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The training program of the last eight weeks has been intended to provide four of our most capable local staff with the necessary background to screen clinic patients so that straightforward problems can be taken care of without the need for physician consultation, and more difficult cases referred to a physician who has adequate time to evaluate the problem in the necessary depth. In general, emphasis has been in four areas:

a. Diagnosis and treatment of common illnesses

b. Recognition of the seriously ill

c. Basics of using the laboratory for decision-making

d. Fundamentals of record keeping.

This report is intended to summarize the state of the training to date, defining areas in need of further work.

In approaching the patient, the following points have been emphasized:

a. Classification of illness -- Is the patient presenting with an infectious problem, trauma, neoplasm, congenital, or deficiency disease? Although this approach seems understood in the classroom, it appears to have little practical use, because the vast majority of problems turn out to be at least in part infectious, and those that are not can be learned individually or referred to the doctor as not being understood.

b. Site of illness useful as a clue to etiology -- that certain organisms prefer certain areas of the body and not others seems readily understood and a useful rationale for antibiotic choice. "You don't find ascaris in abscesses."

c. Complications -- The English word is now recognized, and the meaning understood. Individual disease/complication combinations are learned as encountered or memorized.

d. Degree of illness -- Does the patient need to be seen by the physician immediately, today, but after appropriate evaluation and lab, or not at all? This judgement seems correctly made quite consistently, and error lies on the side of unnecessary requests for consultation.

e. Followup -- When should the patient be seen again? Is therapy successful? When does the patient no longer need care? These judgements, too, seem, for the most part, properly made.

PHYSICAL EXAM SKILLS

1. General

a. Weight loss -- clinical weightloss and inadequate weight gain in children is detected to a reasonable degree by looking at and interviewing the patient, and looking at previous weighings on the chart. The growth curve concept was readily understood in class, and the introduction of systematic weighing of all presenting children under five, coupled with the ~~intermix~~ use of preprinted growth curves, would offer a sensitive screening tool for these paramedical workers. They would need a restatement of the concept, as well as drill in the use of the curves. For the purposes of the clinic, even a US standard growth curve would be useful, despite having the local mean fall in the 20th percentile or so; non-morbid growth rates would still be extractable from the charts, and slowing of growth detected early.

b. The patient who looks sick -- The trainees seem to have an appropriately low threshold for recognizing the patient with 'muh mat gleh' (worn out appearance) and referring him. Although all cases of dyspnea seemed to be picked up during the period of close supervision, mild tachypnea may be missed in a less-structured setting. One possible remedy would be simple emphasis, viz., asking about every patient brought for referral 'Is he breathing faster than normal?' Failure to nurse is recognized as a danger sign, and seems to be sought with appropriate frequency.

2. Head and neck --

a. Fontanelle -- swollen or sunken fontanelles seem to be understood. Although a true bulging fontanelle has not been encountered, some borderline ones have been referred.

b. Meningismus -- Neck stiffness seems accurately recognized, and the combination of fever and vomiting as a possible clue to meningitis should be understood. The trainees have been asked to show all questionable neck stiffness or bulging fontanelles to the physician before getting the LP. They have a smatterring of how the LP is read, but understand that it is the physician's role to interpret the results. They would, I think, be interested in following the doctor's reasoning in deciding on therapy based on clinical picture and lab data.

c. Eyes -- recognized well are anemia and keratitis. Anisocoria and diminished pupillary reaction supposedly are understood, but I think will usually be missed. Jaundice is looked for, but has not yet been encountered, and mild jaundice may be missed.

d. Ears -- The difference between otitis media and otitis externa is understood, although recognition of OM prior to rupture of the drum is not yet one

mmm of their skills. Heavy, purulent ear drainage is treated as otitis media until the ruptured drum can be seen.

e. Throat -- Red throats are recognized, although the trainees are not able to define the pharyngitis as being the source of the fever. As a result, more penicilline than is strictly necessary is given. The drawbacks of this approach in the overall clinic setting, are minor, I think, and the only alternative at this point would involve requesting a large number of white blood counts from the lab. The trainees have been asked to refer all white spots on the throat, hoping to pick up the occasional diptheria that has not yet become obvious. Practically, this has not seemed much of a burden on the physician.

