The Value of Freedom

The right to professional freedom is a fragile value.

The independence and liberty offered by the medical profession was probably one of the values which attracted many of us to this way of life in our younger years. Where else could you have a wide choice of different specialties, make a good living, choose where to live, be respected and, in general, maintain options very valuable and hard to find in other occupations. On top of that, you have the rare privilege and opportunity to help other people.

Unfortunately, the climate surrounding the privileges and rights of physicians in the last 5 to 10 years has put these opportunities in jeopardy. The changes possible in the next decade or sooner are even more worrisome. For example, the Medical Post of January 14, 1992 states "concern is growing that changed licence portability requirements for a few physicians could restrict mobility for at least 10,000 already licensed doctors".

This infringement on the right to employment mobility is sadly being inflicted by the profession on the profession and perhaps, shows a lack of respect for our own basic rights that others may copy. Our incomes, as an example, are no longer under our control and, for some of the profession, may already (eventually) be completely controlled. The need and desire to place on salary increasing numbers of doctors is recognized but is also disturbing. Certainly, the respect shown for our incomes did not lead us to feel a protected part of society as we were singled out by the General Services Tax recently in a very unfair manner.

In British Columbia, with the imposition of "billing numbers", we saw the right to work and employment mobility severely limited. The fact that the Supreme Court found the B.C. process unacceptable does not make it impossible, in some other guise. With government ultimately paying the bills and much of medical service being difficult to evaluate for effectiveness, it may seem to funding agencies that there is no limit to the amount physicians might bill the system, if numbers of doctors are not controlled. Without normal market mechanisms, long since gone, this must be considered true. The trick is to limit, with the minimum use of coercion and loss of freedom, the numbers of physicians and amounts of money paid out in a sensible way. Our concerns for our freedom will need to be tempered by reality. (How much freedom do any of the thousands of unemployed physicians in Europe now have?).

Basic freedoms of physicians were ignored in the preliminary report of the Task Force on Sexual Abuse in Ontario. Ordinary protection of reputation and right to be considered innocent until proven guilty were put in question. The final report was improved only after further consideration and great pressure. In this province we have seen physicians put on trial by public opinion, and the media, for suggested offences. In many cases, little consideration was given to the doctors' basic rights.

Often these threats to our freedoms in the medical profession come from well meaning people with a desire to make right an imperfect world.
F.A. Hayek in his book, *The Constitution of Liberty* states in his introduction “Ambition, impatience and hurry are often admirable in individuals, but they are pernicious if they guide the power of coercion and if improvement depends on those who, when authority is conferred on them, assume that in their authority lies superior wisdom and thus the right to impose their beliefs on others”. Hayek goes on to discuss many concepts which we might do well to remember as the face of our health care system changes. Most of us realize, with the institution of Medicare and again with the *Canada Health Act*, that some element of coercion had entered medicine. While such state coercion on occasion cannot be avoided, it certainly should be kept to a minimum. Hayek suggests that government must allow the individual to “determine his own sphere by relying on rules which tell him what the government will do in different types of situations”.

In these times of change, we have very few rules that allow us to choose a path free of coercion. Those students now in the system see the rules changing before their eyes and must wonder about the control they might have over their lives in the future. Hayek also quotes the four rights, conferred upon slaves once freed: First, “legal status as a protected member of the community”; Second, “immunity from arbitrary arrest”; Third, “right to work at whatever he desires to do”, and fourth “the right to movement according to his own choice”.

These “essential conditions of freedom: certainly seem fragile when seen from present day physician’s perspective. The Barer-Stoddard report, in attempt to solve the funding crisis in education and research, has recommended “block” funding for this segment of our system. With more funding control one must remember that more control is given to government. Do we really wish more government control of teaching research and effectively our tertiary care system? The Barer-Stoddard recommendation was that “the funding of academic medical centers needs to be restructured to link it as explicitly as possible to academic goals...” With complete funding control, it seems that complete control of “academic” goals may be achieved by government. The recent article in the *Canadian Medical Association Journal* on the Royal Society Symposium on Constraints to Freedom of Scholarship and Science should make academics and researchers pause before giving away any more control to government. In fact, the whole profession should take nothing for granted when considering the short distance between freedom and its alternatives.

J.F.O’C.
The Family Doc Who Delivers Babies . . .
An Endangered Species?

Allan J. Rombaut,* MD, CCFP
Canning, N.S.

A random sample of 126 Nova Scotia primary care physicians responded to a mailed questionnaire examining various factors which may influence their choice of obstetric practice. Fewer physicians are including obstetrics in their practice. Forty-four percent of respondents were currently not delivering babies. The size of their community of practice did not seem to alter this percentage nor the general make-up regarding obstetrics. Of those currently delivering babies, just over one-half have considered stopping. Interference with lifestyle and financial concerns were the deterrents perceived as most important. Concerns regarding inadequate obstetric training and lack of interest were cited as least important. The results are discussed in light of other Canadian and American studies, and strategies suggested to hopefully slow the ever-increasing attrition rate of family doctors from obstetrics.

The practice of obstetrics by primary care physicians is an issue of current concern. Ideally, maternity care is part of the family-centred nature of family practice. However, family physicians in North America appear to be withdrawing from obstetric care at an alarmingly rapid rate.¹⁻⁶ This is of particular concern for women in rural and medically under-served areas, where access to obstetric care may be less than optimal. This issue holds particular relevance for Nova Scotia and the other Atlantic provinces of Canada where a relatively large proportion of the population resides outside the urban community.

Various factors have been implicated as contributing to the ever-narrowing spectrum of primary obstetric care. These include rising malpractice insurance premiums, fear of litigation, interference with lifestyle and office practice, and the rapidly changing technological aspects of modern obstetrics.¹⁻⁵ In the United States, studies have consistently shown malpractice insurance premiums to be the major deterring factor.⁵⁻⁸ Fewer studies have been done in Canada; however, Klein and his colleagues related the decreasing participation of family physicians in obstetric care, evident mainly in Ontario and Quebec, to the ratio of obstetricians to the population.⁶ They consequently found physicians in smaller communities more likely to practise obstetrics than those in larger urban centres. Other studies have also found this to be true.¹³ In a survey of 1338 Ontario primary care physicians, interference with personal and family life was found to be the most frequently cited important issue for giving up obstetric practice.¹ Physicians who had never practised obstetrics cited inadequate training and lack of interest as their chief reasons.

In a study comparing family physicians in Ontario and the United States, Kruse and Wesley noted some important differences.³ The Canadian physicians were significantly more likely to cite interference with lifestyle and, to a lesser degree, office schedules as important deterrents. They also identified the low financial incentive to practise obstetrics more frequently than did their United States counterparts. The American physicians, on the other hand, again placed more emphasis on malpractice issues as a reason for not practising obstetrics.

The purpose of this study is to describe characteristics of primary care physicians in Nova Scotia who practise obstetrics and to determine which factors they perceive as important in influencing patterns of obstetric practice. Perhaps this information may contribute to reducing attrition from obstetric practice by family doctors.

METHODS

A sample of 177 general practitioners/family physicians was randomly selected from The Medical Register of Nova Scotia (both members and non-members of the College of Family Physicians of Canada) and were surveyed with mailed questionnaires. A single mailing was
done in early March 1991. No subsequent mailings were required as a high response rate was achieved (72%).

Information obtained by the questionnaire included: age, sex, years in practice, size of community of practice, type of practice, completion of a family medicine residency, distance to nearest obstetrician, and number of babies delivered over the past 12 months. In addition, physicians were asked to rate on a 5-point Likert scale their perceived level of preparation to deliver babies at the end of their training. On this scale, one represented "totally unprepared" and five represented "very well prepared".

Physicians who had never practised obstetrics, those who had discontinued obstetric practice, and those who had ever considered continuing obstetric practice were identified. Those who had discontinued obstetric practice indicated if they had done so in the past year. These three groups were then asked to rate the importance of the following possible influencing factors on their choice of obstetric status: 1) lack of interest; 2) inadequate obstetric training; 3) interference with office practice; 4) inadequate obstetric volume; 5) malpractice insurance premiums; 6) difficulty keeping up with advances; 7) interference with lifestyle; 8) low financial incentive; 9) fear of lawsuits; 10) inadequate obstetric backup; and 11) other. The physicians again rated the importance of each factor on a 5-point Likert scale, with one indicating the factor was "not at all important" and five indicating the factor was "very important".

RESULTS

One physician from the original sample could not be reached by the mailing, leaving an effective sample size of 117. A total of 126 physicians responded, for a response rate of 72%. Nine of the returned questionnaires were excluded because they were improperly or incompletely filled out, or the physician was no longer involved in primary care practice. This left 117 responses upon which the results were based.

The demographic and practice characteristics of the respondents are shown in Table I. Forty-four percent of physicians reported delivering no babies in the past 12 month period. Of those delivering babies, 9% delivered fewer than 10 babies, 45% delivered 10 to 24 babies, 32% delivered 25 to 50 babies, and 14% delivered more than 50 babies in the 12 month period prior to the survey. The current status of obstetric practice by responding physicians is summarized in Table II. A high percentage (88%) of respondents have at some time included obstetrics in their practice. Sixty-five of the total sample of 117 (56%) were currently delivering babies at the time of the survey, with just over one-half of them having considered stopping the obstetric portion of their practice. Of the 44% who were not delivering babies at the time of the survey, 14 (12%) had never delivered babies and 38 (32%) had stopped delivering babies.

