarrhea."
2610
2615 The strains produce a heat-stable,non-allergenic toxin of unknown"
2620 action and a heat-labile endotoxin that resembles V.cholera, both"
2625 antigenitically and physiologically...it acts on the small bowel"
2630 resulting in a net loss of water and electrolytes."
2635
2640 Vomiting may be seen early in the course of the disease, but the"
2645 usual clinical picture is one of abdominal cramping and a watery"
2650 diarrhea without significant fever."
2655 ::
2660 INPUT"<hit 'return' for therapy> ";Q\$: CHR\$(12)

2665 TREATMENT of 'Traveler's Diarrhea'"
2670 =====
2675
2680 Antibiotics are not indicated..you would have to sterilize the"
2685 whole bowel !"
2690
2695 ** Bismuth subsalicylate ('Pepto Bismol'): 30 ml PO every 30 min."
2700 for 8 doses (adults only): For children there is no specific"
2705 recommended treatment."
2710
2715 This drug works by inhibiting intestinal secretions. Recent studies"
2720 indicate it is effective in both treatment AND prophylaxis of the"
2725 common Traveler's Diarrhea. The prophylactic dose is 60 ml. taken"
2730 four times daily during the first two weeks of travel."
2735
2740 The time-honored Kaopectate and Aluminum hydroxide act by absorbing"
2745 water (and toxins?) and decrease stool liquidity/frequency and may"
2750 give some symptomatic relief."
2755
2760 :
2765 INPUT" <hit 'return' for more> ";Q\$
2770 CHR\$(12)
2775 Paragoric and the loperamid and diphynoxylate (Lomitil) compounds"
2780 inhibit gastrointestinal mobility and offer relief from the cramps"
2785 and stool frequency...they do not diminish the fluid / electrolyte"
2790 loss and may mask progressive dehydration. In addition, they will"
2795 prolong the fever in invasive bacterial diseases. (eg.Salmonella)"
2800
2805 These drugs should not be used in a patient presenting with fecal"
2810 leukocytes,significant fever or toxicity."
2815 :
2820 GOTO 3465' ~~~~~ Vibrio parahemolyticus ~~~~~
2825 Vibrio parahemolyticus"
2830 =====

2835

2840 *Vibrio parahemolyticus* is a halophilic marine organism that "
2845 frequently contaminates shellfish in Japan. It is most common"
2850 in the summer months, and while one of the most common food-"
2855 borne epidemics in the Far East, it is seldom recognized in"
2860 the US."

2865

2870 The usual clinical picture is that of Shigellosis: fever with"
2875 voluminous bloody and watery stools with leukocytes and a 12-"
2880 24 hr. incubation."

2885

2890 The causative vibrio organisms are always present but may be"
2895 difficult to identify."

2900

2905 If identified, Tetracyclines are usually effective and fluid"
2910 replacement is almost always indicated."

2915 :

2920 GOTO 3465' ~~~~~ Staph. and B.cereus ~~~~~

2925 Staphylococcal food poisoning is caused by a heat-stable"
2930 enterotoxin. It is of rapid onset in 2-4 hours (but ranges"
2935 from 30 mn. to 8 hours) It is marked by acute prostration,"
2940 abdominal cramps and non-bloody diarrhea."

2945

2950 The common sources are:cooked ham, potato salad, cream and"
2955 custard pastries etc.

2960

2965 *Bacillus cereus* produces an enterotoxin also, and a similar"
2970 clinical picture. It is uncommon. The sources are usually"
2975 fried rice, corn flour and meat that cools slowly and is then"
2980 served the next day.

2985

2990 TREATMENT is symptomatic for both, with attention to fluid"
2995 balance and relief of cramps. Antibiotics are not indicated."

