Remote Agents

Assessment of the Use of Remote Agents to Deliver Health Line Services

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1) *Literature Review: Evaluative Aspects of Health Line Initiatives*
2) *Environmental Scan: National and International Health Lines*
3) *Unique Uses of Health Lines: Summary Document*
4) *Non/Low-user: Cross-Jurisdictional Study*
5) *Remote Agents: Assessment of the Use of Remote Agents to Deliver Health Line Services*
6) *White Paper: Improving the Sustainability of the Health Care System*
7) *Evaluative Aspects of Health Lines: An Evaluation Framework*

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Context

A previous examination of the literature on the topic of health lines[1] indicates that there is little question that health lines have the potential for a bright future and will significantly contribute to a national agenda to both increase access and improve the quality of health services while maintaining affordable and sustainable health care. Indications are that the Canadian public has accepted health lines—they appreciate the type of services provided and rate service as "good" to "excellent".

The Multi Jurisdictional Collaboration on Health Lines was created to support health line development and adoption across seven jurisdictions in Canada (4 Western provinces and the 3 Territories). Currently, the jurisdictions have adopted call centre infrastructure that is similar to most other health lines. Typically, these are large centralized systems serving regional health jurisdictions, small and large clinics, hospitals and other medical facilities—some call centres serve across jurisdictions.

The Collaboration's commitment is sizable and the seven jurisdiction partnership expects to leverage that investment to "gain efficiencies in the delivery of primary health care services" and to sustain the health line infrastructure in the "face of increasing demand." However, staffing shortages and the need for specialized services increases the demand on health lines operations to creatively and economically respond to growing demand for services. One solution is to use remote call centre solutions to deliver health line services.

Remote agents or distributed call centres are health line infrastructures where staff (nurses) receiving calls do not serve in a central location, but rather answer telephone queries from a smaller satellite centre or from their own homes. This rapid integration of smaller systems to the larger system has the potential to alleviate staffing concerns by tapping into the large number of health professionals that may choose to live in a smaller community or work from their place of residence. On the other hand, integration brings issues of connectivity, security, liability, licensure and legal issues.

The purpose of this review is to assess current knowledge and learning around the use of remote agents to deliver health line services. In particular, the review focuses on benefits and challenges associated with the use of remote agents to deliver call centre services and provides a brief look at technological applications and considerations for remote agent service delivery.

Search Strategy

Initial search terms used were informed in part by previous searches conducted for the *Literature Review – Evaluative Aspects of Health Lines*. Additional search terms and the overlying search strategy were outlined by the evaluators. This strategy was then applied to three databases: Medline, CINAHL and PsycINFO. A slightly revised version of the search strategy was applied to PubMed, ABI Inform and Business Source Premier depending on the organization of the database and the indexed terms used. Tailoring the strategy to each

[1] See the deliverable entitled *Literature Review: Evaluative Aspects of Health Line Initiatives* prepared by Howard Research & Management Consulting Inc. for the Multi Jurisdictional Collaboration on Health Lines.

database ensures that results are broad and comprehensive. Finally, grey literature[2] was searched for relevant material. A complete search history for each database can be found in Appendix B.

NOTE: Some literature relating to telework more generally was also included in this review (262; 263; 266; 267). Where important, information that relates to telework in general rather than to remote call centres specifically is identified.

Database

A database (created in Microsoft Access) serves as the bibliography for this literature synthesis. The database contains all sources for the current review as well as for the previous review conducted on evaluative aspects of health lines. Those records relating to "remote" are distinguished by a "Remote Agents" field. A list of all records contained in the database relating to the current review – a total of 29 records – can be found in Appendix A.

All text citations in this literature review follow an unconventional format based on the *record number* in the database. However, should the review be considered for publication corresponding records can be easily converted to a conventional format—all bibliographic data are included in each record.

All sources were rated using criteria developed by the evaluators. Criteria were developed specifically for the overall literature review relating to the evaluative aspects of health lines, rather than for the current literature review. As such, applying the previously developed rating criteria to articles that focus solely on the remote aspect of health lines tended to result in a low rating due to the nature of the articles (generally not rigorous academic articles). Therefore, the evaluators deemed it most appropriate to apply a rating of NA (not applicable) to articles contained in the current review. For more detail on the rating criteria and article rating process please refer to Appendix C.

[2] "Grey literature" is the term that collectively includes academic papers, preprints, committee research, technical or government reports, standards, discussion papers, newsletters, trade literature and working papers. The major producers of grey literature include government, research institutes, schools and universities. Grey literature is often an important source of information on programs, projects and policies that go unreported in academic journals.

Introduction

Implementing remote call centre solutions, such as remote agents and distributed call centres, is an emerging phenomenon. As the technology to support remote call centres progresses remote options become more viable. However, research into remote call centres is limited and the majority of the literature in the area is from sources such as call centre magazines, editorials and company reports. There is a dearth of academic literature in the area.

In the literature that is available, terminology associated with remote call centres is unclear. A variety of terms are used and are sometimes defined differently or not defined at all. These terms include distributed call centre, virtual call centre, virtual contact centre, remote agents and remote home agents. Use of the term "distributed call centre" provides an example of the lack of congruency among terminology employed. In some instances the term is defined as disparate locations connected through a network (257) while in others it refers to agents working from home (256); in still other cases both scenarios are included under the umbrella of "distributed call centre" (255).

Regardless of terminology there are two primary scenarios discussed in relation to remote call centres:

1. A call centre that is comprised of a number of smaller, disparate locations that are connected through a network, generally to a central location.
2. Call centre agents (e.g., triage nurses) that are connected to a central location through a network and work from home.

For the purposes of this report the following terminology and definitions will be adopted:

- Remote agent – call centre agent who works from home
- Distributed call centre – disparate call centre locations that are linked through a network to a central location
- Remote call centre / call centre solutions – refers to the concept of the remote call centre in general terms, that is, refers to any or all of the above scenarios at once

Changes within call centres themselves have paved the way for the remote call centre. Specifically, a shift in the focus of call centres from a cost-focus to a customer-focus has facilitated the emergence of remote solutions (237; 255; 259). A remote call centre model enables companies to organize their call agents and the provision of service in whatever manner is best suited for them and their customers (259). One source goes beyond this shift to suggest that a movement from a "customer-centric" focus to an "agent-centric" focus has begun (259).

There is evidence that just as telecommuting is growing in popularity in a number of industries, adoption of remote call centre solutions is also increasing (132; 133; 223; 235; 254). One source indicates that the market for virtual call centre outsourcing services is growing by approximately 30% per year (132) while others report that at Intellicare – a large healthcare call centre outsourcing company – 75 to 80% of call centre nurses work from

their homes (133; 232). In 2003 McKesson, another healthcare call outsourcing company, had several nurses working from home and planned to send more home (132). Similarly, SSM Health Care, a third company of the same nature, had on staff eleven nurses who worked from home in 2003 and the company had plans for all nurses to eventually work from home on a permanent basis (235).

While it is evident that the use of remote solutions is growing in some organizations, it is unclear how widespread adoption of these options is. One 2004 article points to the statistic that among the top 50 teleservice agencies, only 9% employ remote agents (250). Another reports on a 2002 survey in the United States which found that nearly one third of call centres were evaluating the implementation of remote agents (254). However, according to surveys conducted by the International Telework Association and Council (ITAC), telework is a widespread phenomenon across industries (266). The *2001 Telework America Summary* reports that approximately 28 million Americans are engaged in telework of some sort with working from home or on the road as the most common variations of telework (266). Estimates for the number of teleworkers[3] in Canadian settings for the same timeframe (2001) are 1.5 million workers, with growth estimates of 6-10% per year out to 2008.[4]

Implementing a remote call centre means more than just obtaining the necessary technology and sending employees home (although this is an important step in the process). Remote solutions have far-reaching implications for organizations—from technological and security concerns to productivity and management issues to quality of life considerations. The primary purpose of reviewing the literature on remote call centres is to identify these implications and associated benefits and challenges, and to pull out key learnings and areas that require careful consideration.

