Perhaps the author should examine what criteria are used when cover art is selected by JAMA and make specific recommendations for evaluation. The statistics would have much more credibility if a larger base of examples (perhaps starting with the 1960s) was used, particularly if some type of trend was noticed.

The terminology of the paper could be better defined—what specifically are “stereotyped sex images”? What would be a good or healthy ratio of such stereotyped images? (The paper cites 74% of the cover art depicting humans as presenting stereotyped sex images.) I would also recommend using pejorative adjectives only when each one conveys something significant and different and can be specifically evidenced.


Alliteration in medicine: a puzzling profusion of p’s
Gregory F Hayden

Abstract

Problem Puzzling, progressive profusion of alliterative “p’s” in published papers.
Purpose To depict this particular “p” predominance with pinpoint precision.
Plan Periodic, painstaking perusal of periodicals by a professor of paediatrics.
Proposal The “p” plethora is positively perplexing and potentially perturbing.

Alliteration is a literary device consisting of repetition of the same starting sound in several words in a sentence. Consider, for example, Shakespeare’s playful parody of alliteration in Peter Quince’s prologue in A Midsummer Night’s Dream:

“Whereat with blade, with bloody blameful blade,
He bravely broach’d his boiling bloody breast.”

Alliteration has appeared frequently in the medical literature—for example: “Respiratory syncytial virus—from chimps to conundrums and cures,” “The choreas: of fains, fevers, and families,” “Coronary artery stents—gauging, gorging, and gouging,” “Moschcowitz, multimers, and metalloprotease,” “Alagille syndrome: a nutritional niche for Notch,” “Theodor Billroth: success with sutures and strings.”

Perusing the medical literature with alliteration in mind, I have become perplexed by a peculiar propensity for the letter “p” to be placed in prominent positions. Consider for a moment the alliterative content of the BMJ, a prestigious periodical also published in Pakistani, Polish, and Portuguese. Perhaps the prime example is a piece entitled “A potpourri of parasites in poetry and proverbs,” but the journal has presented articles addressing such topics as paracetamol poisoning, practitioners’ pressure to prescribe, physicians’ partnerships with patients, partnerships for prevention in public playgrounds, and pregnancy outcomes which have been persistently poor. Other topics have included patients’ priorities, the political process of puzzling out private versus public priorities, and the ponderous problem of whether the priorities in apportioning resources should be primarily pragmatic or principally principle.

In pursuing this plethora of “p” further, it becomes apparent that this predominance extends past paper titles to many other aspects of medicine. The purpose of this paper is to point this puzzling phenomenon of “p” profusion to the attention of practising physicians.

Methods

I used no scientific search strategy but collected examples piecemeal over several years. I am a primary care paediatrician with a small private practice, so I have a natural penchant for perusing paediatric papers. Please pardon this paediatric predominance. Pathologists, pulmonologists, and other practitioners are invited to provide examples from their particular fields. I would prefer you to participate by post.

For the purposes of this paper, alliteration is defined as occurring when the same sound starts several words of a sequence. Internal alliteration is a “soundalike,” whereby the same sound starts syllables within a word (for example, polyposis or parapertussis). Visual alliteration is a “lookalike,” whereby successive words or syllables start with the same letter but with different sounds (for example, popliteal pterygium or pneumonic plague). This is only literally alliterative, but a pleasing abbreviation may be used, such as referring to a physician parent as a “PP” or pneumonic plague. This is only literally alliterative, but a pleasing abbreviation may be used, such as referring to a physician parent as a “PP” or pneumonic plague. This is only literally alliterative, but a pleasing abbreviation may be used, such as referring to a physician parent as a “PP” or pneumonic plague. This is only literally alliterative, but a pleasing abbreviation may be used, such as referring to a physician parent as a “PP” or pneumonic plague. This is only literally alliterative, but a pleasing abbreviation may be used, such as referring to a physician parent as a “PP” or pneumonic plague. This is only literally alliterative, but a pleasing abbreviation may be used, such as referring to a physician parent as a “PP” or pneumonic plague. This is only literally alliterative, but a pleasing abbreviation may be used, such as referring to a physician parent as a “PP” or pneumonic plague. This is only literally alliterative, but a pleasing abbreviation may be used, such as referring to a physician parent as a “PP” or pneumonic plague.
### Two-p sequences (in alphabetical order)