3. Lymph -- Reliable exams of neck, axillae, and groin are performed as appropriate. The epitrochlear area is known as a site of adenopathy, but it is almost always overlooked.

4. Heart -- Proper evaluation of the heart has not been achieved. Even gross murmurs are missed (even when pointed out), and cardiac enlargement cannot be ascertained reliably by the trainees. Tachycardia could be emphasized, but is such a common finding that using it for screening seems useless. Nevertheless, edema, severe anemia, and tachypnea are recognized by the workers, and should serve as referral criteria for most primary and secondary heart disease.

5. Lungs -- Dyspnea and tachypnea, with the qualifications noted above, should be picked up. Rales and rhonchi are recognized, and wheezes somewhat less so. The crying infant is still a bit of a problem, as is the person who doesn't breathe deeply during the exam. The habit is to compare right to left, and diminished breath sounds, if not too subtle, should be picked up. The difference between hydrothorax and pneumothorax should be demonstrable by the train-

ees, but beyond this percussion skills are limited.

6. Abdomen -- The trainees are fairly good at organomegaly and masses, though they will miss from time to time. Although they know how to elicit rebound, they have not yet encountered significant guarding. Bowel sounds are interpreted as normal, increased, or decreased. The various abnormal abdominal findings will be noticed, but most likely not considered in terms of underlying pathology. Although rebound and guarding, I think will be referred, this needs to be spelled out more clearly. The word' 'rebound' is understood.

7. Skin -- Dehydration hasn't been seen much, but is looked for, and should be recognized. The difference between diminished tissue turgor and decreased subcutaneous fat, and the inelasticity of elderly skin seem to be understood. Edema is readily recognized and referred, and the various common underlying causes are known. Pyoderma and some fungus lesions are recognized and treated appropriately, and skill should improve with experience. Although the trainees use the term 'bo xo re' in the Bahnar way, i.e. any morbilliform rash, they realize that there is a symptom complex of rash, fever, conjunctivitis, cough, etc., that requires penicillin to prevent pneumonic complications. They haven't seen chickenpox in the teaching setting.

<u>BACKGROUND INSTRUCTION</u> -- In order to place disease pathogenesis, antibiotic therapy, and lab investigation into a coherent context, the following background was developed.

1. Infectious disease -- Most of the illness seen here is infectious (all febrile illness should be considered by the trainees as infectious). Infectious illnesses can be passed from one person to another; hence are potentially preventable. The human body has a number of defense mechanisms to deal with in-

fection, and the goal of therapy is to help where possible and not to interfere.

a. Drainage mechanisms -- bleeding, cough, urinary frequency, vomiting, etc.

b. White cells = basis of pus = 'soldiers of the blood'

c. Inflammation

d. Humoral defenses -- relation to immunizations, typhoid agglutinins, etc.

Rationale of therapy:

a. Strengthen body -- correct deficiencies, etc.

b. Where possible, get organism out of body -- debridement, drainage, etc.
avoid overtreating cough as symptom, etc.

c. Kill the organisms with medicine. Which med determined by which bug.

Microbiology:

1. Large organisms -- intestinal parasites, malaria
White count normal; meds available to kill organism

2. BACTERIA -- most of illnesses seen; Polys increased, gram stain helps tell which bacteria; meds available to kill bacteria

3. VIRUS -- measles, chicken pox, etc., sometimes lymphs increased, no med available to kill organism -- therapy is to strengthen body, prevent superinfection.

4. Fungus - thrush, skin lesions; medicine available

Roles of WBC ** Polys-to eat bacteria; Lymphs-source of humoral defense, aid to polys in extended battle with bacteria

Interpretation of WBC and Diff -- Read only in terms of absolute counts of polys and lymphs, by rounding off and multiplying (They can now do it in their heads, quickly) Normals: polys 3000-6000; lymphs 1500-3000

The trainees use the WBC and Diff to help confirm the presence or absence of a bacterial etiology for fever, or to help in the diagnosis of pertussis and plague. The CBC, Malaria smear is generally requested after an unsuccessful therapeutic trial, or in the initial evaluation of a sicker than average patient. The trainees order the lab work before consultation, and generally interpret it correctly.