In general, the physicians in this sample felt well prepared to practise obstetrics at the end of their train-

<p>| TABLE I |
| COMPARISON OF DEMOGRAPHIC AND PRACTICE CHARACTERISTICS (N=117) |</p>
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Percent</th>
<th>Characteristics</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>28</td>
<td>Type of Practice</td>
<td></td>
</tr>
<tr>
<td>35-44</td>
<td>39</td>
<td>Solo</td>
<td>38</td>
</tr>
<tr>
<td>45-54</td>
<td>15</td>
<td>One partner</td>
<td>16</td>
</tr>
<tr>
<td>55-64</td>
<td>10</td>
<td>Group of 3-5</td>
<td>23</td>
</tr>
<tr>
<td>65+</td>
<td>8</td>
<td>Group of &gt;5</td>
<td>20</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>28</td>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Male</td>
<td>72</td>
<td>Family Medicine Residency</td>
<td></td>
</tr>
<tr>
<td>Years in Practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5</td>
<td>15</td>
<td>No</td>
<td>90</td>
</tr>
<tr>
<td>5-9</td>
<td>22</td>
<td>Yes</td>
<td>10</td>
</tr>
<tr>
<td>10-19</td>
<td>40</td>
<td>Distance to Nearest Obstetrician</td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>10</td>
<td>In community</td>
<td>58</td>
</tr>
<tr>
<td>≥30</td>
<td>13</td>
<td>≤50 kms</td>
<td>27</td>
</tr>
<tr>
<td>Community Size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5,000</td>
<td>25</td>
<td>50-99 kms</td>
<td>8</td>
</tr>
<tr>
<td>5,000-14,999</td>
<td>26</td>
<td>100-150 kms</td>
<td>6</td>
</tr>
<tr>
<td>15,000-24,999</td>
<td>6</td>
<td>&gt;150 kms</td>
<td>1</td>
</tr>
<tr>
<td>Babies Delivered in Past 12 Months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>44</td>
<td>Babies Delivered in Past 12 Months</td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>5</td>
<td>None</td>
<td>44</td>
</tr>
<tr>
<td>10-24</td>
<td>25</td>
<td>&lt;10</td>
<td>5</td>
</tr>
<tr>
<td>25-50</td>
<td>18</td>
<td>10-24</td>
<td>25</td>
</tr>
<tr>
<td>&gt;50</td>
<td>8</td>
<td>25-50</td>
<td>18</td>
</tr>
</tbody>
</table>

Forty percent of the physicians indicated they felt well prepared by checking 4, and 20% indicated they felt very well prepared by checking 5 on the 5-point Likert scale described earlier. Only 12% indicated a low level of preparation by checking 1 or 2. The overall mean perceived level of preparation was 3.84. Those who had never practised obstetrics had the lowest perceived level of preparation, with a mean score of 3.20. Those who continue to deliver babies scored higher with a mean score of 3.82. Those who had discontinued obstetric practice had the highest perceived level of preparation with a mean score of 4.00.

<p>| TABLE II |
| CURRENT STATUS OF OBSTETRIC PRACTICE |</p>
<table>
<thead>
<tr>
<th>Status</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample</td>
<td>117</td>
</tr>
<tr>
<td>Practised obstetrics at some time</td>
<td>103 (88)</td>
</tr>
<tr>
<td>Currently delivering babies</td>
<td>65 (56)</td>
</tr>
<tr>
<td>Have considered stopping</td>
<td>33</td>
</tr>
<tr>
<td>Have not considered stopping</td>
<td>32</td>
</tr>
<tr>
<td>Not currently delivering babies</td>
<td>52 (44)</td>
</tr>
<tr>
<td>Never delivered babies</td>
<td>14</td>
</tr>
<tr>
<td>Stopped delivering babies</td>
<td>38</td>
</tr>
<tr>
<td>Active obstetric practice 12 months prior to receiving questionnaire</td>
<td>71</td>
</tr>
<tr>
<td>Stopped delivering babies in past 12 months</td>
<td>6</td>
</tr>
</tbody>
</table>
Table III shows the respondents' choices concerning obstetric practice as related to the population of their practice community. When comparing the smaller communities with populations less than 15,000 to the larger communities with populations greater than 50,000, the make up is remarkably similar. The vast majority of respondents from communities ranging in population from 15,000 to 50,000 were currently practising obstetrics. However, these physicians represented only a small proportion (15%) of all respondents.

The relative importance of the factors that may influence primary care physicians to never practise obstetrics, to discontinue, or to consider discontinuation of obstetric practice is shown in Table IV. Four physicians were excluded from the group who had never practised obstetrics for these calculations, since they were military physicians. Six physicians were excluded from the group who had discontinued obstetrics as well, since they indicated only a single reason for discontinuation (ie “too old”, “health reasons”, “obstetrics unit closed”).

<p>| TABLE III |
| CHOICE OF OBSTETRICAL PRACTICE BY POPULATION OF COMMUNITY |</p>
<table>
<thead>
<tr>
<th>Less than 5,000</th>
<th>5,000 - 14,999</th>
<th>15,000 - 24,999</th>
<th>25,000 - 50,000</th>
<th>More than 50,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents in community who have never practised OB (n = 14)</td>
<td>21%</td>
<td>7%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Respondents in community who have discontinued OB practice (n = 38)</td>
<td>34%</td>
<td>40%</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>Respondents in community who practise OB but have considered stopping (n = 33)</td>
<td>17%</td>
<td>30%</td>
<td>29%</td>
<td>80%</td>
</tr>
<tr>
<td>Respondents in community who practise OB and have not considered stopping (n = 32)</td>
<td>28%</td>
<td>23%</td>
<td>57%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Sixty-four percent of the youngest physicians (25-34 years) were currently delivering babies. This increases slightly to 67% for physicians aged 35 to 44. One-half (50%) of physicians aged 45 to 54 and one-third (33%) of those aged 55 to 64, maintained an active obstetric practice. One of 9 (11%) physicians aged 65 or older was still delivering babies.

A comparison of the relative importance of the various factors of the physicians who had never delivered babies, those who had stopped delivering babies, and those who were currently delivering babies but had considered stopping is shown in Table V. Interference with lifestyle was cited as being most important by all three groups. Those who had never practised obstetrics placed less emphasis on the other factors felt to be important by the
other two groups. However, in comparison to the other two groups, they placed more emphasis on the factors generally viewed as less important, such as inadequate obstetric backup, inadequate obstetric training, and lack of interest. Physicians who were currently delivering babies but had considered stopping placed more emphasis, on average, on the top five important factors. Interestingly enough, they cited low financial incentive as the second most important factor, after interference with lifestyle, for considering discontinuation of obstetric practice.

### DISCUSSION

This study demonstrates some of the patterns in obstetric care provided by primary care physicians in Nova Scotia, and the perceived factors that influence these choices. As noted in previous studies in both Canada and the United States, the most dramatic change is a decreasing number of physicians who choose to offer obstetric services to their patients. Unfortunately, no historical data are available concerning Nova Scotia physicians who practise obstetrics but, in 1982, the Canadian Medical Association determined that 56.5% of Canadian family physicians practised intranatal obstetrics. Bain et al. found that 40% of primary care physicians in Ontario were practising obstetrics in 1987. This study shows, however, that a much higher proportion of Nova Scotia physicians (56%) were currently practising obstetrics, a percentage very similar to that determined by the CMA in 1982. This relatively high percentage of physicians in Nova Scotia still practising obstetrics is possibly related to the high proportion who have practised obstetrics at some time.

The minority (12%) of physicians in this study have never practised obstetrics. This group of physicians is markedly smaller than those of other studies where percentages have ranged from 29 to 37%. However, the news is not all good. Nova Scotia physicians have a higher discontinuation rate of obstetrics (32%) as compared with other populations where reported values range from 20 to 31%. Both recent American and Canadian studies have found that roughly one-half of physicians currently practising obstetrics have considered giving it up. The results of this study concur with this finding.

As fewer primary care physicians offer obstetric services to their patients, there will be reduced access to adequate obstetric care, particularly for those living in rural areas or who are indigent. It may have been felt that this was not a major concern since previous studies have shown that physicians in smaller communities are more likely to practise obstetrics than those in larger communities where obstetricians are available. However, the results of this study, as shown in Table III, do not support this finding and are somewhat disturbing. It shows that physicians in the smaller communities of Nova Scotia are just as likely not to practise obstetrics as those in the larger urban communities. Obviously, various factors must be at work to deter small town doctors from delivering babies. One concerned physician from a small community commented, “Very timely study. In our community when I started practice, there were 9 general practitioners offering obstetric care. Soon there will be only 2 for approximately 200 deliveries per year.”

An examination of the differences in practice patterns among the age groups shows that, in general with increasing age, fewer physicians maintain an active obstetric practice. This likely reflects the commonly perceived strenuous nature of obstetrics in various aspects of the physician’s life and practice. Bain et al. also found that physicians who ceased to practise obstetrics were significantly more likely to be the older respondents. One might therefore expect that the highest proportion of physicians practising obstetrics would be the youngest. This, however, does not appear to be the case. In this sample, the age group with the highest percentage (67%) of physicians practising obstetrics was 35 to 44 years. The youngest physicians (25 to 34 years) lagged slightly behind at 64%. It is a disturbing fact that among female family physicians, regardless of age, the proportion of those choosing not to practise obstetrics is 50%, and has remained essentially unchanged. The younger male physicians, in nearly equal proportions, have also chosen not to practise obstetrics. It would certainly appear that there will be further declines in the number of physicians practising obstetrics in the future.

Tables IV and V summarize the reasons indicated by various subgroups of respondents for never practising obstetrics, for discontinuing, or for having considered discontinuing obstetrics. The primary reason given by all subgroups is interference with lifestyle. This factor domi-

---

**TABLE V**

<table>
<thead>
<tr>
<th>Factor</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interference with lifestyle</td>
<td>4.20</td>
<td>3.50</td>
<td>4.39</td>
</tr>
<tr>
<td>Malpractice insurance premiums</td>
<td>3.00</td>
<td>3.09</td>
<td>3.45</td>
</tr>
<tr>
<td>Low financial incentive</td>
<td>2.20</td>
<td>3.09</td>
<td>3.52</td>
</tr>
<tr>
<td>Fear of lawsuits</td>
<td>2.60</td>
<td>2.75</td>
<td>3.33</td>
</tr>
<tr>
<td>Inadequate obstetric volume</td>
<td>2.50</td>
<td>2.63</td>
<td>2.82</td>
</tr>
<tr>
<td>Interference with office practice</td>
<td>2.90</td>
<td>2.44</td>
<td>2.70</td>
</tr>
<tr>
<td>Difficulty keeping up with advances</td>
<td>2.20</td>
<td>2.41</td>
<td>2.55</td>
</tr>
<tr>
<td>Inadequate obstetric backup</td>
<td>2.60</td>
<td>2.03</td>
<td>2.21</td>
</tr>
<tr>
<td>Inadequate obstetric training</td>
<td>2.80</td>
<td>1.69</td>
<td>1.61</td>
</tr>
<tr>
<td>Lack of interest</td>
<td>2.10</td>
<td>1.81</td>
<td>1.42</td>
</tr>
</tbody>
</table>

A - Never delivered babies (N = 10)
B - Discontinued obstetric practice (N = 32)
C - Currently delivering babies but have considered stopping (N = 33)
nated all others and has been found to be the main influencing factor in other Canadian studies as well.\textsuperscript{1,3} Financial losses expressed in terms of malpractice insurance premiums and low financial incentive were the next most important factors in influencing patterns of obstetric practice.