[3] Working at least 8 hrs/month from a remote setting such as home and connected to a central office via telecommunications technology
[4] http://www.ivc.ca/studies/canadianstudies.htm

Technology: Applications & Considerations

Technological issues present in the literature related to remote call centres fall within two primary groupings:

a) technological applications (i.e., the technology itself), and
b) issues and considerations related to technology.

Technology: Applications

In terms of the technology itself, one of the prevailing themes in the literature is the potential of emerging technologies to "transform" or, at the very least, impact the functioning of call centres. In this instance the emerging technology is IP (Internet Protocol) – generally referred to as Voice over IP (VoIP) when discussed in relation to telephone technologies (237; 248; 249; 250; 251; 255; 260). Because VoIP can function over any data network, distance between sites or between caller and call agent is not a barrier in the same way that distance calling over regular phone lines, or PSTN (public shared telephone network) is (248; 249; 255).

Each of the respective voice applications have their advantages, and either could provide a company with the most value depending on the context it is to be used in (255):

- PSTN – A public shared telephone network may be most cost-effective if virtual agents are located within a local calling area.
- VoIP – Voice over IP may be most cost-effective if call agents or satellite call centres are located in areas that are not local to the data centre. According to one article, IP technology "eliminates the need for expensive networking packages or remote agent equipment" (248, p. 94).

Other technologies discussed in the literature are those related to automatic call distributors (ACDs) and call routing (248; 251; 254; 258). Call routing is an important component of ensuring that the appropriate calls are directed to appropriate resources, or agents (258). Different ACD and routing technologies may be suitable for different situations. For example, for call centres that cover a broad geographical area an Internet ACD can be used in conjunction with IP technology to eliminate physical distance constraints and efficiently queue and distribute calls internationally (248).

Naturally, broadband technology has advantages over dialup internet connections and is an important factor in telework (267).

Technology: Considerations

When reviewing the literature it becomes clear that there is much more to consider when thinking about appropriate technologies than the technology itself. There are a number of variables that must be taken into consideration, including the following:

1. Reliability and stability of the technology (134; 223; 235)

2. Security, viruses, the need for protection and associated costs (132; 134; 223; 248; 251; 255; 267)
3. Cost / cost-effectiveness of the technology (132; 134; 249; 251; 255)
4. Quality of phone connections / voice quality (223; 249; 250; 251)
5. Speed and connectivity (223)
6. Adequate bandwidth (251)
7. Special capabilities that may be required, such as call recording (223), electronic availability of reference materials for nurses (223) and monitoring capabilities – both historical and real-time (254; 259)
8. Ability to handle various incoming and outgoing media types and integration of various media types (i.e., the World Wide Web), if necessary (237; 256)

In addition to the topics outlined above, two other areas for consideration emerge that warrant a slightly more detailed discussion.

The first of these two areas is usability. A key point that arises in the literature is the need for whatever technology is adopted to be appropriate for the task that it is required to perform, the abilities of the user and the requirements of supervisors and/or managers (251; 259; 262).

Secondly, in the case of using remote home agents careful consideration needs to be given to who (company or agent) will assume responsibility for various aspects of technology (133; 252). At Intellicare many nurses provide their own PCs and headsets while the organization provides the required infrastructure (133). At McKesson, nurses are also expected to supply their own PCs and broadband connections; if there is a problem with the connection the responsibility falls on the nurse (252).

Benefits

The benefits associated with using remote call centre solutions are more prominent in the available literature than are detractors. Benefits identified fall into five key areas:

1) Human Resource Issues
2) Job Satisfaction and Performance
3) Service Delivery
4) Quality of Life
5) Cost Savings

Each of these areas is discussed in more detail below.

Human Resource Issues

Finding an adequate number of qualified staff for call centres can be a challenge (253; 254), particularly for health-related telephone lines due to nursing shortages (223). According to the literature, implementing remote agents or distributed call centres may be a strategy to lessen this problem by addressing three related issues:

a) high staff turnover
b) the available labour pool
c) recruitment

Increased Employee Retention

High staff turnover is a significant problem for call centres (250; 254). The literature suggests that by using remote call centre solutions employee retention increases (132; 134; 223; 250; 252; 254; 255; 259; 262; 263). In turn, training costs decrease as new staff do not have to be trained to replace those that move on (132; 254). Providing the option of working from home may be particularly beneficial in retaining the “best” staff, that is, those who are specialized, senior or the most productive (259). Providing the best performers with the option to work from home can serve as a perk and increase retention of those employees (260).

Expansion of Available Labour Pool

By employing remote agents the labour pool that can be drawn from is substantially increased (133; 229; 249; 253; 254; 257). Individuals who may not be able to work in a traditional call centre location may be available to work from home. For example,

a) nurses who are “outside” the nursing industry such as moms who want to stay at home and nurses who are in the later stages of their career (133)
b) seniors (253)
c) disabled and other homebound individuals (254)
d) those who require temporary reassignment for maternity or disability leave (262)

e) individuals who require flexible work hours, part-time work or non-traditional shifts (229)

Using remote agents has the potential to not only expand the available labour pool, but it can also make existing skill sets more accessible through certain technology—namely IP technology. This technology can provide a mechanism through which specialized skill sets can be accessed as calls can be routed to the sites, or agents, that have the expertise necessary to respond to a particular call (249).

Recruitment

Using remote agents or distributed call centres may facilitate recruitment and alleviate some of the difficulties associated with call centre recruitment (223; 249; 252; 259; 260; 262; 263).

Following from increased retention is reduced need for recruiting and consequently reduced recruiting costs (223; 259). Similarly, one can conclude that an expanded labour pool leads to recruiting advantages in that there is more opportunity for recruitment. One source suggests that a distributed call centre model allows an organization to situate a call centre wherever a favourable labour market exists (249) and another posits that implementing teleworking may make it easier to find staff who can be available during off hours, such as evening and weekends (260).

Enabling staff to work from home opens the possibility of securing the best individuals who may be otherwise unavailable due to distance from the work site or unwillingness to commute (263).

In addition, offering work to qualified individuals who may not be able to work in a traditional facility (such as homebound and seniors), the organization may be providing work to those who really want it and therefore could find very loyal and hard-working employees (253).

Job Satisfaction and Performance

Implementing remote call centre solutions may improve employee satisfaction and morale (223; 254; 257; 259; 262; 263; 266). In addition, increased motivation and/or commitment to job are reported in some instances (223; 257; 263; 266). One source suggests that working as a remote agent increases job satisfaction because it affords work/life balance (223).

Remote agents can also have a positive impact on job performance through increased productivity and efficiency (132; 223; 235; 249; 252; 254; 255; 259; 262; 263; 264; 266). For example:

- the 2001 Telework America Survey found that close to 75% of telecommuters are more productive from home (223)
- an Intellicare pilot program using remote agents found a decreased amount of time spent per triage call, resulting in an increase in the number of calls nurses could handle per hour (223)
- Erlang formulas – used to “accurately predict the relationship between call volume, wait times, number of agents and several other variables” (249, p. 58) –

found that virtual contact centres require fewer agents to handle the same number of calls (249)

- the McKesson Work@Home program noted a 10% increase in productivity for Work@Home agents (252)
- managers at call centres using remote agents have reported up to 12% increases in productivity (254)
- teleworkers who work from home report the most substantial increase in productivity and quality compared with other types of teleworkers (266)[5]

Suggested reasons for increased productivity include:

- improved work/life balance (223)
- fewer interruptions (223; 262; 264)
- avoidance of commuting and associated stress (254)
- agents feeling more comfortable in their own environment (254; 264)
- flexibility in planning one's work schedule (262; 264)
- increased morale due to feeling valued (259)

In two cases productivity is linked to the technology or applications available to remote agents (223; 264).