The gram stain is primarily used to explain failure to respond to penicillin; ie., Staph or grammegative rods. It is used in the initial diagnosis of plague and pneumonia with dyspnea.

The phenomenon of bacterial resistance to antimicrobials is understood, and expressed: 'de porang xang juat pogang.'

SPECIFIC ILLNESSES The trainees have been provided with cards summarising the major diagnostic clinical and laboratory features of selected problems, as well as complications, referral indices and therapy. These illnesses, and the appropriate referral criteria are:

Illness	Referral
Ascaris	No stool or vomiting today
Hookworm	Edema, or Hct below 20, or Hgb below 7
Tapeworm	None
Trichuris	None
Giardia	None
Malaria	All falcip, severe anemia as above
Red eye	All trauma, all keratitis, pupillary assymetry
Pneumonia	All dyspnea, bilateral rales
Tonsille-pharyngitis	White spots on throat
Shigella	Dehydration
Amebiasis	Dysentery with ameba in stool, mass in abdomen, liver enlargement or tenderness

Measles	Rales in chest, cough worse on penicillin
Plague	Suspicion only
Typhoid	Suspicion only
Otitis Media	Continued drainage after one week of Rx.

Further referral criteria include: (These are written and kept by trainees)

Dehydration

Edema

Dyspnea

Suspicion of serious illness

Drowsiness or confusion

Pulse less than 60, faster than 120

Blood pressure below 90, above 150/ or above 85 diastolic.

Fever 104 or above.

Jaundice

Severe anemia Hct below 20, or Hgb below 7

Continued fever after 24 hrs of medicine (measured fever, or by history)

Question of stiff neck or bulging fontanelle

WBC above 20,000 or below 4,000

Gram positive rods on gram stain

Patient's illness not understood.

All X-rays are to be read by the physician.

All decision concerning bladder catheterization, even for diagnostic purposes, is left to the physician.

CHARTING Record keeping is done in Bahnar, although the trainees can read much of the English written during previous visits, including all medications. The goal of charting, as expressed to them, is to record only enough of history and exam so that someone else can understand from the chart alone, what the basic problem was. This includes summarizing lab results on the main red chart. In practice, this procedure is more detailed than is absolutely necessary, and the writing can be quite time consuming. Toward relieving this problem, a system of standard abbreviations was agreed on, and followed to a variable degree. The abbreviations are:

B	bolo	fever
H	hnhien	cough
Ch	choroh	diarrhea
3n	3 nar	3 days
Hak	hak	vomiting
HD	halong dum	red throat
o	uh ko dei	without

Encouragement of the use of these abbreviations, I think, would be a simple matter, and would significantly speed up the charting process.

PERSONNEL The four individuals trained started at different levels of experience and learned at different rates. Impressions on working with them:

Bia -- brightest of the lot, and reliable, thorough; most likely to think through an unfamiliar problem and come up with a reasonable answer.

Francoise -- reliable, thorough, has shown/increased confidence in screening patients since beginning of training.

Gabrielle -- most experienced to begin with, but I wonder if she's

picked up as much unfamiliar material (CBC, etc.) as the others. Occasionally ignores referral indices. Her long-developed savvy seems more useful than her ability to pick up new things.

Hiao -- bright, though not as reliable as the rest. Often gives the patient only a cursory glance, and may gloss over problems he doesn't understand, rather than ask. Functions OK under close supervision, and probably won't get anyone into trouble under less watching, but will, I think, be sloppy.

TRANSITION The shift from a primarily instructional setting to one in which the trainees will need to function more on their own will necessarily be somewhat difficult. The change in supervisors will bring different emphasis, and the need to get a job done will entail certain problems. Hopefully, these problems can be minimized by extra effort at the outset.