Inadequate obstetric backup and training were factors cited as being relatively unimportant for those who had discontinued or considered discontinuing obstetric practice. These factors were relatively more important for those who had never practised obstetrics. However, interference with lifestyle and financial concerns continued to be viewed as most important. It has been suggested that further exposure to obstetrics during medical training might serve to bolster the number of primary care physicians currently delivering babies. However, this study and others show that concerns regarding adequacy of training and obstetric competence play only a very minor role in the physician's decision regarding obstetric practice.\textsuperscript{1,3} This is further supported by the finding that the overall perceived level of preparation at the end of medical training was relatively high (3.84 out of 5). In fact, those who had stopped delivering babies had the highest perceived level of preparation (4.0). One must take into account, however, that the retrospective nature of this survey may have influenced respondents' perceived competence to deliver babies at the end of their training. Those who have never practised obstetrics may recall this factor as an important reason for not doing so, while others who did go on to practise obstetrics may have felt inadequate initially, but gained competence with years of practice.

The interference with lifestyle issue deserves paramount consideration. It is well known that younger physicians are placing more and more emphasis on lifestyle and so this issue is likely to become even greater concern. One study showed that 81\% of Ontario physicians took their own obstetric calls, even though they were otherwise signed out.\textsuperscript{4} As noted in their study, this is not surprising given the close relationship that is fostered over a 9-month period. However, if more physicians are to practise obstetrics, better on-call arrangements have to be made to allow for more personal free time and time with family and friends. Other strategies which might be considered to reduce interference with lifestyle include studying the practices and time management of physicians who have never thought of discontinuing obstetrics, and the future possibility of sharing some of the responsibility with a well-trained midwife.\textsuperscript{5}

This needs to be further explored.

Financial concerns are the other factors leading physicians away from obstetrics. The annual malpractice fee for primary care physicians who practise obstetrics in Canada is $2796, compared with $1284 for those who choose not to deliver babies. These fees are drastically higher in the United States. In addition, obstetric practice in Canada does not appear to be financially attractive. Some relevant comments from respondents follow. "The fee schedule is grossly inadequate for the degree of risk/responsibility involved and the likelihood of litigation. Malpractice premiums are so high that one has to do approximately seven deliveries per year just to cover the extra cost of premiums... doing deliveries, especially inductions, requires cancelling office appointments—sometimes for the whole day." "Obstetrics is not a well paid part of my practice. Despite this, I enjoy doing obstetrics and feel it is important I continue to offer this service to my patients. Most of them would be very unhappy if obstetric services were centralized to a regional centre." It is obvious that if primary care physicians are to be encouraged to be active in obstetrics, malpractice insurance reform and a more suitable and adequate fee-for-service mechanism must be pursued.

Various studies have suggested that the outcomes for low risk obstetric patients managed by family physicians in their local hospitals are equal to or better than the outcomes of similar patients managed in referral settings.\textsuperscript{6,10} A large part of this has to do with a non-interventionalist approach, recognizing birth as a life event rather than a medical procedure. A European author eloquently wrote, "Childbirth in itself is a natural phenomenon. The large majority of women need no interference whatsoever—only close observation, moral support, and protection against meddling. A healthy woman who delivers spontaneously performs a job that cannot be improved upon." (GJ Kloosterman, unpublished report)

**SUMMARY**

Fewer primary care physicians in Nova Scotia are including obstetrics in their practice and an alarmingly large portion have discontinued such practice. The major factors responsible for the trend away from obstetrics are interference with lifestyle and financial concerns. These factors must be addressed to prevent inadequate access to obstetric care, especially for those in rural and medically under-served areas. Steps will need to be taken to prevent the family doctor who delivers babies from becoming an endangered species. As one respondent states, "I intend continuing obstetric practice as I feel it is an integral part of family practice. There is something very satisfying about monitoring progress and development of children you have actually delivered." The final comment goes to Klein who entitled an editorial looking at the role of the family physician in obstetrics: "Obstetrics is too important to be left to the obstetricians."\textsuperscript{11} □

**ACKNOWLEDGEMENTS**

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**References**


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I was reflecting on the physician as a patient just the other day. A physician friend had given birth, and I called with congratulations. As is typical in such conversations, the subject of analgesics commonly given in labour came up. "Just think!" she wailed, "All the women I've given this stuff to, expecting it to relieve their pain, and wondering why they still made all those distressing noises. Nancy, it just does not work, and all they kept telling me to do in the degrees and the experience, only now did my patient, and it is a tribute to my long-suffering family doctor that she has cheerfully endured me in this state twice now. The instant the pregnancy test stick turns colour I, who am otherwise pretty good in this regard, turn into a ranting hypochondriac. And there's nothing worse than a hypochondriac who does in fact have some genuine medical problems, armed with knowledge and a lot of long, sonorous Latin phraseology. One of the problems, you see, is that while everyone knows about deformed babies, stillbirths, etcetera; if you've never actually been involved with one it is easier to keep dark fears nebulous. Every woman wonders "Is my baby normal?", but the pregnant doctor gets to remember the grim reality of the ones who were not. In my internship I had the sad task of being present at a small regional hospital when a primipara came in at 39 weeks gestation because her baby wasn't moving. Some time in the night before, for no apparent reason, her child had died. Labour was induced, and as the obstetrician was called away, I delivered the babe. The day I first found out I was pregnant, that lady's anguished face came to me unbidden, and she and her baby haunted my dreams for months. But pregnancy as a doctor has an up side too. Forget all the degrees and the experience, only now did my pregnant patients feel that I was finally gaining credibility. And the ones who had had their babies, depending on their personalities, either tried to assure me that delivery wasn't all that bad, or got to enjoy proclaiming loudly "just you wait ..." with evident relish. The best part, however, was often the look on their husbands' faces when "the Doctor" waddled in to deliver their babies. I got to reflect during a C-section one night on how much medicine was changing – not only was my patient pregnant, so was her doctor, the obstetrical resident, and the nurse. There were these three bulging females trying to squeeze close enough to the patient to deliver her baby, while the father and the (male) anesthetist complained loudly about being outnumbered in such a "big" way. They were somewhat mollified that the child being delivered turned out to be a boy – but only somewhat. And then there was the day in the office when my daughter, who in utero seemed normally to be trying out for place kicker on a football team, decided not to move. At all. All day. Between patients I'd frantically drink sweetened juice, lie down, and prod at my swollen belly. Should I call my doctor? Should I go to the Grace and risk being laughed at? Should I call an ambulance? Should I get a scalpel and start sawing a Pfannenstiel's on myself? Finally I could stand it no longer and wandered down the hall to my associate's office. Could he, I asked, with a deceptive attempt at casualness, which I'm sure was completely transparent, just have a quick listen to the baby as she'd been awfully quiet? One look at my doubtless white face and I was being urged into a chair while my blood pressure was checked. And the minute I lay down on the table – boom, biff, bat, the baby started to kick. Ah yes, physician's nerves was the diagnosis. Stubborn baby was my rather embarrassed opinion. The really interesting part about being a pregnant physician comes, however, at delivery. Two major inhibiting factors are present – the fact that you're a doctor and are assumed to know all about this stuff (which somehow means that it isn't supposed to hurt as much); and the certain knowledge that you'll have to come back and work with all these people at a later date. This means that you are not allowed to call them nasty names when, at the very peak of a contraction, they tell you to relax. I had the joyous experience in my first delivery of ending up on a magnesium sulphate drip with a large OP baby and a recalcitrant cervix. People with whom I would have felt far happier having a cup of coffee with down in the cafeteria (you know, the Grace cafeteria that always closes three minutes before your patient delivers) were arriving, performing the most intimate of examinations, looking sorrowful, and departing. Muttered consultations between nurses in the corners, which presumably I was unable to comprehend, having made the miraculous transformation from physician to patient, were getting more and more threatening. This did wonderful things for my blood pressure. My husband, who is involved in the teaching of medical students, was getting alarmed as former pupils were seen shaking their heads. I'm sure he

The Physician as a Parturient Patient

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THE NOVA SCOTIA MEDICAL JOURNAL

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was reviewing how well they had done in their courses, though he professes a convenient amnesia in regards to all these events.

Paediatrics was called to the delivery, and I vaguely remember seeing a haze of what seemed like three dozen people, all of whom I usually meet on a more vertical basis, and wondering how I would ever attain a professional manner with them again. (Actually this turned out to be easier than you might think). Fortunately our daughter was healthy, a credit to all who participated in her delivery.

Then, post-delivery, comes dealing with “the Floor”. "The Floor" had called me concerning a patient at two in the morning, about two weeks before my own due date. “You took your time answering” was the opening sentence; and I had taken great pleasure expostulating in detail and with some acidity, about the difficulties of climbing out of a low bed and navigating a dark hall to answer a ringing phone at two in the morning while 38 weeks pregnant. Then I asked who was calling. Guess which floor I ended up on after my delivery?