Service Delivery

Three dimensions of service delivery are discussed in the literature in relation to the use of remote call centres:

1. Quality of Service
2. Access to Expertise
3. Caller Satisfaction

Quality of Service

In general, reports suggest that remote call centres improve the quality of service that is delivered to callers and enable callers' needs to be better met (134; 223; 253; 254; 259; 262). One of the reasons for improved service quality is that the call centre can more easily structure itself to respond to caller demand. For example:

- increased flexibility of scheduling as split shifts or shorter shifts can be used to respond to call demand (223; 254)
- the ability for the call centre to expand as needed (254)
- ability to continue activities during emergencies (e.g., blackout) or weather-related disasters by using agents in other areas (249, 254)

[5] Other types of teleworkers include those that work at a telework centre or satellite office, on the road, or some combination of these.

Access to Expertise

As discussed earlier in this review, access to expertise can be facilitated through remote call centre technology. Calls requiring particular expertise can be routed to sites where expert resources are available (232; 249). “Sharing” experts across locations can help reduce costs as fewer experts are required on staff (232).

Caller Satisfaction

Little is reported on caller satisfaction. However, satisfaction survey outcomes remained positive in one organization after remote agents were implemented (223).

Quality of Life

Implementing remote agents can have a positive impact on the quality of life of those agents involved in the strategy. In particular, working from home can reduce employee stress levels and improve work/life balance.

Stress Reduction

Working from home can reduce the stress level of employees as a result of eliminating the commute to work (223; 262); perceived greater control over work, personal and family life (262) and increased job satisfaction (262).

Improved Work/Life Balance

One of the key benefits to employees who work from home is better work/life balance (133; 223; 229; 259; 262, 263, 264). This improvement is attributed to:

- enabling nurses to blend their careers with family time and other interests they may have (133)
- elimination of the need to commute (223; 259; 263)
- conditions that facilitate a balance of work and family time (262)
- possible increased autonomy in scheduling time spent at work as well as responsibilities at home (263)

According to discussion of the 2001 Telework America Survey, telecommuters “report improved quality of life, better morale, less stress, increased personal control, a more harmonious work/life balance, and fewer commute-related stresses” (223, p. 4). Another reference to results of the same survey indicate that teleworkers who work from home experience a lower level of interference between work and family roles as compared to other kinds of teleworkers (266).

Other

Remote solutions also impact other areas related to quality of life, including the following:

a) safety concerns of individuals working the night shift (229; 235)

b) quality of the environment is often rated higher at home than in a traditional call centre or office (better air quality, more control over temperature, etc.) (262)
c) increased flexibility (263; 264)

Cost Savings

The use of remote call centre solutions can result in costs savings to both the agents themselves as well as the organization employing them.

Cost Savings: Remote Agents

The primary cost savings accrued by individuals who work from home are those related to transportation as a result of the elimination of the commute to work (223; 262; 263). Other cost savings are those associated with food and clothing (223; 263).

Cost Savings: Organizations

According to the literature, organizations can benefit from substantial cost savings in a variety of areas through implementing remote call centre (132; 134; 223; 232; 249; 252; 253; 254; 255; 257; 259; 260; 262). Some areas for cost savings have already been discussed, such as reduced training and recruiting costs, increased productivity and the ability to "share" expertise across locations. Other areas where cost savings can occur are as follows:

a) A reduction in overhead due to reduced facility costs and reduction in the physical space required (132; 223; 252; 253; 255; 257; 259; 260). Several companies report substantial dollars saved when remote agents were implemented (132; 252).
b) Savings in employee salaries through either reducing the pay of remote agents (252) or paying agents per call completed (257).
c) A reduction in absenteeism as a result of implementing a remote solution (223; 262).
d) Elimination of time zone concerns (249) and the need for overtime (257) through the use of IP technology to structure distributed call centres across time zones.

Challenges and Barriers

While the literature suggests that many benefits can be derived from implementing remote call centres, there are also challenges to contend with. Challenges discussed in the literature fall within five primary topic areas:

1. technology
2. employee-related
3. organizational issues
4. management
5. other challenges

Technology

The challenges around technology are closely related to some of the issues presented in the *Technology: Considerations* section on pages 5-6 of this report. In particular, the following technological issues were indicated as potential challenges for remote call centre applications:

- issues around appropriate equipment, connectivity, viruses and protection (223)
- costs associated with obtaining proper security technology (132)
- instances of nurses being disconnected from the call-processing application—that is, reliability (235)
- in some instances, voice quality concerns (249)
- difficulties associated with incorporating new technologies into an organization (256)
- the possibility of slow computer and telephone systems hindering productivity (in relation to telework in general) (262)
- lack of sufficient technical support (262)
- possible ambiguities in decision software that is used for nurse triage (236)
- concerns around control of system data (245)

Employee-Related Challenges

A significant number of challenges identified in the literature centre around the experience of employees—in most cases, remote agents working from home (223; 232; 235; 260; 262; 263).

The most common challenge arising in this area is the potential for remote agents to experience a sense of isolation (223; 232; 245; 262; 263). One company that uses remote home agents (Intellicare, 232) implemented an instant messaging platform to help address the problem:

> *"About 75 percent of our nurses work from their homes, and we have to eliminate that sense of isolation that people feel working by themselves. This [instant messaging platform] certainly helps us create a community. It allows for informal conversations and the building of relationships which are critical to any corporation. Without that, it would be very difficult to deploy this remote workforce model"* (232).

Another article that discusses isolation in relation to telework more generally suggests the following strategies to help prevent feelings of isolation (262):

1. split time between home and the office
2. ensure that teleworkers are on information distribution lists
3. set up a network to facilitate discussion among teleworkers, the provision of mutual assistance and the creation of a social life among co-workers

Working from home may not be appropriate for everyone – a certain personality may be required to perform well in such a situation (235; 260).

Other challenges related to telework in general rather than remote call centres specifically include

- the potential for employees to work (or perceive to work) longer hours at a higher intensity (262; 263)
- possible stress as a result of dealing with situations alone over long periods of time without support (262)
- the challenge of "living" in one's office (262)
- poor physical adjustment of work station due to lack of training or technical assistance for installation (262)
- negative impact on workers' career progress as they are less visible and less likely to be a part of informal networks at work (263)
- the possibility of blurred work and family boundaries resulting in "role overload" and stress (263)

Organizational Challenges

Aspects of organizational culture and performance may become challenging as a result of working remotely. First, teamwork or collaboration among employees can decrease (263; 264) which can in turn negatively impact job performance and motivation (263). However, one study found that while employees perceived that working from a virtual office negatively impacted teamwork, this perception was not supported by multivariate analysis (264).

Another organizational challenge related to remote call centres is a limited pool of experienced agents (253).

Management

Hiring and training of remote call centre staff are highlighted as challenges (253; 254; 256). With regard to hiring, there can be complications associated with hiring remote agents on an

"ad hoc" basis (253). Training can become challenging when employees are remote or difficult to reach (253). Real-time interaction between trainer and trainee may facilitate successful training (254).

In addition, ensuring consistent delivery of customer service can be problematic (253) as can the lack of feedback that teleworkers in general receive in relation to their performance and quality of work (262). Implementing a strategy where employees work from home requires supervisors to adjust their strategies and approach accordingly – as one article states, telework requires that there needs to be a shift among supervisors from a "face-time culture" to a "results-oriented culture" (263).

Finally, in some cases (primarily in the United States) remote call centres can struggle with a ban on virtual call centres as a result of labour demands, seemingly to prevent jobs from being lost to workers overseas (253):

> *"Some sectors of the customer-care market have been forced to negotiate agent bargaining contracts that specifically prohibit the use of virtual agents. While the impetus behind the demands is clear – the preservation of corporate brick-and-mortar contact centre jobs – the rank and file need to better understand the full benefits a virtual contact centre component can provide them. Far from replacing domestic jobs, it may well increase them"* (253, p. 4).

This problem of a "ban" on virtual call centres was not prevalent in the literature and never mentioned in relation to health-related advice lines or in a Canadian context.

Other Challenges

Other challenges that remote call centres may experience include a) concerns related to confidentiality (223; 245), and b) increased difficulty of telecommuting as the complexity of calls increases and an individual is no longer able to ask a colleague at the next station for assistance (260).