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palmar pustules</td>
<td>(as in neonatal candidiasis)</td>
</tr>
<tr>
<td>Palpable purpura (Henoch-Schönlein purpura)</td>
<td></td>
</tr>
<tr>
<td>Paradonial pulse</td>
<td></td>
</tr>
<tr>
<td>Parakeratosis pustulosa (may include psoriatic pitting)</td>
<td></td>
</tr>
<tr>
<td>Paralytic (or postinoculation) poliomyelitis</td>
<td></td>
</tr>
<tr>
<td>Parapsoriatic plaques</td>
<td></td>
</tr>
<tr>
<td>Passion purpura (&quot;hickey&quot;)</td>
<td></td>
</tr>
<tr>
<td>Paediatric Puzzler (see text)</td>
<td></td>
</tr>
<tr>
<td>Paediatricians’ perceptions</td>
<td></td>
</tr>
<tr>
<td>Paediatrician presence</td>
<td></td>
</tr>
<tr>
<td>Pediculosis pubis</td>
<td></td>
</tr>
<tr>
<td>Penile purpura (as manifestation of lichen sclerosus et atrophicus)</td>
<td></td>
</tr>
<tr>
<td>Perianal pruritus (see text)</td>
<td></td>
</tr>
<tr>
<td>Periodic paralysis</td>
<td></td>
</tr>
<tr>
<td>Periodic polyserositis (familial Mediterranean fever)</td>
<td></td>
</tr>
<tr>
<td>Periumbilical purpura (as in disseminated strongyloidiasis)</td>
<td></td>
</tr>
<tr>
<td>Pes planus</td>
<td></td>
</tr>
<tr>
<td>Piezogenic papules</td>
<td></td>
</tr>
</tbody>
</table>

by another letter (such as PPD, the purified protein derivative used for tuberculin skin testing).

The calculation of P values was considered using a non-parametric procedure. The proportions of pages occupied by “p” words in a general and medical dictionary are 0.07 and 0.11, so the approximate likelihood of any particular word starting with the letter “p” (the probability of a primary p, expressed as $P_p$) is approximately 0.09. The precise probability of n successive words starting with the letter “p” can be expressed as $P_{np}$.

### Two-p sequences

Most examples of two-p sequences are straightforward (box), but a few explanatory comments are in order.

Firstly, “pool palms” refer to palms with red linear plaques resulting from contact with rough swimming pool surfaces. Secondly, the presentation and proper treatment of enterobiasis are highlighted. In a paediatric patient with perianal pruritus, the prudent paediatrician should pursue the possibility of pinworms as the primary problem. If the presence of pinworms seems probable, a prescription for pyrantel pamoate or piperazine is appropriate. (Parenthetically, in years past, pyrvinium pamoate, previously patented as Povan, was another popular option.) Finally, the “paediatric puzzler” and the “poison pen” are popular features in the monthly journal Contemporary Pediatrics.

One “puzzler” was entitled “A tale of two pees—pink and purple urine,” whereas the “pen” portrays the unhappy plight of paediatric patients who experience perverse physiological phenomena after partaking of pokeweed, pot, painkillers, and other potent pharmacological agents. Parenthetically, this popular periodical recently presented one article about a Pennsylvania paediatrician who perked up his practice with a parenting programme; a second article about an antismoking programme which proved practical for practice; and a third about how to put the principles of pregnancy prevention programmes into practice. The journal’s editor, Julia McMillan, penned The Portable Paediatrician, and also an editorial entitled “Pediatrician Presence.” The journal’s creator, Frank Oski, edited the textbook Principles and Practice of Pediatrics, propelling us to the next level of alliteration.

### Three-p sequences

Several three-p sequences have been sighted. The Pasadena Prevention Project, for example, has examined ethnic variations in blood pressures among adolescents. A papilloma of the bladder may cause haematuria that is profuse, periodic, and painless.