Now, just because you are a doctor does not automatically mean that you know where the showers are, how to have a Sitz bath (I never did find out the awful details and was too chicken to ask), or how to breast feed with only two hands and one pillow. Heck, I was absolutely horrified to find out what “periare” actually was. By the time medical school lets you loose on the world presumably you have figured out how to pick up a baby — but to bathe it? These little facts should be engraved over every patient's door: assume total ignorance until proven otherwise. It took me two days to find a nurse wise enough to heed my pleas to ignore my so-called credentials and actually show me how to keep from drowning my daughter. And after two deliveries I have yet to find the showers.

No knock on the nurses though. Their job is a hard one. And I’ll always remember with gratitude their support in the case room one night early in my second pregnancy. I had started spotting myself while in assessment and had called me concerning a patient at two in the morning, about two weeks before my own due date. I, too, have lain on the delivery table and wondered how many stitches this was going to require, and I am a better doctor for it.

ACKNOWLEDGEMENTS

I wish to acknowledge with gratitude the excellent care of Doctors I.A. Perlin, L. Stürk, and M. Van den Hoff; and most of all that of our family physician Dr. Brenda Ashley.

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Intraventricular Hemorrhage in the Preterm Infant

Gerald P. Murray, MD, and William J. Howes, MD, FRCSC
Halifax, N.S.

Preterm infants of low birth weight are very susceptible to brain hemorrhage. Usually, it is in relation to the germinal matrix which is a richly vascular subependymal structure. The ensuing hemorrhage may be limited to the germinal matrix or may rupture into the lateral ventricle or extend into the brain parenchyma. One of the complications of intraventricular blood is interference with CSF circulation, leading to ventricular dilatation, i.e., hydrocephalus.

Based on the location of the blood and the presence or absence of hydrocephalus the following classification scheme has been proposed:

1. Grade 1: Germinal Matrix Hemorrhage Only
2. Grade 2: Intraventricular Hemorrhage Without Hydrocephalus
3. Grade 3: Intraventricular Hemorrhage With Hydrocephalus
4. Grade 4: Intraventricular Hemorrhage With Parenchymal Extension

The incidence of intraventricular hemorrhage is directly related to the degree of prematurity, James, in a review of this subject, quoted studies showing an incidence of 40-50% when the birth weight was less than 1500 grams, whereas Bejar et al. reported an incidence as high as 90% if gestational age was less than 34 weeks.

Of those infants with hemorrhage, 20-50% will go on to require treatment for either transient or progressive hydrocephalus. There is generally a good correlation between the severity of the hemorrhage and the subsequent development of hydrocephalus. The best data supporting this was reported by Volpe et al. In 800 cases they found the rates of hydrocephalus to be 5%, 25%, 55% and 80% for grade 1-4 respectively.

Numerous studies have looked at various aspects of outcome. In general, prognosis is related more to the extent of parenchymal injury and other aspects of prematurity rather than the development of hydrocephalus per se.

In looking at mortality, the Volpe et al. series quote rates of 15% and 20% for grades 1 and 2, whereas grades 3 and 4 were associated with mortality rates of 40% and 60%, respectively.

James cited several studies which examined intellectual function. The majority of children in these series had mild to moderate hemorrhages, i.e., grades 1 or 2. In general, approximately 80% of these children were found to be intellectually normal on long term follow-up. Fewer studies are available which examined long term intellectual function in those suffering more severe degrees of hemorrhage. Guzzetta, et al. reported on 37 children with severe intraparenchymal injury, which would correspond to grade 4 hemorrhage. Of this group, there were only 7 survivors, all of whom had major motor deficits and only 1 had an I.Q. greater than 80. Boyton, et al. reviewed a series of 50 children, which included grade 3, in addition to grade 4, hemorrhages. Of the survivors, only 18% were found to have normal motor and developmental scores. The authors noted that grade 4 patients had lower scores than grade 3.

In summary, the following points can be made:

1. The development of intraventricular hemorrhage is directly related to the degree of prematurity.
2. The development of hydrocephalus is correlated with the quantity of intraventricular blood.
3. Outcome is related to the severity of the brain injury caused by the hemorrhage.
4. Outcome, in terms of motor and intellectual function, is good for grades 1 and 2 with approximately 80% being normal.
5. For grades 3 and 4, prognosis is dismal. Approximately 50% will not survive and among the survivors very few will be free of major motor and/or intellectual impairments.

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To get their blood pressure down, without affecting plasma lipid levels."
The aim of this paper is to provide a concise source of information on the prognosis of hydrocephalus (HC), for several reasons. The first and most important question arising from parents is the prognosis with and without intervention. The ethical dilemmas arising from prenatal diagnosis by ultrasound or amniocentesis requires this prognostic information. For these reasons, a literature review was carried out by the junior author as an elective project.

Various articles list incidence rates as 0.053%, 0.11%, 0.1% to 0.4%. Therefore, a rough estimate of 1 per 100 live births appears to be appropriate.

Different types or causes of HC lead to a different prognosis. The following more common causes of HC were reviewed:

1. Spina Bifida
2. Aqueduct Stenosis
3. Dandy-Walker Syndrome

Finally, the outlook for prenatally diagnosed HC, often of undetermined etiology, was examined.

**SPINA BIFIDA**

Spina bifida is the most common cause of HC. In a study of the incidence rate of spina bifida, the reported rate was 3.69 per 10,000 live births. In one study (n=287), it was shown that 62% of untreated infants with a myelomeningocele survive one month of age and 30% survive six months. The probability of surviving infancy with spina bifida in the period 1952 to 1969 was about one-third, this rate doubled for the period 1970 to 1986. A rise in survival rates does not necessarily lead to a better situation in all cases. Therefore, it is important to look at the quality of life of an infant or child with spina bifida. In one study, 59% of the survivors of spinal bifida had IQs above 80 which is in the range of educational normality. Other studies which concur show this rate to be 68% and 53%.

It should be noted that only 65% to 85% of children with myelomeningocele develops HC, and a child with myelomeningocele has a decreased chance for normal intelligence if HC is also present. Also, children with spinal bifida, treated for their HC, have a better chance for normal intelligence than non-treated hydrocephalic children, but still not as good as the chances are for a child without HC, 80% of whom will have an IQ greater than 80.

Lorber found that the prognosis of children with myelomeningocele and extreme HC is poor, with only 8% of such affected children surviving and having an IQ within educational normality. Other sources warn against assuming a relationship between IQ and degree of HC or cortical mantle thickness. In six studies of this possible relationship, five showed that no relationship exists.

Ordinary schools is the schooling for 40% of the children treated with myelomeningocele. From the same study, 51% attend day schools or residential special schools for physically handicapped students, while most of the rest receive no formal education.

Along with the mental capabilities of children with spina bifida, it is necessary to look at motor development in these patients. Although this is more related to the interruption in the spinal cord than to the HC, parents and doctors would still be interested in this area of the prognosis. In one study, 17 out of 134 children (13%) surviving treatment for myelomeningocele had normal legs and could walk without any aid; fifteen children (11%) walked with a limp but did not require aid; twelve (9%) waddled and needed sticks to walk; while 49 (37%) needed callipers and crutches. Forty-one (31%) were completely confined to a wheelchair.

**STENOSIS OF THE AQUEDUCT OF SYLVIIUS**

Aqueduct stenosis in one study had an overall survival rate of 74.6% (106 out of 142 patients). In this study, deaths occurred after the first surgery (4.2%) or related to shunt malformation (13.3%) or after shunt revision (7.7%). Others report a survival rate of 89% for aqueduct stenosis.

Normal intellectual development is found in 58% to 68% of those with aqueduct stenosis. A study of both children and adults reports that out of 90 patients, 61% were capable of normal work or schooling, 23% were able to care for themselves and perform limited work, while the remaining 16% were unable to care for themselves. Epilepsy occurs in as many as 39% of those with aqueduct stenosis.

**DANDY-WALKER SYNDROME**

Dandy-Walker Syndrome (DWS) is a congenital HC due to obstruction of the foramen of Magendie and Luschka. DWS is characterized by the association of HC, a cyst in the posterior fossa and a defect in the cerebellar vermis through which the cyst communicates with the fourth ventricle. This syndrome may be found with other brain anomalies such as agenesis of the corpus callosum, aqueduct stenosis, and spina bifida.
Many babies with DWS found on ultrasound screening may not have HC. Pilu et al. report 80% of newborns with DWS do not have HC.11 Pilu et al. reviewed prognosis of infants with DWS and cite one source as reporting a survival rate of 50% with half of the survivors being severely intellectually impaired.14 Other surveys list survival rates as being 74% and 88% with the survivors having an IQ above 80 in 29% and 60% of the cases.16,17 Toronto Sick Children experience lists 33% as being the percentage in the range of normal mental development.18

PRENATALLY DIAGNOSED HYDROCEPHALUS

By using ultrasound techniques, it is possible to diagnose HC in the unborn fetus, although not always the etiology.

Cochrane et al. studied 40 cases of intrauterine HC: 65% were stillborn, and died without any attempts being made at treatment, 27.5% were developmentally delayed and 7.5% were normal.19 In a literature search of 112 cases, Cochrane et al. found similar distributions.19 Pregnancy ended in abortion or stillborn for 39 (35%) while 37 (33%) died without any attempt at treatment. Nineteen (17%) were delayed developmentally and 11 (10%) were normal.

A study of 75 surviving infants with prenatal HC showed that 28% had an IQ over 80, while 50% had an IQ below 60.20

It is obvious from the above figures that the prognosis for a fetus with HC is poor. Because of results like these, intrauterine treatment of HC has largely been abandoned.21

SUMMARY

A graph outlining prognosis for survival and intelligence follows:

![Graph showing survival and intelligence for different diagnoses.]

Legend

- Survivors
- Survivors - IQ > 80

Percent

0 10 20 30 40 50 60 70 80 90 100

Prenatally Diagnosed DWS Spina Bifida Aqueduct Stenosis

References


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Bilateral Posterior Humeral Fracture – Dislocation as a Complication of a Generalized Seizure

Deon F. Louw, MB, ChB1, K. Reddy, MD, FRCSC2, G.R. Sutherland, MD, FRCSC2 and L.G. Sank, MB, ChB3

Generalized tonic-clonic seizures have been associated with various unusual orthopaedic injuries such as fracture-dislocation of the shoulder. In this report, a case of bilateral fracture-dislocation of the humeri associated with a generalized seizure is presented. Synergistic contraction of the shoulder girdle musculature is causally implicated. A high index of suspicion is required for early diagnosis and management of this injury.