Key Considerations

Implementing remote call centre technologies necessitates significant changes for an organization – from the technology adopted to processes and procedures that must be adapted or created to respond to new situations and challenges. A review of the literature uncovers a number of key considerations relevant to implementation and operation of a remote call centre in five main areas:

1. Implementation
2. Technology
3. Office Space and Equipment
4. Management
5. Remote Agent Requirements

Implementation

While there is little in the literature regarding implementation of remote call centres, the information that is available indicates that proper planning and testing is important to successful implementation and the avoidance of significant problems later on (223; 255; 259). Intellicare held focus groups with call centre nurses to develop both the vision and the framework for remote deployment of nurses (223) and another organization suggests the importance of involving front-line staff in formulation of the service (253). Testing or piloting the service with a select group of agents can help identify problem areas and resolve arising issues prior to widespread implementation (223; 259). Intellicare found that ensuring that nurse managers could monitor and evaluate the service and agents during the pilot phase was crucial:

> *"This real time help and guidance from the nursing leadership team was invaluable"* (p. 5, 223).

Also, it is important to have all features of the service functioning at initial implementation—for both agents and supervisors/managers (259). Agents should have access to all the features they would if they were working in a call centre and supervisors should have complete monitoring and reporting capability (historical and real time) (259).

One source suggests that education of front line workers as to the benefits of a remote call centre solution can facilitate smooth implementation (253).

Technology

Technology and related issues require careful consideration prior to implementation (248; 251; 255; 259; 264). One telework study found that productivity of teleworkers was dependent on the level of technology used, thereby emphasizing the importance of carefully choosing the technology (264).

Reports warn against implementing remote call centre applications with inferior technology that does not give agents and/or supervisors full functionality, for example, access to telephone functions for agents and reporting and monitoring functions for supervisors (259).

One of the most important elements to consider in relation to technology is security of the applications (134; 248; 251; 255). Some things to take into consideration indicated in one article include a managed network where internal administrators control all aspects of the network and standard industry protocols (251).

Another article articulates a process that should be followed to ensure a high level of security (255):

1. Run an anti-spyware program on agents' computers
2. Employ a hardware-based switch/router combination that includes built-in firewalls as the hardware-based applications tend to be "stronger" than software-based options
3. Install updated virus scan software onto each agent's computer that is either subscription-based or includes consistent updates
4. VPNs (virtual private network) can add another layer of security

Office Space and Equipment

The office space used by remote agents can impact performance and quality of work (223; 262; 264). Three primary concerns in relation to office space are identified:

a) the presence of a dog as it is important that callers do not hear a dog barking in the background (identified for remote agents – 223)
b) the presence of an office with a door that can be closed (identified for remote agents – 223)
c) a closed office that is separated from the rest of the home (identified for teleworkers – 262)

In terms of provision of office equipment and furnishings, there is lack of consensus around who should have to shoulder this responsibility in the case of remote agents. An article focusing on telework suggests that it is the employer's responsibility to supply necessary furnishings in an ergonomically sound environment that includes a traditional computer screen and keyboard (262). However, as discussed earlier in the Technology section, two healthcare call outsourcing companies (Intellicare and McKesson) expect nurses to supply their own computers (133; 252).

Management

A large portion of the considerations regarding implementation and operation of remote call centres relate to management. More specifically, there are six main areas that require consideration:

1. areas of responsibility and compensation
2. communication and teamwork

3. performance evaluation
4. monitoring
5. recruitment and training
6. employee health and rights

Each of these areas is discussed in more detail in this section.

Areas of Responsibility and Compensation

As per earlier discussion, companies need to decide who will supply equipment and office furnishings (133; 223; 252; 262). Management must also outline what is expected in terms of on call responsibility (223). In addition, the model of compensation that will be used needs to be determined, that is, whether remote agents will be paid salary, an hourly rate or for calls processed per hour (223; 252; 257). The organization must ensure that appropriate contracts, policies and procedures are developed and articulated to employees (223).

Communication and Teamwork

When agents are working from home communication within the organization can become more complicated, as can sustaining the sense of belonging to a team and working collaboratively. Strategies must be developed to facilitate communication and convey a sense of teamwork to employees (134; 223; 235; 264).

Some companies may decide to bring remote agents back into the office for a certain proportion of their time to allow for face-to-face contact, attendance at meetings and exchange of hard copy information (223; 235).

Performance Evaluation

Reports on telework emphasize the importance of establishing performance standards and specific evaluation processes for those who work remotely (262; 263). It is also important to ensure that employees understand these standards and processes and are kept informed of their performance. Supervisors and managers must recognize that a different approach may be required when it comes to evaluation of remote workers—one focusing on the measurable results delivered by each employee (263).

Monitoring

Supervisors require the same monitoring capabilities with remote call center agents as they have with traditional call centre workers (248). That is, supervisors must be able to silently enter into and monitor calls that remote agents are working on, just as they would regular calls made from a “brick and mortar” call centre.

There is some doubt expressed in the literature regarding the ease with which remote agents can be supervised (249). One author suggests that “*the management issues of a large workforce in a completely separate environment are enormous*” (p. 59, 249).

One source posits that the most effective means of managing a decentralized workforce is through centralizing management (253).

Recruitment and Training

When agents do not work from a centralized location training can be a challenge and various options must be considered. Both training and recruitment can be, and in some cases are, done remotely for remote agents (252; 253; 254). There are several factors that should be considered when developing remote training and/or recruitment programs:

- using simulations as a training tool is cost-effective and effective, and adding a simulation component to the interview process can be an effective screening tool for potential employees (253)
- real time interaction between the trainer and trainee is important for success (254)
- for pre-screening, training and assessment of remote workers it is important to capture and deliver remote data and training results to central offices (253)
- with regard to telework in general, a training program should be developed for employees and leaders working from virtual offices that provides instruction on how to use necessary technology as well as how to adjust to the new work environment socially and psychologically (264)

Employee Health and Rights

There is very little literature around employee health and rights – the most comprehensive work exists in relation to telework in general rather than remote agents in particular (262). However, the literature that does exist highlights the importance of considering labour legislation and its implications for the remote worker, including a focus on the issue of inspections of home offices by occupational health and safety organizations (223; 262).

Literature on telework also indicates that it is important for organizations to engage in measures to help prevent isolation (262) and to be aware that employees working remotely may work long hours to the detriment of their personal or family life (263).

Remote Agent Requirements

While not an area heavily focused on in the literature, it is apparent that there are certain qualities that make some nurses more ideal candidates to become remote agents than others (223; 259). Characteristics identified include:

- at least six months experience as a triage nurse in a call centre (223)
- good documentation and disposition trending skills (223)
- flexible, reliable and good problem solvers (223)
- agree to increased levels of monitoring and auditing (223)
- high productivity (223; 259) or senior, sophisticated/specialized or on maternity leave (259)

An organization should evaluate if nurses are capable of working well independently and should not permit them to work from home until they have proven themselves (259).

Appendix A: All Sources Relating to Remote Call Centres

Literature Review - Remote Call Centre Sources

ID 105

Title/Name Making it work: Organization and processes of telephone nursing advice services

Author(s) Valanis, B., Moscato, S., Tanner, C., Shapiro, S., Izumi, S., David, M., & Mayo A.

Bibliographical Information Journal of Nursing Administration. (2003). 33(4):216-23.

Date of Publication 2003

Abstract

Efforts of health plans to balance service quality with cost control have spurred rapid growth in telephone nursing advice services. Service system design can affect costs, patient outcomes, and staff retention. Research has not addressed how the organization of nursing services affects practice outcomes in telephone advice settings. The authors describe observed variations in telephone advice nursing services and the organizational and process factors the nurses identified as supporting or hindering their work. This study was conducted between May and September 2000 in one call center and two to three medical offices in each of four Kaiser Permanente (KP) regions which. These regions vary in how nursing advice services are oganized, the size of their membership, and the ethnicity of members. The data were collected during a feasibility study testing the authors' proposed methods for a larger study of telephone advice outcomes. Additionally, to assess whether the authors had identified all factors likely to influence outcomes of telephone advice, in each site they obtained manager-completed checklists of advice service characteristics, observed work flow, discussed issues with managers, and conducted focus groups. Separate focus groups were also conducted with medical office advice nurses, call center nurses, and physicians in each region. Investigators reviewed the notes, summaries, and tapes, and identified issues and themes. The study indicates that centralized call centers and medical office advice services have specific advantages and disadvantages. Centralizing advice services after clinic hours uses nursing time efficiently and facilitates training, supervision, continuing education, quality assurance monitoring, standardized practice, and provision of pharmacy and physician consultation. These advantages may be lost, however, without closely monitoring processes to be sure they are functioning as planned. The variations in the structure and process of nursing advice services described appear to have an impact on the scope and autonomy of nursing practice, efficient use of nursing time, and effectiveness of the nurses' practice. Involving nurses in decisions about advice practice, having hem critique protocols, facilitating communication between call center and medical office advice nurses, and educating providers both the role and function of advice nurses could help reduce barriers and facilitate optimal function of the nurses.

