INTER-RELATIONSHIP DIGRAPH

Another type of cause-and-effect diagram is an *inter-relationship digraph* (*di* is short for directional). This type of diagram adds a layer of complexity, but helps identify problems that, when addressed properly, provide the greatest benefits

FIGURE 7 below is a sample inter-relationship digraph for the problem of high no-show rates. The basic steps are as follows:

1. Brainstorm the potential causes of the problem, group similar concepts together, and label these nodes A, B, C, etc.
2. Identify cause and effect, and draw directional arrows. For example, too much paperwork (node G) leads to an overworked staff (node D), and consequently an unfriendly environment for clients and staff (node A). There may be cases when arrows point both ways, which typically indicates a vicious cycle. Again, if the problem is too complex, break up the diagram into manageable parts.
3. Count the number of arrows coming into and going out of each node. These counts determine:
    *   the root *causes*—the nodes that have the most number of arrows coming *out* of them,
    *   and the key *indicators*—the nodes that have the most number of arrows going into them.
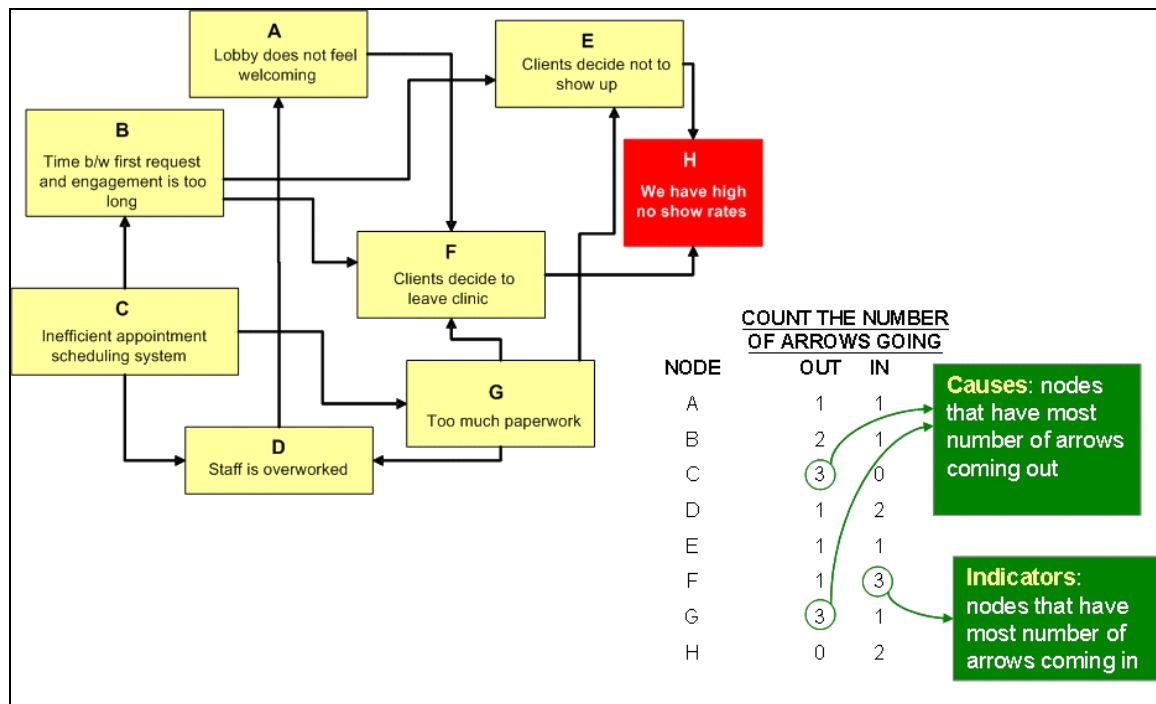

FIGURE 7: SAMPLE INTER-RELATIONSHIP DIGRAPH ON HIGH NO-SHOW RATES

Focusing on the root causes (in this case, nodes C and G) provides the greatest benefits as they help resolve other problems down the stream. Measuring and monitoring the key indicators (such as node F) give clues on overall system performance.