Speed: At present, the four workers together see 50-60 patients in a three hour afternoon. Factors limiting speed are several:

a. Lack of adequate assistants -- After every patient, the screening trainee must walk to the pharmacy and get the appropriate medication for the person he has just seen, and instruct him on how to take it. In a stable clinic setting, this function would be performed by an assistant who would take over from the point of prescription. Furthermore, this assistant would chase down missing lab work, etc. At this point, one such assistant could probably serve all four screeners without getting bogged down. This assistant would not need to be a newly-assigned person necessarily. Hopefully, the increased efficiency of the screeners would free one doctor from work in clinic, thus freeing one of the existing assistants. This, of course remains to be worked out.

b. Charting -- Optimal charting would reach a balance between necessary communication and necessary speed. At present, the balance is not optimal, with greater emphasis on a thorough understanding and descrip-

tion, and less emphasis on speed. The optimal balance must be defined by the long-term supervisors of the screening group. Only when the level of thoroughness of the workers is understood, can the supervisors be sure of what has been evaluated and what not. As this understanding is reached, less of the evaluation will need to be actually stated, and less writing will be necessary. Abbreviations, again, should be encouraged to improve speed.

c. Training emphasis -- In order to stimulate their thinking about problems, the trainees have been asked to think every patient through to the point of medication. This has included a number of patients that obviously were for referral, as well as some very difficult problems quite obviously over the heads of the screeners. This approach, I think, has been instructive, but is not intended to be carried on into the day to day workings of the clinic. To a large extent, the screeners knew what stat blood work, etc., are needed before referral to the doctor. The degree to which they are encouraged to think out a problem before referral will to some extent determine their speed. Pondering problems clearly beyond their comprehension probably is no longer useful. On the other hand, having blood work ready at the time of referral is useful both to the doctor and to the screeners. Whatever is decided as optimal procedure should be clearly stated to the screeners, and they should be expected to use that system.

Standards -- Maintaining an appropriate standard of medical care on the part of the screening crew depends on a) defining clearly what is expected of them, revising it as necessary, and b) not accepting performance that doesn't meet that standard. The current standard of thoroughness, and degree of thinking about a given patient is, I think, the highest that can be expected without further intensive training. Whether this degree of proficiency, with its inherent slowness is optimal in the clinic setting,

remains to be determined. It is important, I think, as supervision changes hands, to feel out what the workers can and cannot do before making sweeping changes. Adjustments, I think, for the most part will be in the direction of less thoroughness, and should increased speed be attainable by some other means, unnecessary short cuts condoned in haste may unnecessarily decrease accuracy in the future. In evaluating the screeners understanding of something, I have found it necessary to pin them down to explaining even obvious things to me, and this, I think, is a necessary tactic in maintaining the present standard. For example, in asking about which patients were in need of referral, it was necessary to get them to write down beforehand whether they intended to refer or not. If this were not done, their decision would be based on my reaction to their evaluation of the problem, and hence would be unreliable in a situation where they were working alone. Furthermore, if they only wrote those that needed referral, they would commit themselves only on the obvious referrals, not making the decision about less clear cut patients. They are beyond the stage, I think, where to refer or not is a difficult problem, but the experience in working through this problem demonstrates the muddy thinking that can gloss over problems without a clear understanding -- a potential pitfall to maintaining the desired standard.

In order that the training they have received not be lost, it is important that the screening group be allowed to work daily, see sick patients as well as followups, and get adequate supervision, teaching whenever possible. They are the best trained of the staff, but others can and should be trained to fill their other roles (anesthesia perhaps a difficult exception). Whenever Francoise works in OR, she can be training another, and, in the future, if her trainee can't perform in a certain situation, Francoise can be pulled from clinic for a few minutes for a specific task.

Despite the variation in experience of the several workers, I think they all should follow the same referral criteria. If one person isn't

held to this requirement, the others may also feel above it.

Hopefully, these supervising the clinic workers could take an hour or so a week, away from the clinic, discussing problems that have come up, answering questions, and providing didactic instruction in new or difficult areas. In this way, ideally, the present standard of skill can be maintained.

The four recently trained clinic screeners can be a useful addition to the Minh-Quy clinic, as long as they are adequately guided and supervised, and given sufficient assistance so that they spend their time actually evaluating patients and not doing the busy work that less skilled local staff can perform equally well. If they are to retain their training, they must continue to see patients every day, and not be put on the shelf for use only in times of stress.

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