ID 132

Title/Name Telework set to transform call centers

Author(s) Kistner, T.

Bibliographical Information Retrieved January 20, 2005, from http://www.nwfusion.com/net.worker/columnists/2003/0203kistner.html

Date of Publication 2003

Abstract McKesson and SSM Healthcare have brick-and-mortar call centers where nurses support patients either by taking calls and answering questions, or by calling patients to make sure they're taking their medication, etc. SSM Healthcare has already sent seven nurses home, and McKesson is gearing up to start. ARO began as a 100-agent brick-and-mortar call center, then went completely virtual. As a result, ARO now saves $1 million per year in increased productivity, decreased turnover and training costs.

ID 133

Title/Name IntelliCare CRM offers nurses an alternative

Author(s) Middlewood, M.

Bibliographical Information http://www.ectnews.com/story/35197.html

Date of Publication 2004

Abstract IntelliCare, a healthcare call center outsourcing company, started in 1997 and by 1999 created a distributed networking model for telephonic nursing driven by its own clinically based CRM application. Today more than 250 healthcare organizations nationwide use its outsourcing contact centers, including Oakland's Children's Hospital, Magellan Health Services and Group Health Cooperative. Nearly 80 percent of IntelliCare's contact center representatives are nurses working from home. Many are highly trained specialists with subspecialty expertise in specific disease states, like cardiac nurses specializing in congestive heart failure, diabetes nurses focused on patients with complex diabetes or a smoking-cessation specialist. Remote working allows the nurses to blend their career with their families and other interests. While many of the nurses provide their own PCs and phone headsets, IntelliCare provides the infrastructure. The telephonic functionality resides on a nurse's PC, and IntelliCare drives all connections call passing, recording and conferencing that are done as part of the standard workflow. A standard phone line handles voice, while a virtual private network (VPN) sends data that meets Health Insurance Portability and Accountability Act (HIPAA) requirements for security and patient privacy.

ID 134

Title/Name Helping Grandma

Author(s) Butcher, D. R.

Bibliographical Information http://www.tmcnet.com/tmcnet/articles/2004/071604david2.htm

Date of Publication 2004

Abstract

When a patient calls McKesson Health Solutions CareEnhance Nurse Triage (provider of healthcare supply, information and care management products and services), the situation may be urgent. Granted, most times patients usually need advice about seeking appropriate medical care, but occasional cases present the caller in a life-or-death situation. When this happens, the McKesson registered nurse who receives the call must summon multiple resources in real time: notify a supervisor of the critical call situation, collaborate with team members to manage urgent medical needs and contact local emergency medical services to possibly dispatch an ambulance. This must all be done without interrupting the patient call. The current core service is the call center, but this also presents a business challenge for McKesson: how to maximize coverage to varying and shifting call arrival patterns, manage costs, and ensure the highest level of clinical services for every customer. McKesson is determined that the answer to its challenge was to establish a "work from home" solution for call center nurses, eliminating the need for nurses to travel to and from a concrete work facility. To make this solution a reality McKesson identified a series of governing requirements: maintain team connections; ensure security and reliability; and reduce operating costs.

ID 223

Title/Name The power of the virtual nurse

Author(s) Smith, S.

Bibliographical Information AAACN Viewpoint. (2002). 24, 5.

Date of Publication 2002

Abstract

The nursing shortage is striking all practice arenas and geographic areas nationwide. Almost daily, we are bombarded with news about the shortage, its effects, and implications for the future. There appears to be three leading factors predominantly responsible for the current and projected nursing shortage. These include an aging nursing workforce compounded by decreasing entry into the profession, an aging patient population, and a shift in health care delivery away from the traditional medical model toward advanced practice nursing. While many efforts are being made to draw more people into the field, the fact remains that many health care organizations will be competing for a limited supply of resources in the coming years. IntelliCare, a leading provider of medical contact center application software and services, deployed a telecommuting program for nurse when it decides to implement a remote program or go 'virtual'. Feedback from nursing teams overwhelmingly supported the concept that the ability to work form home with flexible hours would be very attractive. The project was piloted by 3 IntelliCare nurses; concerns over connectivity, stability, speed and quality of the phone connections and call recordings were some of the factors that were evaluated during the pilot project. An additional positive feature was the ability of the nurse managers to dial in at any time to monitor the queue, assist in handling of calls and evaluate remotely the real time performance of team members working in the call center. This real time help and guidance from the nursing leadership team was invaluable. In choosing the nurses, we required at least 6 months experience in the call center as a triage nurse. Review of the nurses' quality scorecard included exceptional results in thorough documentation, disposition trending and meeting the outlined productivity standards. The needed to be flexible and reliable, dependable and effective problem solvers. We also felt that a pioneer spirit and an agreement to subject themselves to increased levels of scrutiny through intense monitoring and audition was essential. A home visit was made to evaluate the space each nurse had designated as an office. Occupational & Safety Health Administration (OSHA) will not hold employers liable for employees' home offices and does not expect employers to inspect the home offices of their employees. IntelliCare requires the home office poor be shut and the nurses' work space is not located centrally where the family usually gathers. IntelliCare supplied the personal computers and phone sets to assure ergonomic compliance and the nurse were responsible for getting a desk and chair. As the program has evolved many nurses have chosen to use their home personal computers to avoid adding anther set-up and worry about company equipment in their home. IntelliCare's technology team has worked to assure secure connections and did avoid any issues with breech in confidentiality. IntelliCare and the telecommuting nurses express pride in the success of the program; the company has reaped benefits in recruitment and retention, the nursing team reports higher job satisfaction and commitment, and IntelliCare patients have received better service.

ID 229

Title/Name Virtual nursing created

Author(s) Freedman, A.

Bibliographical Information http://www.workindex.com/editorial/hre/hre0308-06.asp

Date of Publication 2003

Abstract

The helpline, which is staffed by nurses, offers after-hours triage for pediatricians and managed care organizations, follow-up calls for a congestive heart-failure program, a physicians' referral service and a registration system for various programs run by SSM. To assuage the nurses' safety concerns, as well as provide flexible staffing for the helpline - which is available to customers every hour of the day, 365 days a year - SSM decided to create a virtual call center. Now, instead of having to go into the office to answer calls, the nurses use multi-button phones and desktop computers they keep at home. The technology infrastructure is set up so the system works the same as it did in the office.

ID 232

Title/Name Case Study: IM boost health care company

Author(s) Perez, J. C.

Bibliographical Information http://cio.co.nz/cio.nsf/0/B155C86FD631Ac1ECC256F310030Db9A?OpenDocument

Date of Publication 2004

Abstract

Because of its geographically dispersed staff and high percentage of telecommuting employees, Intellicare, which operates health-related call centers, has drawn big benefits from implementing an instant messaging platform. Through a network of medical contact centers and telecommuting nurses, the company offers medical phone support for some 250 clients, such as hospitals, health insurance companies and doctor group practices. Instant messaging (IM) has helped Intellicare create a sense of virtual community among its employees, facilitated the provision of remote training and boosted real-time communications within the company, improving the flow and availability of information needed to provide services.