The epileptic population suffers a disproportionately increased incidence of bony injury. This may reflect osteopenia secondary to anticonvulsant therapy and/or trauma, either direct or secondary to seizure-induced muscle contraction. Additionally, they are more likely to sustain atypical injuries, for example posterior dislocation of the shoulder. This report presents an unusual case of bilateral posterior fracture-dislocation of the humerus associated with a generalized convolution. Five similar cases have been previously documented.2-6

CASE REPORT

A 70-year-old female presented in 1987 to the Emergency Room with a complaint of severe, bilateral shoulder pain evidently rousing her from sleep. There was no antecedent history suggestive of trauma or systemic malignancy. The family found her to be “confused” to the extent that she was initially unable to recognize her own son.

Relevant past medical history included a subfrontal craniotomy with subtotal resection of a pituitary adenoma in 1977. This procedure was followed by adjuvant radiotherapy (5,000 rads). She remained asymptomatic until 1985 when she presented with episodes of transient “confusion”. The duration of these events varied from 15 to 45 min. Reinvestigation disclosed a large, recurrent pituitary adenoma. In view of her age, she was treated conservatively with a further course of radiotherapy. Electroencephalography (EEG) was not performed at this point, and anti-convulsant therapy not commenced.

The patient was on replacement thyroxine and ibuprofen (Motrin®, Upjohn Company, Kalamazoo, Michigan) for chronic arthritis. Her endocrinologic fol-

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DISCUSSION

Shoulder dislocations and humeral neck fractures constitute a relatively common presentation to the emergency department. Unilateral posterior dislocation of the shoulder is rare, and accounts for only 1.7% to 4.3% of all shoulder dislocations.4 Acute fracture of the humeral head has been reported in the setting of chronic posterior subluxation.5 Bilateral posterior fracture-dislocation is extremely rare with only five other such cases documented in the literature.6 All cases were considered to be secondary to generalized tonic-clonic seizures.

Sequential mechanical events that are peculiar to the phenomenon of a convulsive seizure are likely responsible for the patient’s unusual injuries.4 The position of the shoulder during a convolution is characteristically one of adduction, internal rotation and flexion. In this position, the humeral head is thought to be vulnerable to posterior dislocation were synergistic contraction of the shoulder girdle muscles to occur. Prolonged muscular contraction could result in shearing off the humeral head from an anatomical neck impinged against the glenoid rim.4

The incidence of non-seizure related fractures was reported to be six times greater in epileptics than in the normal population.7 Osteopenia secondary to anticonvulsant therapy may, in part, account for this increased incidence.8 Anticonvulsant medications putatively facilitate degradation of vitamin D and its metabolites via induction of hepatic microsomal enzymes.9 This could result in under-mineralization of bones and a consequent susceptibility to bony injury following trauma. Additional to a generalized increased incidence of all fractures, the epileptic is particularly
Anterior posterior (Fig. 1A) and trans-scapular (Fig. 1B) radiographs showing a fracture of the left anatomical neck with posterior dislocation of the left humeral head. Mild osteoporosis as evidenced by demineralization and thin cortices is also seen.

prone to sustaining vertebral fractures\textsuperscript{10}, acetabular fracture-dislocations\textsuperscript{11} and femoral neck fractures.\textsuperscript{12} Rarely, scapular fractures\textsuperscript{13}, manubriosternal fracture-dislocation\textsuperscript{14} and anterior shoulder dislocation may occur.\textsuperscript{8}

In conclusion, we emphasize the predisposition of the epileptic to orthopaedic injury. These injuries may be unusual in both nature and location, eg. approximately 50\% of posterior shoulder dislocations are overlooked at the initial radiographic examination.\textsuperscript{15} Furthermore, typical clinical features of posterior dislocation (eg. prominent coracoid process) may not be present. It is suggested that postictal or “spontaneous” onset of localized pain (particularly if there is impairment of associated joint movement) requires careful clinical and radiographic evaluation. Biplanar radiographs are essential.

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The authors wish to thank Emi Okamoto and Christine Crocker for their expertise in preparing this manuscript.

References


References continued on page 28.
Preparation of Medico-Legal Reports

R. Gregory D. Hardy,*

Halifax, N.S.

The medico-legal report is the bane of many physicians' existence, perhaps for several reasons. First, you never seem to have enough time or receive enough money for the trouble of sitting down and drafting the darn thing. As well, you're drifting into somewhat unfamiliar territory where you must attempt to present the imprecise science of medicine to a lawyer who revels in probabilities and likelihoods. You cannot be vague and you cannot equivocate. An "I don't know" from you, the doctor, will almost always prompt the lawyer to respond with, "Yes, but could you hazard an educated guess?"

I'm sure none of you took a course in your medical training on how to prepare a medico-legal report. Well, you can take some comfort in the knowledge that none of us lawyers took a course in what to ask for or how to read the stuff. So, the best that we can do is try to help each other, for the benefit of the patient and client.

One of the most common complaints that I have heard from doctors about lawyers is that lawyers are always trying to put words into doctors' mouths. If the doctor says that there is a chance or a possibility that the traumatized knee may develop arthritis, that never seems to be good enough. The lawyer wants to know how much of a chance - can you put a percentage point on it - can you say that there is a "reasonable likelihood" of arthritis - can you say that it is "more likely than not" that the arthritis will develop; We are not pushing you because we are mean or ungrateful or pushy. We push you because we have to deal with the question of causation and with thresholds of legal proof.

For you doctors, the interest is in treating the injury. The cause of the injury is useful for you to know because it impacts on diagnosis and treatment, but once known, your focus is on treating and assisting recovery. What caused the injury in the first place becomes historical data. In my neck of the woods, causation is a hot ticket. In any personal injury case that I advance or defend, I must deal with a threshold of proof that demands that the case be proved "on a balance of probabilities". Thus, I cannot be content with a vague "maybe" from a doctor when a greater exploration may reveal that the doctor meant to say "likely" or "possible but not very likely", because this change in terminology can make a dramatic difference in the legal result. Recently, this whole conflict in our spheres was discussed by one of the pre-eminent authors in legal circles, John G. Fleming, in a scintillating article entitled, "Probabilistic Causation in Tort Law", which is found in the Canadian Bar Review (vols. 68 and 70). He said:

In a paper recently published in this Journal I addressed the problem increasingly faced by some plaintiffs of meeting the traditional standard of proof of causation against negligent defendants in situations where available scientific or statistical evidence cannot tip the balance of probabilities (more probable than not). Thus where a polluter's responsibility for a particular disease or injury, in competition with other natural sources, can only be expressed in terms of statistical or epidemiological evidence short of 50:50, victims, would most likely fail under the traditional standard. An even more frequent occasion in modern litigation is the inability of medical experts to explain the etiology of an injury with a degree of exactitude and confidence postulated by traditional formulas like "reasonable certitude" or "reasonable probability". The inherent limitations of medical knowledge, combined with a tendency of physicians to express outcomes in terms of percentage, create problems of compatibility with legal standards, which are both linguistic and substantive.

Therein is the conflict. But it is not fatal to lawyers and doctors communicating effectively. It merely illustrates the challenges inherent in the process.

Now on to the nitty-gritty of report writing. The medico-legal report should enable the lawyer to understand the doctor's methods, treatment and opinions. It should be written in a comprehensive and comprehensible way. And it should look credible. A scribbled out note on a prescription pad just doesn't pass muster (for one thing, who can read the writing?). Such a report carries with it an attitude that might trigger the opposing lawyer to think, "Is this a sloppy or uncaring practitioner that I should take to task at discovery or on the stand?" A carefully thought-out and well-presented report will not invite attack or scoffing and will stand up to cross-examination. Take the time to do it right and bill appropriately for your trouble.

The general practitioner who is the patient's doctor assumes a particularly important role in the personal injury lawsuit. He or she should be counted on to be an impartial source of information concerning the patient's post-accident condition as contrasted with the patient's pre-accident condition. The G.P. is the link between past and present. In seeking a medico-legal report from the family doctor, the lawyer looks for three main topics of commentary and delights in receiving a report which is broken down into discussion of the following topics:

1. the doctor's clinical evaluation by
   (a) history
   (b) physical examination
2. diagnosis
3. prognosis and commentary

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* The author is a lawyer with the Halifax law firm Haynes lady Dalziel.
1. a) History

The general practitioner, unlike the specialist who sees the patient for the first time on a referral, is in the unique position of being able to draw on months or years of consultations with the patient in developing a medical history. Summarizing months or years of familiarity with a patient can be difficult, but areas which are of interest to the lawyer are:

- comments as to the patient’s pre-injury lifestyle and medical background, such as age, marital status, number of children, particularly the number of children residing at home
- comments as to patient’s education and training in specific areas, and future career plans if known
- patient’s occupation at the time of the injury and the physical demands of that occupation
- areas of the patient’s personal life that make physical demands
- the patient’s previous medical history, specifically previous illnesses, accidents or operations with special attention to previous injuries to the areas in issue, and the extent of any functional impairments as a result of the pre-accident conditions
- information gained from the patient about the dynamics of the accident
- post-accident developments

1. b) Physical Examination

The various formal tests and manipulations used should be chronicled and the observations noted. It is also useful to include informal, general observations, i.e. whether the patient appeared to be in any physical or emotional distress, or whether the patient appeared stiff or uncomfortable, or had trouble getting dressed or sitting, etc.

2. Diagnosis

The diagnosis should be stated in terms of the particular part of the body involved and the nature of the injury or problem. There are probably two schools of thought on this, but I prefer the medical terminology to the layman’s version of the injury, that is, I would rather read the patient suffered a fractured tibia than that she broke her shinbone. The former sounds more authoritative. Of course, using the medical terminology followed by a translation into laymen’s talk is extremely helpful.