An article on the familial aggregation of Behçet’s disease studied the parents of paediatric probands. An editorial about death rates from coronary disease was subtitled “Progress and a Puzzling Paradox,” and an article about diagnosing pulmonary embolism was subtitled “Pills, Progress, Promises.” A historical essay about William Stokes was subtitled “Stoking the fires of prevention and pathophysiological patterns,” and a paper about substance abuse in paediatric patients was subtitled “Prediction, Protection and Prevention.” An article exploring the causes of paediatric behaviour problems was entitled “Promoting Parental Presence,” and the periodical Pediatrics has recently proposed a process for post-publication peer review (PPR). Two recent articles pertained to substance P and the part it plays in pain pathogenesis. The first paper presented a procedure for the partial purification of this potent peptide, whereas the second publication challenged whether the central questions in pain perception are peripheral.

Many other three-p sequences derive from dermatological conditions. Superficial staphylococcal infections in atopic children, for example, can produce pinpoint, pruritic pustules. Recent reports have described patients with perianal pseudoverrucous papules, persistent papular plaques, pruritic purple plaques, painless, pruritic papules, persistent, painful plantar masses, progressive, pigmentary purpura, pruritic papular porokeratosis, and pedal erosions which were painful, plaque-like and pitted. A final skin finding is a benign lesion of the penile corona known as pearly penile papules or pink pearly papules. These lesions have occasionally been referred to as pink, pearly, penile papules, bringing us to the next level of alliteration. Parenthetically, since some parents refer to their son’s penis as his “private parts” or “pee-pee,” a further variation might qualify at an even higher level.

### Four-p sequences

Many sequences have attained the four-p level. An editorial described “Preventive Pediatrics: the Promise and the Peril,” and an article provided psychological perspectives on paediatric pain. Several examples derive from the dermatological literature, including painful, piezogenic, pedal papules; puzzling palmar and plantar papules; porokeratosis punctata palmaris; and the “impure” sequence of pruritic, urticarial, papules and plaques of pregnancy (PUPPP). Managers of physician practice plans now apply the four ps of marketing to the medical market place: product, price, placement, and promotion.

Finally, the internal alliteration in “A Potpourri of Parasites in Poetry and Proverb” is particularly powerful, pushing us to the next level.
Five-p sequences
The five-p level of alliteration includes numerous mnemonics. The “five p’s,” for example, are helpful in remembering the characteristic skin lesions of lichen planus: planar, polygonal, pruritic, purple, and papular. A second five-p mnemonic describes the lesions of lichen aureus: pigmented, purpuric papules in peripheral patches. Parenthetically, these lesions are most prevalent on the periphery and carry a poor prognosis for rapid resolution. A third five-p mnemonic describes an infant with cretinism: pot belly, pallor, puffy face, protruding umbilicus, and poked out tongue. A fourth five-p mnemonic describes clinical features of the hands and feet of a child with acrodynia from chronic mercury poisoning: pink, puffy, painful, perspiring, and peeling. Finally, the numerous causes of paralytic ileus include five p’s: postoperative, peritonitis, potassium low, pelvic and spinal fractures (plaster of Paris jacket), and parturition.

Non-mnemonic sequences have also been noticed. The following parties are interested in measuring health outcomes: patients, providers, payers, politicians, and the public. A paediatric continuing education meeting was advertised as “A Potpourri of Practical Pediatrics Plus Politics” and a presentation at another meeting was advertised as “Presenter Promises a Potpourri of Pearls for the Practitioner.” Patients with congenital disorders affecting multiple organ systems suffer from “p*** poor protoplasm poorly put together.” Once again, the internal alliteration of “potpourri” and “protoplasm” packs particular alliterative punch and propels us to still higher levels.

Six-p sequences
Peter Piper may have picked a peck of pickled peppers, but few medical sequences have attained the six-p level of alliteration. A dermatological article, however, described pruritic, pigmented papules posing particular alliteration. A third five-p mnemonic describes an infant with cretinism: pot belly, pallor, puffy face, protruding umbilicus, and poked out tongue. A fourth five-p mnemonic describes clinical features of the hands and feet of a child with acrodynia from chronic mercury poisoning: pink, puffy, painful, perspiring, and peeling. Finally, the numerous causes of paralytic ileus include five p’s: postoperative, peritonitis, potassium low, pelvic and spinal fractures (plaster of Paris jacket), and parturition.