With Sametime, which was recently re-baptized as Lotus Instant Messaging and Web Conferencing, Intellicare nurses can tap in real time a variety of peers that can assist them in advising a patient they have on the phone. "If we have a nurse whose specialty is pediatrics or even a subspecialty within that, that nurse is available to the other nurses as a resource during a call" via IM, he said. "Bottom line is, there is easy access to all the knowledge workers."

IM has also made it easier to provide training to employees. "Micro training" sessions can be set up quickly via Sametime and its Web conferencing feature to address a specific topic, he said.

Along these lines, linking a dispersed workforce with an IM tool has helped Intellicare create a sense of corporate community among employees. "About 75 percent of our nurses work from their homes, and we have to eliminate that sense of isolation that people feel working by themselves. This certainly helps us create a community. It allows for informal conversations and the building of informal relationships which are critical to any corporation. Without that, it would be very difficult to deploy this remote workforce model."

IM platforms such as Sametime have developed to such a point that Forbes sees how they are displacing e-mail communications to a certain extent. "The Sametime-type platforms will ultimately replace to some degree traditional e-mail, which has become pretty onerous and very slow. E-mail isn't designed for supporting real-time work processes, (and in particular) not medical processes where we need answers right away."

ID 235

Title/Name SSM Health Care uses virtual call center

Author(s) Kistner, T.

Bibliographical Information http://www.nwfusion.com/net.worker/news/2003/0303netlead.html

Date of Publication 2003

Abstract Medical call centers are a mixed bag. Some hospital systems have huge facilities that serve multiple hospitals; others have a small center that serves only one. Some handle internal inquiries only. Some are staffed with nurses who dispense symptoms-based advice; others are staffed with health information specialists, who typical perform class registration and physician referral. But nearly all operate in a traditional brick-and-mortar facility. SSM Health Care's call center is an exception. Today, 11 staffers work half their shifts at home, and plans to send another 6 are in the works.

ID 236

Title/Name NHS Direct: Virtually engaged

Author(s) McLellan, N. J.

Bibliographical Information Archives of Disease in Childhood. (2004). 89, 57-59.

Date of Publication 2004

Abstract In the five years since its launch in March 1998, NHS Direct in England and Wales has established itself as the world's largest provider of telephone healthcare advice. NHS Direct now handles over half a million telephone calls and NHS Direct Online half a million on-line transactions every month. Consistently 30-40% of calls to the telephone service are about children.

ID 237

Title/Name Healthcare call centers: A technology migration

Author(s) Bernett, H.

Bibliographical Information HORIZONS, Perspectives in Healthcare Management and Information Technology. (September 2003). p. 17.

Date of Publication 2003

Abstract Today, healthcare consumers expect fast, accurate, and reliable information when they call their doctor, clinic, hospital, pharmacy, insurance company, or other healthcare provider. Suppliers of such services are constantly being challenged to provide solutions to serve this ever-increasing consumer demand. One solution that has proven to be very cost-effective is the use of call centers.

ID 245

Title/Name Interview with Lise Dunnigan re: Info Santé

Author(s) Conducted by Howard Research & Management Consulting Inc. Staff

Bibliographical Information Interview conducted June 2, 2005 by Howard Research & Management Consulting Inc. Staff

Date of Publication 2005

Abstract Telephone interview with Lise Dunnigan who was involved in the evaluation and monitoring of Info Santé for ten years (from 1994 when service was first implemented provincially to December 2004). Discusses challenges/facilitators to successful implementation, some key findings, and important areas to look at when conducting an evaluation of a healthline.

ID 248

Title/Name Building the virtual call center

Author(s) Botting, C.

Bibliographical Information Call Center Solutions. (1999). 17(11), 94-98.

Date of Publication 1999

Abstract As the globalization and decentralization of business becomes more prevalent, companies are adopting new networking and customer service models. One of the first systems to change is the corporate call center. Thanks to the Internet, remotely located call center agents are no longer a networking challenge. The days of dependence on the centrally located corporate call center are over. Welcome to the age of the virtual call center.

ID 249

Title/Name E-Darwinism: The evolution of the virtual contact center

Author(s) Downey, B.

Bibliographical Information Customer Inter@ction Solutions. (2001). 20(1), 56-59.

Date of Publication 2001

Abstract In the IP environment, the virtual contact center is no longer a mirage constantly eluding contact center managers. PSTN calls can be converted to IP packets and inexpensively transmitted over the network in the same manner as e-mail and Web chat. Using WANs, a data network can extend anywhere in the world. Most people experience voice over IP (VoIP) over an unmanaged WAN, such as the Internet, where quality and reliability are nearly nonexistent. There are too many uncontrolled variables such as bandwidth, volume, demand spikes and congestion points to make VoIP effective. However, in LAN and managed WAN environments, quality factors are all controllable. VoIP in these environments is cost-effective and the quality is on par with traditional voice.

ID 250

Title/Name IP: Taking the center out of call center

Author(s) Schelemtic, T.

Bibliographical Information Customer Inter@ction Solutions. (2004). 23(4), 76-77.

Date of Publication 2004

Abstract What many people do not realize is that IP telephony is about so much more than saving money. Of course, lower cost is a big element of why people seek IP telephony capabilities for their call centers. But beyond saving money, the benefits provided by the mobility, accessibility, quality, improved productivity, reliability and ease of administration are what ultimately attract savvy companies. In this ongoing series of articles, the top ten benefits of IP telephony in the contact center will be discussed, beginning with the ability to take apart the traditional call center and distribute it throughout the neighborhood, the state, the country or the planet. Three types of alternative call center structures - enabled by IP telephony - are discussed: 1. offshore outsourced, 2. telecommuting agents, and 3. virtual and distributed centers.

ID 251

Title/Name IP breathes new life into the virtual contact center

Author(s) Anderson, B.

Bibliographical Information Customer Inter@ction Solutions, 22(1), 56-58.

Date of Publication 2003

Abstract In the 1990s, vendors of business communications systems put a lot of effort into promoting a concept called "the virtual contact center." The concept caught on and benefited large businesses in customer-centric industries such as healthcare, finance, home shopping and telecommunications. But when the dot.com bubble popped and the economy started to tank, businesses became much more reluctant to make capital expenditures of the sort needed to build virtual contact centers. This may, in fact, be the primary reason for the relatively limited deployment of remote agents, since early remote agent solutions required PSTN lines to connect the home offices to the contact center. The concept is still viable, but only if two major factors are taken into consideration: a continuation of the economic downturn, and a change in the technology landscape.

ID 252

Title/Name McKesson teleworks nursing care

Author(s) Kistner, T.

Bibliographical Information Network World. (2005). 22(13), 27.

Date of Publication 2005

Abstract Whether nurses work in hospitals, private practice or dispense medical advice over the phone, they are social animals, caregivers. So when McKesson Health Solutions asked its 400 call center RNs about working from home in 2003, it got a mixed message. Despite some early reticence and a few technology hurdles, McKesson's Work@Home program is thriving and yields the company impressive cost savings. But just as nurses were settling into their new roles, McKesson corporate expressed security concerns - not about exposing network data but about delivering virus updates to remote systems. Many nurses prefer the call center or see it as a path to advancement.

ID 253

Title/Name New Directions to the Successful Virtual Contact Center

Author(s) Baker, W.

Bibliographical Information Customer Inter@ction Solutions. (2004). 23(4), 44-46.

Date of Publication 2004

Abstract Without an infusion of fresh technology and reliable training and skills assessment, the concept of the virtual contact center may be forever consigned to "last resort" status next to fully staffed and centrally managed customer contact centers. But virtual call centers have far too many benefits to abandon the concept, such as reduced costs of doing business and the ability to expand as needed. Several suggestions for eliminating the roadblocks to virtual contact center success are presented: 1. Educate people about the potential personal and professional benefits of virtual contact centers. 2. Use simulations to train remote workers. 3. Use a simulation component - in addition to the tried-and-true aptitude and interview process - to pre-screen potential call center representatives. Centralizing the management of the decentralized workforce is crucial to success.

ID 254

Title/Name Remote agents: A new force for the call center

Author(s) Houlne, T.

Bibliographical Information Customer Inter@ction Solutions. (2002). 21(4), 54-56.