Sometimes the diagnosis cannot be stated in certain terms. Then, it is very useful to the lawyer if the doctor ascribes his or her confidence level in the diagnosis.

Severity of the injury is always a big issue. The level of compensation for a victim’s pain and suffering caused by an injury is not simply a function of the severity of the injury, but severity becomes a large factor by reason of the process we lawyers and the courts use to come up with suitable figures. In assessing compensation for an injury, the court is required to achieve some uniformity or predictability and the court seeks guidance in this endeavour from other cases that were decided before. In comparing the case before it with other previous cases involving the same anatomical part, it is inevitable that the relative severity of the injury is assessed. If the doctor in the medico-legal report has classified the ligamentous neck injury as “mild”, “moderate” or “severe” these classifications tend to narrow the focus of the search for comparative cases. The lawyer or judge can search a computer database for cases where the term moderate is used in conjunction with this kind of injury, and a set of comparative cases is generated. The long and the short of this process is that terminology as to degree of severity is very powerful stuff, and the terminology should be used and explained carefully.

If you are going to venture into the classification of an injury as to degree of severity, then I would encourage you to explain in the report what you mean by “mild” or “moderate” or “severe”, so there is no question about this. I find that the patient’s family doctor describes the injury as severe much more often than does the specialist to whom the patient is referred. I suspect there may be some notion that a “severe” rating will somehow help the patient resolve his claim, but if the injury is less than severe, this kind of “puffing up” will only serve to discount the value of your report as a whole.

Also be wary that just as we lawyers use legal jargon, you doctors have your own pet phrases and terms that are not readily understandable. For the longest time I equated the term “acute” with “severe” only to find out much later that the doctor using this term meant that the symptoms were produced suddenly rather than gradually.

3. Prognosis

This is the tricky part of the report, because up to this point, the report is largely narrative and factual. Now you must venture an opinion. In a wonderful resource book entitled Personal Injury: a medico-legal guide to the spine and limbs, Darrell J. Ogilvie-Harris and Geoffrey J. Lloyd, two orthopedic surgeons, offer the following remarks:

So far the statements in the report have largely been a matter of fact. The second part of the report is a matter of opinion, and its quality is obviously a function of the examiner’s background, training, education and experience. Very useful are comments that deal with the following: Has the treatment conformed to the conventional norm? Has recovery occurred within the expected time frame? Also valuable is comment on factors that add to or take away from the credibility of the patient: for example, is there consistency or discrepancy between the findings on the formal examination and the conventional anatomical disability on the patient’s pre-existing functional lifestyle. In the final analysis it is probably this statement, more than any other, that is going to influence the quantum of damages awarded.
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Take the Shannon Park Exit off the MacKay Bridge.
The only thing to add to this is that the wording of your prognosis may have to be attuned to a specific set of criteria, depending on the use to which your report is to be put. If your report is to be used to send to an insurance company on the question of whether the patient is eligible to receive no-fault benefits under an automobile policy or disability benefits under an accident policy, then there are certain threshold tests to be considered and commented upon in the report.

In an auto policy continued eligibility (or no-fault benefits hinges on whether the patient continues to suffer "substantial inability to perform the essential duties of his occupation or employment" within the first two years after the accident, and after two years the question becomes whether the injury "continuously prevents such person from engaging in an occupation or employment for which he is reasonably suited by education, training or experience". These are tests which must be specifically addressed in the prognosis, and a failure to comment about these criteria can mean a significant delay in the patient receiving needed funds.

Example of MedicoLegal Report

Everybody's writing style is different, thank goodness, but a fine example of a specialist's medico-legal report was produced in Personal Injury: medico-legal guide to the spine and limbs, mentioned above.

For copies of this article or the above mentioned Personal Injury: medico-legal guide to the spine and limbs, contact the author.

The author of this article has been given the freedom to express his opinions and use his judgement to interpret the law. Nothing in this article is or should be interpreted as legal, medical, or financial advice from a lawyer, doctor or accountant or from this journal.

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**BILATERAL POSTERIOR HUMERAL FRACTURE**

Continued from page 24.


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**THE NOVA SCOTIA MEDICAL JOURNAL**

FEBRUARY 1992
GUIDELINES FOR THE CONTROL OF MENINGOCOCCAL DISEASE

It is very unlikely there is any physician in Nova Scotia or indeed in Canada that is not aware that meningococcal disease continues to be a significant cause of morbidity and mortality in this country. Generally, invasive disease tends to occur sporadically, with the number of cases rising and falling in a cyclical fashion. Periodically, however, cases can cluster in specific geographic areas producing the need for specific public health measures such as wide spread immunization. As these events have recently occurred in Canada, producing heightened public anxiety about this disease, many physicians and health care institutions in the province have reported a dramatic increase in inquiries from the public with respect to this disease.

*Nisseria meningitidis*, the organism which causes invasive meningococcal disease, has thirteen serotypes of which groups A, B, C, Y and W135 are most likely to cause disease. The group C strain has been seen more frequently in Canada recently and it has been responsible for current outbreak. In 1989 the average reported incidence rate in this country for all regions reporting cases ranged between 0.6 and 16.9 cases per 100,000 population.

Invasive meningococcal disease is primarily a disease of childhood, occurring most frequently in the first year of life. Infants are at increased risk of acquiring the disease by a factor of ten as compared with the general population. In recent years, cases among adolescents and adults have increased substantially, and the disease causes significant mortality and morbidity. In average years the case fatality rate is in the vicinity of 10%. This has increased substantially in adolescents during the recent outbreak in Ontario, where the mortality rate was approximately 50%. For those who do survive the disease, there is a varying rate of sequelae, particularly with respect to neurological damage.

Public health systems generally pay significant attention to invasive meningococcal disease. As a consequence, it is important that its incidence be reported to the appropriate public health authorities with dispatch. As mentioned, the disease usually occurs with sporadic cases but, from time to time, can occur in geographical clusters which are cause for concern. It is important that primary care physicians be aware of the procedures for management of the sporadic case. This is particularly important in Nova Scotia at this time, as the Province is suffering under a significant shortage of Medical Health Officers.

Sporadic cases of invasive meningococcal disease require aggressive contact tracing for the purposes of identifying persons at increased risk of acquiring the disease. This contact tracing and administration of appropriate antimicrobials to individuals at risk is the basis for the prevention of secondary cases. Chemoprophylaxis will prevent further transmission to susceptible individuals, abort an infection and eradicate colonization in those who may be carrying the organism. As treatment of the disease does not eliminate carriage of the organism in those that are ill, it is important that the index case receive appropriate chemoprophylaxis prior to being discharged from hospital.

Individuals who have had close contact with cases of meningococcal disease are at increased risk of acquiring the disease. *Close contact* is defined as individuals who are likely to have had contact with the oral/nasal secretions of a case of disease. These would include family members living in the residence of the case, individuals in day care or nursery school where a case has occurred, and sexual contacts or others who may have been exposed to the oral secretions of the case. Increased risk of secondary cases has not been demonstrated for those who have had casual contact with sporadic cases. In the health care setting, those health care workers who have had intimate contact with the nasal pharyngeal secretions of a case require prophylaxis. In some instances where travellers have been in close contact with an index case, chemoprophylaxis may be prescribed for some individuals.

Determining the list of potential contacts of an index case and the advisability of prescribing chemoprophylaxis for these individuals, is a critical aspect of the management of sporadic cases. This information should be collected as soon as possible after the diagnosis of the index case. Physicians should be fully knowledgeable of the processes involved. It is recommended that the follow up and decisions regarding prophylaxis treatment should be made in close contact with the medical health officer and/or the provincial epidemiologist.

Either Rifampin orally every 12 hours for a total of four doses, or a single intramuscular dose of ceftriaxone are acceptable drugs for chemoprophylaxis. The dose of Rifampin is 10 milligrams per kilogram per dose for a maximum of 600 milligrams. Some experts recommend the dose be reduced to five milligrams per kilo for infants younger than one month. Although resistance to Rifampin has been reported, it has not yet been shown to be of practical public health importance. Because the safety of Rifampin has not been established in pregnancy, ceftriaxone should be used in pregnant women.
recommended dose of ceftriaxone is a single intramuscular injection 250 milligrams for adults and 125 milligrams for children 15 years of age. The drug should be diluted with 1% lidocaine to reduce pain at the injection site.

The choice of drug to be used in any individual depends on the circumstances at the time including the availability of the drug, the number and ages of contacts to be treated, availability of personnel to administer injections and other logistical considerations. Although sulphonamide has been shown to be effective, it should not be used as a first line prophylaxis unless the strain is known to be sensitive because of the relatively high prevalence of resistant strains.

It should be noted that nasopharyngeal cultures have no role in the management of cases and contacts.

The management of outbreaks of invasive meningococcal disease is a public health responsibility, although primary care physicians should be knowledgeable of what is involved, particularly at this time in Nova Scotia where Medical Officers of Health are in very short supply.

The proper management of an outbreak requires a process of active surveillance where there is daily reporting of new cases. Complete notification of cases is essential in these situations. Appropriate epidemiological data is required on each case, particularly with respect to age, sex, place of residence, recent travel, attendance or employment at a day care or school, participation in recent athletic or recreational events/recent gatherings. Microbiological data is required for serological grouping of isolates. This information is critical if appropriate decisions regarding control are to be made.

Control measures include expansion of the use of chemoprophylaxis agents in a community where the outbreak is occurring. The use of meningococcal vaccine is appropriate when the outbreak is caused by one of the serogroups contained in the vaccine. The currently available quardrivalent vaccine contains 50 micrograms of each of groups A, C, Y and W135 polysaccharide. The use of a vaccine in a population and delineating high risk groups for which it may be effective, is generally a public health responsibility. If the incidence in a defined group exceeds the acceptable incidence of meningococcal disease and if there is evidence of active spread, the use of the meningococcal vaccine is generally justified. The efficacy of the vaccine differs, depending upon the subgroup and the age of the person being protected. For those under the age of two years, the use of group C meningococcal vaccine is controversial as there is very little published evidence of efficacy in this age group. However, in outbreak situations, the vaccine is usually recommended for children over the age of six months. Physicians may receive inquiries from individuals who are travelling to areas of Canada where meningococcal incidence is increased. Generally, immunization of these individuals is not recommended unless they are planning to remain greater than three weeks in an area where meningococcal vaccination if being used as a control strategy.