3000

3005 Symptoms tend to subside in 8 hrs. with recovery in 1-3 days"
3010 B.cereus tends to have a much shorter course."
3015
3020
3025
3030 GOTO 3465' ~~~~~ Entamoeba histolytica ~~~~~
3035 The protozoa Entamoeba histolytica is suggested. While usually"
3040 a chronic problem, it occasionally causes an acute diarrhea in"
3045 visitors to endemic areas."
3050
3055 The acute stage is characterized by cramps, nausea/vomiting and"
3060 persistant diarrhea, often with blood, but without many WBC. The"
3065 organism can be identified in a fresh, warm, stool specimen, but"
3070 it is imperative that a preserved specimen be saved and properly"
3075 confirmed if trained technicians are not available.....BEFORE a "
3080 course of treatment is begun."
3085
3090 Specific Treatment consists of:"
3095
3100 Metronidazole 750 mg PO tid for 10 days (adult)"
3105 30-50 mg/kg/day in 3 divided doses X 10 days"
3110 (in children)"
3115 AND"
3120
3125 Diiodohydroxyquin 650 mg PO tid for 20 days (adult)"
3130 30-40 mg/kg/day in 3 divided doses X 20 days"
3135 (in children)"
3140 ::GOTO 3465' ~~~~~ Viral ~~~~~
3145 The Rotoviruses (reovirus-like) have been implicated as a major"
3150 cause of pediatric diarrhea, but transmission to family members "
3155 may occur. Unlike the other agents, viral diarrheas are more"
3160 common in winter."
3165
3170 Clinically, the viral diarrheas are acute in onset and brief in"

3175 duration. They are marked by vomiting, watery diarrhea and a"
3180 low-grade fever.
3185
3190 The Paroviruses (Norwalk and Hawaii agents) have also been impli-"
3195 cated in diarrheal outbreaks and tend to involve larger groups of"
3200 both children and adults."
3205
3210 There is no specic treatment at this time."
3215 FOR I=1 TO 6::NEXT
3220 GOSUB 3465' ~~~~~ Clostridium perfringens ~~~~~
3225 Clostridium perfringens is the suspected agent. This bacteria "
3230 produces an endotoxin similar to that of the heat-labile one"
3235 from E.coli."
3240
3245 The clinical course is marked by afebrile watery diarrhea with"
3250 nausea. Vomiting is usually absent but griping abdominal pain"
3255 is characteristic. Recovery in 12 hours is usual.
3260
3265 The common sources are: mince-meat pie and meats cooled slowly"
3270 after cooking and served the next day.
3275
3280 Treatment is symptomatic. Since the agent is an endotoxin, an"
3285 antibiotic is not indicated.."
3290
3295 Toxigenic E.coli does not usually present with significant "
3300 fever, but it may. You might wish to rerun indicating 'Yes'"
3305 to the fever to review that condition"
3310 FOR I=1 TO 6::NEXT
3315 GOSUB 3465' ~~~~~ Salmonella enteritidis ~~~~~
3320 Salmonella enteritidis (and the related non-typhoid species)"
3325 present similar clinical pictures with a considerably milder"
3330 with a considerably more acute course in the non-typhoid ones."
3335
3340 The bacteria invade the ileal mucosa and remain intracellular"

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3345 where they provoke a leukocytic response (in contrast to the"
3350 usual mononuclear response of S.typhi."
3355
3360 The clinical course is one of abdominal pain, chills and fever"
3365 frequent vomiting and prostration after a relatively short (12-"
3370 72 hr.) incubation. WBC's and occasionally,blood, are present"
3375 in the stool in contrast to the usual mononuclear response of"
3380 Salmonella typhi."
3385
3390 The usual sources are: beef and pre-cooked meats, ice cream and"
3395 poultry."
3400
3405 Because of the large bacterial 'dose' reequred, common- source"
3410 epidemics are more common than patient-to-patient transfer."
3415 ::INPUT" <hit 'return' for more> ";Q$
3420
3425 TREATMENT: Because of the protected intracellular nature of the"
3430 bacteria, antibiotics are contraindicated .. and may"
3435 prolong the 'carrier-state' of bacterial shedding"
3440
3445 Fluid management and relief of pain are the primary"
3450 theraputic considerations."
3455 :GOTO 3465
3460 '==== Subprogram to give user a chance to change entries =====
3465 INPUT" <hit 'return' when ready> ";Q$
3470 CHR$(12)
3475 FOR I=1 TO 6::NEXT
3480 1} Would you like to review your entries with a possible"
3485 view towards modifying them for an alternate diagnosis "
3490
3495 2} Review outpatient (home) fluid therapy"
3500
3505 INPUT"3} Quit the program Ans. 1,2 or 3 ";Q
3510 IF Q>3 THEN :GOTO 3480
```