Date of Publication 2002

Abstract Running today's competitive call centers demands juggling a multitude of challenges simultaneously, while still searching for ways to reduce costs and improve the customer experience. At a minimum, staffing must be flexible enough to allow for the addition of extra agents during peak volumes, special promotions, new product launches and holiday or seasonal spikes. Companies looking for alternative options to traditional call center challenges need look no further. The remote agent is the viable force to help win the call center revolution. More companies are turning to remote agent outsourcing as a long-term solution or alternative to their staffing needs. A Jupiter Media Metrix report titled "Broadband Audience: Maximizing Revenue from the New Mainstream" found that nearly 1/3 of call centers are evaluating the implementation of a remote agent workforce. Nearly 39% of the 512 call center executives surveyed said their companies plan to use remote agents within the next two years; 65% said their companies will use them "at some point."

ID 255

Title/Name Remote agents: The challenges of virtual and distributed contact centers

Author(s) Kim, J.

Bibliographical Information Customer Inter@ction Solutions. (2004). 23(4), 54-57.

Date of Publication 2004

Abstract There is validation on many fronts about the real cost benefits of managing a virtual contact center, but the technical challenges of setting up and maintaining such a contact center model can become overwhelming over time. Fortunately, many of these potential pitfalls can be avoided with proper planning and due diligence before the virtual contact center's launch. Now is the time to become familiar with some of the benefits of going "virtual" - technology and connectivity options for remote contact centers and agents, elements of PSTN versus VoIP for agent connectivity, and security issues with both technology and agent management. Very few businesses that have adopted a virtual or distributed model abandon this way of doing business in favor of reverting back to a purely on-premise enterprise.

ID 256

Title/Name The future of call centres is on the web

Author(s) Talbot, C.

Bibliographical Information Network World Canada. (2001). 11(4), CT8-CT9.

Date of Publication 2001

Abstract "You've got two different vectors. One is a distributed call centre. You don't need to have that bank upon bank upon bank of operators standing by. You don't need to have the Gestapo guard seeing that everyone is sitting at their desk answering calls," Grant said. "Everyone is sitting at home and they only get paid for the calls that they work on, which means you don't need to have all that supervisory overhead. The other one, of course, is the cyber call centre. It's not really a call centre anymore; it's an enhanced Web site with human interaction. That's fun stuff." "[This is] all technology that's been designed to help us speed up the sales process with customers, so that's the win for Xerox," Chiasson said. "But from a customer standpoint, it's also to speed up their decision-making time so they don't necessarily have to come and see our product live on-site or have it brought to their office, so that's been a very useful tool to enhance our productivity." "I think call centres will become the dominant channel of choice for sales in a lot of industries that are right now considering call centres as one way to acquire product but not the preferred way," Chiasson said. "In two or three years from now, you're going to see it become a major channel of choice because the world is going virtual."

ID 257

Title/Name The uncentered call center: Building distributed or virtual call centers with CTI and Internet telephony

Author(s) Ghio, T., & Swinger, J.

Bibliographical Information Call Center Solutions. (1999). 17(11), 80-88.

Date of Publication 1999

Abstract While there are many similarities between virtual call centers and distributed call centers, they are not the same thing. Although, neither is a single central operation, they are both "uncentered"; that is, call centers without "centers." A distributed call center uses network-based routing to connect disparate locations. These multiple call center sites are then managed as a single entity with universal call transferability. This concept may consist of many small centers or a few large centers, according to a company's needs. A virtual call center uses-location-independent agents who telecommute from individual locations such as their homes. In a virtual call center, agents can work anywhere there is a Web enabled PC and a headset, and supervisors can monitor these agents' productivity and efficiency just as well as agents in any other call center. Just as the physical set-up of both types of call centers differs, so do the advantages, which are examined in this article.

ID 258

Title/Name The virtual call center: Key to customer service?

Author(s) Tanner, T.

Bibliographical Information Business Communications Review. (1998). 28(12), 29-32.

Date of Publication 1998

Abstract As more organizations discover the strategic importance of their call centers, there is an increasing demand to route customers to the "best qualified" agent among all the call centers deployed by the enterprise. To accomplish this across an expanding geographic area requires a new approach in using intelligent call routing products and services. Furthermore, at the same time that the physical scope of operations is expanding, business imperatives are changing the goals of these customer service organizations. While the original motivation for creating "virtual call centers" was to answer more calls with fewer agents, today's intelligent call routing implementations are driven by the importance of matching the customer with the right agent. Routing to meet strategic objectives generally falls into one or more of the following market segmentations: 1) value-based segmentation, 2) applications-based segmentation, and 3) resource-based segmentation.

ID 259

Title/Name Transform your call center using remote home agents

Author(s) Fadia, A.

Bibliographical Information Customer Inter@ction Solutions. (2001). 20(1), 60-63.

Date of Publication 2001

Abstract An agent-centric view of call centers emphasizes managing contact center agent development that begins with the process of acquiring, developing and retaining them. Retention is based upon protecting and receiving value on the enormous investments made in agents. Some very successful organizations have used monetary and/or nonmonetary incentives. Cash, vacations, time off, and now an opportunity to work from home, a concept known as remote home agent, are powerful incentives. The remote home agent idea essentially gives a contact center's agents more flexibility in their work arrangements. However, the remote home agent idea is ideally applicable for a specific group of agents: those representatives who are ranked as the most productive agents, senior agents, sophisticated/specialized agents and women agents on maternity leave.

ID 260

Title/Name Virtual contact centers need some fine-tuning

Author(s) Beasty, C.

Bibliographical Information Customer Relationship Management. (2005). 9(6), 13.

Date of Publication 2005

Abstract With recent product enhancements, such as VoIP Virtual Contact Center by Five9 and Siebel's announcement of Siebel On Demand 7 equipped with distribution capabilities for call center management, virtual contact centers are gaining momentum. Companies are beginning to take advantage of VoIP, hosted, and Web-based service capabilities due to the advantages of avoiding the real estate costs associated with contact centers. However, there are some caveats. The more complex the call, the harder it is to telecommute.

ID 262

Title/Name Telework and occupational health: A Quebec empirical study and regulatory implications

Author(s) Montreuil, S., & Lippel, K.

Bibliographical Information Safety Science. (2003). 41(4), 339-358.

Date of Publication 2003

Abstract This article addresses occupational health issues associated with home based telework. Relying on a literature review, an overview of empirical research and the results of six case studies conducted within Canadian-based organisations, the authors present findings from an interdisciplinary perspective that takes into account the social, ergonomic and regulatory issues relevant to health and safety of teleworkers. The case studies as well as the literature review showed that home based telework is generally seen by workers as having a positive effect on their health, although potential problems arising from work station design, long hours and isolation were identified. The analysis of the legal framework governing OHS of teleworkers in Quebec showed that most legislation theoretically applied to teleworkers, but there was some concern as to whether protective provisions governing prevention and compensation for injury were effectively applied to home based telework.

ID 263

Title/Name Does it matter where you work? A comparison of how three work venues (traditional office, virtual office, and home office) influence aspects of work and personal/family life

Author(s) Hill, J. E., Ferris, M., & Martinson, V.

Bibliographical Information Journal of Vocational Behavior. (2003). 63(2), 220-241.

Date of Publication 2003

Abstract Millions use electronic tools to do their jobs away from the traditional office. Some labor in a "virtual office" with flexibility to work wherever it makes sense and others telecommute primarily from home. This IBM study compares how three work venues (traditional office, n=4316, virtual office, n=767, and home office, n=441) may influence aspects of work (job performance, job motivation, job retention, workload success, and career opportunity) and personal/family life (work/life balance and personal/family success). Perceptions, direct comparisons, and multivariate analyses suggest that the influence of the virtual office is mostly positive on aspects of work but somewhat negative on aspects of personal/family life. The influence of the home office appears to be mostly positive and the influence of traditional office mostly negative on aspects of both work and personal/life. Implications of these findings are discussed.

ID 264

Title/Name Influences of the virtual office on aspects of work and work/life balance

Author(s) Hill, J. E., Miller, B. C., Weiner, S. P., & Colihan, J.