In summary, invasive meningococcal disease remains a significant disease from both a clinical and public health perspective. It is important that primary care physicians be knowledgeable of the management sporadic cases as well as understand appropriate procedures to follow when cases occur in clusters in a community. A full range of knowledge by practising physicians of this disease will enable them to provide appropriate and sound advice to the public and hopefully reduce the great anxiety which occurs around this disease.

Editors Note: The material outlined in this report was obtained from the Canada Diseases Weekly Report, Volume 17-45, published by Health and Welfare Canada, November 9, 1991.
Dr. Harold MacKean was born in Tony Mills, Pictou County, in August 1910, the son of a Presbyterian Minister. From the beginning of his boyhood student years in Pictou and Shelburne, his brilliant mind and memory were in evidence. He studied Medicine at Dalhousie University, Nova Scotia, graduating M.D. in 1934, a gold medal winner in his year.

After graduating he took up General Practice in Millertown Newfoundland, where he met and later married Dorothy Phillips, a dedicated senior SRN, and lifelong support to Dr. MacKean in his future career as Eye and Ear Specialist.

Pre-war, he carried out postgraduate study and training in ENT in Edinburgh University, Scotland, returning as FRCS to set up EENT practice in Truro, Nova Scotia. He joined the RCAMC as ENT specialist serving with distinction overseas.

In 1946 he returned to his practise in Truro, working selflessly and single-handed for the counties of Pictou, Cumberland, Colchester and East Hants helping to establish a 6-bed EENT unit in New Glasgow. During a long professional life of dedicated care of thousands of patients, he earned the well deserved esteem of the citizens of Truro and the Colchester Hospital. He held office as Chief of Staff of the Colchester Hospital, and President of the Colchester East Hants Branch of the Medical Society of Nova Scotia.

A quiet-spoken unassuming man, he enjoyed ornithology and travel after his retirement. He died in September after a long illness, which he bore bravely. He is survived by his four daughters, Libby, Barbara, Kathy and Heather, and three grandchildren.

Dr. Malcolm D. Scott, Brookfield, N.S.

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Dr. Charles J. David

July 29, 1937 - May 21, 1991

The members of The Medical Society of Nova Scotia and all of his colleagues at the Victoria General Hospital deeply regret the passing of Dr. David last summer of cancer.

Dr. David came to Halifax in 1969 after training in the United Kingdom and Chicago. He joined the Department of Psychiatry at the Victoria General Hospital where he was an exemplary clinician and teacher with active research interests for the next 22 years. During his tenure, he was Clinical Director of the Psychiatric Unit at the Victoria General Hospital. He was a past president of the Nova Scotia Psychiatric Association and Provincial Director for the Canadian Psychiatric Association. He was a Fellow of the Royal College of Canada and in 1982 was awarded a “Certificate of Merit” by the Nova Scotia Mental Health Association.

He had a very active career, teaching and practising throughout Nova Scotia, while being very much in demand by his G.P. colleagues for clinical update sessions. He loved his work and had the respect and admiration of his colleagues for his dedication and expertise. In his spare time, he was an active amateur painter and jazz aficionado. He also found the time to help his wife Yasmin raise four wonderful children, Chamin, Farah, Saira and Ariz.

We will all miss him greatly, but his achievements and inspiration will not soon be forgotten.

Dr. M. Ellis, President, Dartmouth Branch Society.

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Dr. Douglas Reid Norman was a caring and generous person. He was born in Port Union, Newfoundland and his early years of education were spent in a one-room school house. It was only in High School that he was introduced to a somewhat larger school. From there he went on to Memorial University in St. John’s to begin his undergraduate studies. He then came to Halifax and continued his education at Dalhousie’s School of Medicine, where he graduated with his Doctor of Medicine degree in 1974.

After graduation, he and his wife Hedy moved back to Newfoundland. There he worked for the Government of Newfoundland as a general practitioner at Markland Cottage Hospital in Whitbourne. Douglas served as the chief medical officer at Markland for ten years, after which time he and his wife and daughter moved to Canning, Nova Scotia.

Douglas practised medicine in the Canning and Kentville area until his sudden death on November 20, 1991. He is survived by his wife Hedy and daughter Andrea Maria, as well as sister Sarah Callahan and four brothers Allan, Albert, James and Barry all of Newfoundland. He was predeceased by his father, Jordan Norman, and his mother Barbara who is still living in Newfoundland.

Throughout his career Douglas worked tirelessly with others for what he believed in. In Whitbourne it was for continuing medical services to outlying districts such as Markland, whose cottage hospitals were being closed one by one. And in Kentville by becoming involved with the Valley Health Services Association and the Department of Emergency Medicine amongst others. He tried to play an active and constructive role whenever he was asked to serve on a committee, and his attitude towards colleagues and patients alike was one of quiet and serious dedication.

Douglas was a devoted father and husband who somehow found time for family and friends, as well as many and varied hobbies such as gardening, wood-working, photography, music and travel. His greatest enjoyment was a deep appreciation for the beauty and wonder of nature.

Douglas died at the early age of forty-two and he will be sadly missed by his loving family and friends for he touched the lives of many in his gentle and caring way.

---

Dr. Harold Ross MacKean

Dr. Douglas Reid Norman

THE NOVA SCOTIA MEDICAL JOURNAL

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FEBRUARY 1992
There is one report suggesting that the concomitant use of trazodone and buspirone may have caused 2- to 4-fold elevations in SGGT (ALT) in a few patients. In a similar study, attempting to replicate this finding, no interaction effect on hepatic transaminase was identified.

Because the effects of concomitant administration of buspirone with most other psychotropic drugs have not been studied, the concomitant use of buspirone with other CNS active drugs should be approached with caution.

In vitro, buspirone does not displace tightly bound drugs like phenytoin, propranolol, and warfarin from serum proteins. However, there has been one report of prolonged prothrombin time when buspirone was added to the prothrombin time test in a patient who was also chronically receiving phenytoin, phenobarbital, and Synthroid. In vitro, buspirone may displace firmly bound drugs like diazepam. The clinical significance of this property is unknown.

There have been no reports to date of interference of buspirone with commonly employed clinical laboratory tests.

Drug Abuse and Dependence: Although preliminary animal and human investigations suggest that buspirone may be less likely to produce physical dependence than barbiturates, there is no controlled data on the effects of buspirone in patients with a history of drug abuse or addiction. Therefore, it is reasonable to assume that buspirone should not be used in patients with a history of drug abuse or addiction.

Use in Patients with Impaired Hepatic or Renal Function: Since it is metabolized by the liver, buspirone should be used with caution in patients with a history of hepatic or renal impairment. It is contraindicated in patients with severe hepatic or renal impairment.

Use in Children: The safety and effectiveness of buspirone in individuals below the age of 18 years has not been established.

Use in the Elderly: Buspirone has been systematically evaluated in older patients. Although it appears to produce less depression than alcohol, there have been no controlled studies in elderly patients with a history of alcoholism. Therefore, it is reasonable to assume that buspirone should be used with caution in elderly patients at risk for alcoholism.

Use in Pregnancy and Lactation: The safety of buspirone during pregnancy and lactation is not known. However, since it is excreted in breast milk in relatively small amount, breastfeeding should be considered only if the potential benefit to the mother justifies the potential risk to the infant. Safety for use during pregnancy has not been established.

Use in Patients with Impaired Hepatic or Renal Function: Since it is metabolized by the liver, buspirone should be used with caution in patients with a history of hepatic or renal impairment. Therefore, it is contraindicated in patients with severe hepatic or renal impairment.

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sustained-release ketoprofen capsules
150 mg and 200 mg

Anti-inflammatory analgesic agent

**ACTION and CLINICAL PHARMACOLOGY:** Animal pharmacological studies have shown that ketoprofen possesses anti-inflammatory, analgesic, and antipyretic properties, which are not mediated through the peripheral site of action. Its therapeutic effectiveness has been demonstrated by a reduction in joint swelling, pain, and disease activity in the acute inflammatory response and an improvement in functional capacity. Clinical trials in patients with rheumatoid arthritis and osteoarthritis have shown that when given in a dose of 100 mg or more, ketoprofen is comparable to that of twice daily administration of ketoprofen 100 mg capsules b.i.d. Ketoprofen 200 mg daily reduced gastric bleeding more effectively than the 150 mg dose, but the improvement was not statistically significant.

Ketoprofen is a member of the cyclooxygenase family of non-steroidal anti-inflammatory drugs (NSAIDs) and is used primarily for the treatment of osteoarthritis and rheumatoid arthritis. It is available in the form of a sustained-release capsule.

**INDICATIONS AND CLINICAL USES:** Ketoprofen (orosomucoid) is indicated in the treatment of rheumatic arthritis, ankylosing spondylitis, and osteoarthritis.

**CONtraindications:** Ketoprofen is contraindicated in patients with active peptic ulcer or active inflammatory bowel disease of the gastrointestinal tract. It should not be used by those who have demonstrated hypersensitivity to the drug. Because of cross-sensitivity, ketoprofen should not be given to patients in whom acetylsalicylic acid (ASA) has caused symptoms of asthma, rhinitis, or urticaria. Fatal anaphylactic reactions have occurred in such individuals.

**Warnings:** Peptic ulceration, perforation and gastrointestinal bleeding have been reported during ketoprofen therapy. In patients given ketoprofen, an increased risk of gastrointestinal bleeding has been observed. In some patients, the use of ketoprofen may be associated with increased risk of bleeding, especially in patients who are taking aspirin or other non-steroidal anti-inflammatory drugs, and in those with a history of gastrointestinal disease.