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Longer p sequences
The work of authors who have attained the highest levels of “p” alliteration deserves particular praise. In one dermatologic case report, pruritic skin lesions due to chronic cold exposure are described in a seven-p sequence as “purple patches, papules or plaques present on the proximal phalanges.” The complications of a Meckel’s diverticulum can be remembered as the “seven p’s”: peptic ulceration of adjacent mucosa with melaena; perforation and general peritonitis; pain which is colicky with intussusception; pink, raspberry tumour at umbilicus; patent vitellointestinal duct; persisting band with strangulations or cysts along the track; and persistent umbilical discharge.

Features of primary aldosteronism include the “eight p’s”: periodic attacks of muscle weakness; paraesthesia; polyuria; polydipsia; potassium loss; pressure of blood rises; plasma sodium rises; and pylonephritis likely to occur.

In a recent article about screening for developmental delays, the authors reach the nine-p stage and urge “primary prevention through a parent professional partnership … a proactive, primary prevention process.” Features of the nephrotic syndrome include the “nine p’s”: proteinuria; plasma protein falls; plasma volume drops; pitting oedema with a pale, puffy face; pleural effusion; pericardial effusion; pressure of blood rises; prognosis variable; and paucity of gamma globulin lowers patient’s resistance.

One 10-p sequence is a mnemonic for the manifestations of Henoch-Schönlein (or anaphylactoid) purpura: palpable purpura; periarticular pain; periodic periumbilical pangs; proteinuria; and a positive prognosis.

Features of patients with enteric fever include “11 p’s”: positive blood culture early in the course; pulse slow; phlebitis; peristitis; pneumonia; parotitis; Peyer’s patches ulcerated; pyonephrosis; premature delivery; perforation of bowel and blood vessels; and positive Widal reaction.

One 12-p mnemonic includes causes of dyspnoea of rapid onset starting with “p”: pneumonia, pneumothorax, pulmonary spasm (asthma), peanut (foreign body), pulmonary embolus, pericardial tamponade, pump (left heart) failure, peak seekers (high altitudes), psychogenic, poisons, pancreas (diabetes), and pre- and postrenal uraemia. This mnemonic can arguably be improved by limiting visual alliteration; pneumonia can be reclassified as pulmonary perihilar patchiness and pneumothorax as pleural pneumatic pressure. Finally, a typical patient with a perforated peptic ulcer has been described using 12 “p’s” as a puking patient, perspiring with punishingly severe pain, with pulse rising, pressure falling, peristalsis losing, pain descending with pressure, guarding all over the abdomen, lying perfectly still with peritonitis.

Conclusion
Some of my professional colleagues have perfected laboratory techniques that can be applied to a broad range of diverse topics, producing a prodigious proliferation of publishable papers. These colleagues have...
asked if I now plan 25 similar articles honouring the other letters of the alphabet. Positively not. My “p” collection has provided a pleasant pastime, but I encourage others to complete the series.

One can only ponder what the authors’ possible purposes may have been for repeating “p” in particular passages. In some instances, the prose is ponderous, and the “p” predilection is clearly contrived. Referring to hypertension as “pressure of blood rises,” for example, was presumably done for the specific purpose of completing a long list of “ps.” In other instances, however, the passages’ style and polish provide pure poetic pleasure, and it seems plausible to propose that the authors were potentially unaware of their “p” proclivity and the powerful and poignant “p” presence in their papers.

Some proponents of the “publish or perish” paradigm have proposed that my primary purpose in preparing this paper for publication was a promotion. This is pure poppycock. Such a premise is perfectly preposterous. As a professor with permanence (and tenure), I have reached the pinnacle of my profession. My purpose has been to pay proper and profound homage to my predecessors with a peculiar p-reccurrence. P’s on earth to men of good will.

I thank Susan Hayden and Drs Margaret Mohrman, Andy Wise, Walter Tunnessen, and Frank Saulsbury for their comments and suggestions.