Bibliographical Information Personnel Psychology. (1998). 51(3), 667-683.

Date of Publication 1998

Abstract Millions of employees now use portable electronic tools to do their jobs from a virtual office with extensive flexibility in the timing and location of work. However, little scholarly research exists about the effects of this burgeoning work form. This study of IBM employees explored influences of the virtual office on aspects of work and work/life balance as reported by virtual office teleworkers (n = 157) and an equivalent group of traditional office workers (n = 89). Qualitative analyses revealed the perception of greater productivity, higher morale, increased flexibility and longer work hours due to telework, as well as an equivocal influence on work/life balance and a negative influence on teamwork. Using a quasi-experimental design, quantitative multivariate analyses supported the qualitative findings for morale, teamwork and work hours. This study highlights the need for a multi-method approach, including both qualitative and quantitative elements, when studying telework.

ID 266

Title/Name Telework America 2001 summary

Author(s) Davis, D. D., & Polonko, K. A.

Bibliographical Information http://www.workingfromanywhere.org/telework/twa2001.htm. Accessed June 20, 2005.

Date of Publication 2001

Abstract This is the 2001 edition of an annual series of reports, sponsored by AT&T and managed by the International Telework Association and Council, that describes the practice of telework in the United States. The data described here were collected in a national survey comprised of 1,170 telephone interviews conducted from July 30, 2001 to August 31, 2001. It reports that there are approximately 28 million Americans who are teleworkers that work at home, at a telework center or satellite office, work on the road, or some combination of these. Working at home and on the road, either solely or in combination, are the most common types. Methodology: The research conducted between July 30 and September 10, 2001 consisted of 1170 telephone interviews, representing a national, randomized sample, geographically representative of U.S. households. The Social Science Research Center (SSRC) at Old Dominion University conducted all interviews. The SSRC used a pool of randomly generated telephone numbers to identify households throughout the United States. Random-digit dial methodology ensured the inclusion of households with unlisted telephone numbers. The pool of numbers was purged to remove business numbers. The sample of telephone numbers was stratified to represent the U.S. population for each U.S. Census region of the country. The sampling unit was household, which makes the findings comparable to results reported by the U.S. Census.

ID 267

Title/Name Telework comes of age with broadband: Telework America Survey 2002

Author(s) Pratt, J. H.

Bibliographical Information http://www.workingfromanywhere.org/pdf/TWA2003_Executive_Summary.pdf. Accessed June 20, 2005.

Date of Publication 2003

Abstract Does broadband make a difference? Yes! Rapidly evolving technology and telecommunications are enabling remote work. The personal computer began the transformation that makes it possible for individuals to work at any time from any place. The cell phone added mobility. But the Internet has had the most profound impact on transforming work. The Internet connects workers into a global information exchange and marketplace. This study reports the ways having broadband Internet access makes a difference by comparing the work patterns of two groups, those who have dialup connectivity with those who have broadband. Methodology: The sample for the online survey was drawn from a panel of approximately 900,000 households representative of the online US population. The qualified sample consisted of individuals 18 years of age and over, who ever do any work at home online during normal business hours. Of those, 365 teleworkers have broadband and 500 teleworkers have dialup access. Non-teleworkers were not surveyed. The authors subdivided their sample into four groups according to their job classifications: Employees (60% of sample), Homebased business owners (29%), Self-employed outside the home (5%) and Contract workers (5%).

Appendix B: Search History

Search History

Initial search terms used were informed in part by previous searches conducted for the *Literature Review – Evaluative Aspects of Health Lines*. Additional search terms and the overlying search strategy were outlined by the evaluators. This strategy was then applied to three databases: Medline, CINAHL and PsycINFO. A slightly revised version of the search strategy was applied to PubMed, ABI Inform and Business Source Premier depending on the organization of the database and the indexed terms used. Tailoring the strategy to each database ensures that results are broad and comprehensive. Articles were limited to those published from 1998 to 2005. Finally, grey literature[6] was searched for relevant material.

A total of 29 sources were included in the database. A complete listing of these sources, including abstracts, is included in Appendix A.

Search Strategy – Medline, CINAHL, PsycINFO

1. Combined with "OR":

    1a) Set One
    - call centre/center
    - nurses
    - teletriage
    - health line

    1b) Set Two
    - remote
    - virtual
    - off site
    - telecommute
    - remote consultation

2. Combined Set One and Set Two with "AND"

3. Also searched for:
    - telecommute
    - virtual site
    - remote service
    - (distributed model) AND (triage OR call center/centre)

4. Limited ALL results to 1998 – 2005

[6] "Grey literature" is the term that collectively includes academic papers, preprints, committee research, technical or government reports, standards, discussion papers, newsletters, trade literature and working papers. The major producers of grey literature include government, research institutes, schools and universities. Grey literature is often an important source of information on programs, projects and policies that go unreported in academic journals.

Search Strategy – Pub Med

Searched for:
- remote call center/centre → related articles for one relevant article
- virtual call center/centre

Search Strategy – ABI Inform

Searched for:
- call center AND remote
- call center AND virtual
    - ➢ searched for results AFTER January 1, 1998

Search Strategy – Business Source Premier

Searched for:
- call center AND remote
- call center AND virtual

Search Strategy – Business Source Premier

The following terms were entered into Google (www.google.com) and results searched for appropriate material:

- remote call center AND triage nursing
- remote call center AND health line
- remote call center AND teletriage
- virtual AND nurse
- virtual AND remote call center AND nurse
- virtual AND telephone AND nurse AND triage

Appendix C: Article Rating

Article Rating

All articles included in the Health Lines Literature Review database were rated on four elements:

1. Overall Quality – Is the article well-written with a beginning, middle, and end? Does the article indicate a clear purpose, clear description of approaches and/or methods, and clear conclusion?
2. Overall Relevance – Does the article directly address a primary theme of access, sustainability, or health impacts? Does it directly address one or more MJHL questions (questions can be found on pages 42 to 44 of this report).
3. Overall Value – Does the article:
    a) identify/discuss best practices of health lines?
    b) provide indicators of success for health lines?
    c) draw conclusions about health lines?
    d) make recommendations for health lines?
    e) include an assessment instrument, or detailed description of an assessment instrument?
    f) point to an assessment instrument?
4. Overall Transferability – Are results transferable and can they be used in lieu of replicating the study in one or more Multi-jurisdictional sites?

Each of the four elements was rated as either low, medium or high. In addition, each element was given a weighting based on relative importance of the element. For example, relevance and value were given a higher weighting than quality and transferability. Weighting was accomplished by assigning different values to the categories of low, medium and high as follows:

1. Overall Quality: low = 1
   medium = 2
   high = 3
2. Overall Relevance: low = 1
   medium = 4
   high = 6
3. Overall Value: low = 1
   medium = 4
   high = 6
4. Overall Transferability: low = 1
   medium = 2
   high = 3

A total score was arrived at by adding the scores for all four elements together. Articles receiving a total score under 10 were considered least significant for the purposes of the

evaluative aspects of health lines review[7], those receiving a total score of 10 – 11 were considered more significant, and those receiving scores of 12 and above were considered key articles.

Each article was rated a total of three times. Two researchers rated each article independently. Ratings were then compared and where discrepancies occurred the article was discussed and a consensus arrived at for each of the four elements.

Please note that articles used for the current literature review tended to receive a low score for the following reasons:

a) the majority of these articles are written by companies or organizations with a vested interest in the use of remote call centre technology and therefore cannot be considered "academic" articles; and

b) the rating criteria were not developed specifically for the remote agents literature review, but rather for the broader review on the evaluative aspects of health lines. As such, content of the criteria is not as meaningful when applied to remote agent articles and it is not surprising that these articles did not fare well in the rating process.

As such, it was deemed most appropriate that articles relating solely to the remote aspects of health lines receive a rating of NA (not applicable).

[7] See *Literature Review – Evaluative Aspects of Health Lines* prepared by Howard Research & Management Consulting Inc. for the Multi Jurisdictional Collaboration on Health Lines.