**DOSAGE AND ADMINISTRATION:** Adults: The usual dosage is 150 mg or 200 mg a day, divided into two or three equal parts. The dosage should be individualized for each patient, depending on the severity of the condition and the response to the drug.

**Precautions:** Ketoprofen may cause drowsiness, dizziness, and some patients may experience dry mouth, mouth ulcers, and tinnitus. Therefore, patients should be monitored regularly. Also, patients with active peptic ulcer disease, renal insufficiency, or history of gastrointestinal bleeding should be monitored closely.

**Adverse Reactions:** Gastrointestinal: The most frequently observed adverse reactions were abdominal pain, nausea, vomiting, and diarrhea. These reactions were usually mild and did not require discontinuation of therapy.

**Product Monograph:** This product is available in one form only, OROX (oral suspension) and may be purchased from your local pharmacy or health care provider. The product information is available on request.

**References:**

**Atrovent** (ipratropium bromide), a quaternary ammonium derivative of atropine, is an anticholinergic drug which has bronchodilator properties.

**PRESCRIBING INFORMATION**

**THERAPEUTIC CLASSIFICATION**

Bronchodilator

**ACTION** – Atrovent (ipratropium bromide), a quaternary ammonium derivative of atropine, is an anticholinergic drug which has bronchodilator properties.

**INHALATION** – When given via the nebulizer, the drug reaches the respiratory tract in a form where it is rapidly absorbed. Two to three minutes after inhalation, the onset of action is noted within 5 to 15 minutes, with a peak response between 1 and 2 hours, lasting about 2 additional hours, with subsequent decline from this peak. The bronchodilator is still evident 8 hours after inhalation.

**Use in Pregnancy** – The safety of Atrovent when pregnancy is confirmed or suspected must be weighed against the possible hazards to the fetus. Studies in rats, mice and rabbits showed no embryotoxic or teratogenic effects.

**Use During Lactation** – No specific studies have been conducted on excretion of this drug in breast milk. Benefits of Atrovent use during lactation should be weighed against the possible effects on the infant.

**Use in Children** – The efficacy and safety of Atrovent in children younger than 5 years has not been established.

**Use with Other Drugs** – In patients receiving other anticholinergic drugs, Atrovent should be used with caution because of possible additive effects.

In patients with glaucoma or narrow anterior chambers, the administration by nebulizer of a combined Atrovent and a β₂ agonist solution should be avoided unless measures (e.g., use of swimming goggles) are taken to ensure that nebulized solution does not reach the eyes. Exposure of the eyes of such patients to a nebulized combination of Atrovent and a β₂ agonist solution has been reported to result in increased intraocular pressure and retina angle closure.

Atrovent solution should not be mixed with sodium cromoglycate. If the patient’s condition requires the administration of sodium cromoglycate, it should be given separately.

**INDICATIONS AND CLINICAL USES** – Atrovent (ipratropium bromide) solution is indicated for the therapy of acute exacerbations of chronic bronchitis (see Clinical experiences) when used in conjunction with a β₂-agonist stimulant solution such as fenoterol or salbutamol, is indicated for acute asthmatic attacks. It should be administered by compressed air or oxygen driven nebulizers.

**CONTRAINDICATIONS** – Known hypersensitivity to Atrovent (ipratropium bromide), to any of the product ingredients, or to atropines.

**WARNINGS** – Atrovent (ipratropium bromide) solution contains the preservative benzalkonium chloride and disodium ethylene diamine tetra-acetic acid – EDTA disodium. It has been reported that these preservatives may cause bronchiolitis in some patients with hyperreactive airways.

Atrovent should not be used alone for the abatement of an acute asthmatic attack since the drug has slower onset of effect than that of an adrenergic β₂ agonist.

Care should be taken to ensure that the nebulizer mask fits the patient's face properly and that the nebulized solution does not escape into the eyes. There have been isolated reports of ocular complications (i.e., mydriasis, increased intraocular pressure, angle closure glaucoma) when nebulized ipratropium bromide alone or in combination with an adrenergic β₂ agonist solution has escaped into the eyes. In the event that glaucoma is precipitated or worsened, treatment should include standard measures for this condition.

**PRECAUTIONS** – Patients should be instructed in the proper use of the nebulizer.

- Caution should be exercised against accidental removal of the solution into the eyes.

- In patients with glaucoma, prostatic hypertrophy or urinary retention, Atrovent (ipratropium bromide) should be used with caution.

- If a reduced response to Atrovent becomes apparent, the patient should seek medical advice.

- Aerosol solution, when administered to patients with acute severe asthma, should be used with concomitant β₂-adrenergic stimulant therapy.

**Use in Pregnancy** – The safety of Atrovent in pregnancy has not been established. The benefits of using Atrovent when pregnancy is confirmed or suspected must be weighed against the possible hazards to the fetus. Studies in rats, mice and rabbits showed no embryotoxic or teratogenic effects.

**Use During Lactation** – No specific studies have been conducted on excretion of this drug in breast milk. Benefits of Atrovent use during lactation should be weighed against the possible effects on the infant.

**Use in Children** – The efficacy and safety of Atrovent in children younger than 5 years has not been established.

**Use with Other Drugs** – In patients receiving other anticholinergic drugs, Atrovent should be used with caution because of possible additive effects.

In patients with glaucoma or narrow anterior chambers, the administration by nebulizer of a combined Atrovent and a β₂ agonist solution should be avoided unless measures (e.g., use of swimming goggles) are taken to ensure that nebulized solution does not reach the eyes. Exposure of the eyes of such patients to a nebulized combination of Atrovent and a β₂ agonist solution has been reported to result in increased intraocular pressure and retina angle closure.

Atrovent solution should not be mixed with sodium cromoglycate. If the patient’s condition requires the administration of sodium cromoglycate, it should be given separately.

Mixing of Atrovent solution and sodium cromoglycate produces a cloudy solution.

**ADVERSE REACTIONS** – The frequency of adverse reactions reported in 214 patients receiving Atrovent (ipratropium bromide) solution was as follows:

- Dry mouth or throat, 9.3%;
- Bad taste, 5.1%;
- Tremor, 4.2%;
- Exacerbation of symptoms, 4.2%;
- Burning eyes, 0.9%;
- Nausea, 0.9%;
- Sweating, 0.9%;
- Cough, 0.9%;
- Headache, 0.5%;
- Palpitations, 0.5%.

The adverse effect judged to be most severe was exacerbation of symptoms. This occurred in 8 patients treated with Atrovent solution alone, 6 of whom withdrew from the clinical studies. Bronchospasm occurred in 3 patients with acute severe asthma who received Atrovent solution alone. In two patients, this was reversed after therapy with a β₂ sympathomimetic solution. The third patient received no other therapy. The following adverse effects were reported by patients who received the combination of Atrovent and a β₂ agonist (either fenoterol or salbutamol) with that of the β₂ agonist alone.

**ADVERSE REACTIONS – 1**

**ADVERSE REACTIONS – 2**

**ADVERSE REACTIONS – 3**

**SYMPTOMS AND TREATMENT OF OVERDOSE** – Doses of Atrovent (ipratropium bromide) up to 1.2 mg (approximately 30 times the therapeutic dose) have been administered by Atrovent inhalation without serious systemic anticholinergic effects. Should signs of serious anticholinergic toxicity appear, cholinesterase inhibitors may be considered.

**DOSEAGE AND ADMINISTRATION** – In adults, the average single dose is 1 mL of Atrovent (ipratropium bromide) solution, containing 250-500 µg of ipratropium. In children, aged 5-12 years, the recommended dose is 0.5-1 mL (125-250 µg of ipratropium). This should be diluted to 3-5 mL with preservative free sterile Normal Saline (Sodium Chloride Inhalation Solution, USP 0.9%) or with a bacteriostatic sodium chloride solution 0.9% preserved with benzalkonium chloride (see PHARMACEUTICAL INFORMATION).

**PHARMACEUTICAL INFORMATION – Stability and Storage Recommendations** – Unopened bottles of Atrovent (ipratropium bromide) solution should be stored at controlled room temperature (below 31°C). Solutions diluted with 0.9% w/v sodium chloride solution, USP 0.9% should be used within 24 hours from time of dilution when stored at room temperature and within 46 hours if refrigerated.

**REFERENCES**


OBITUARIES

Dr. Harold R. McKeen (81) of Truro, Nova Scotia died on September 1, 1991. Born in Toney Mills, Pictou County, he received his medical degree from Dalhousie Medical School in 1934 with distinction winning the gold medal. He did postgraduate studies in Edinburgh and served in both the Royal and Canadian Army Medical Corps. He practised in Truro until 1984 and he was nominated a senior member of The Medical Society of Nova Scotia in 1984. He is survived by his four daughters to whom the Journal extends sympathy.

Dr. George Shimotakahara, (71) of Antigonish, Nova Scotia died on January 25, 1992. He received his medical degree from McGill University in 1944 and taught surgery as an associate professor at McGill's Department of Otolaryngology. After 30 years of specialty practice in Montreal, he moved to Antigonish and founded the Department of Otolaryngology. He is survived by his wife, two daughters and two sons. We offer our sympathy to his wife and family.

Dr. C.R. Benson Auld, (68) of Halifax, Nova Scotia died on February 2, 1992. Born in Prince Edward Island, he received his medical degree from McGill University in 1949. He did postgraduate studies in general surgery in British Columbia and Halifax, and was a member of the faculty of Medicine, Dalhousie University. He was a member of the Medical Society of Nova Scotia and the Canadian Medical Association. He is survived by his wife, a son and three daughters. The Journal extends sincere sympathy to his wife and family.

Dr. Rueben S. Shlossberg, (85) of Halifax, Nova Scotia died on February 11, 1992. He received his medical degree from Dalhousie Medical School in 1928. He did postgraduate training in ophthalmology and otolaryngology and later established a practice in New Glasgow and Halifax, before locating permanently in Halifax in 1959. He was a member of The Medical Society of Nova Scotia and the Canadian Medical Association. Our sincere sympathy is extended to his daughter and son.

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Antonia Novello,
US Surgeon General

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