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# Who Is Downloading the Freeware AIDA v4.3 Interactive Educational Diabetes Simulator? An Audit of 2,437 Downloads

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## ABSTRACT

**The purpose of this paper is to report an audit of 2,437 downloads of the AIDA interactive educational diabetes simulator. AIDA is a diabetes computer program that permits the interactive simulation of plasma insulin and blood glucose profiles for educational, demonstration, and self-learning purposes. It has been made freely available, without charge, on the Internet as a noncommercial contribution to continuing diabetes education. Since its launch in 1996 over 200,000 visits have been logged at the AIDA Website—www.2aida.org—and over 37,000 copies of the AIDA program have been downloaded free-of-charge. This report documents an audit of downloaders of the software, with the intended goals of the study being to demonstrate the use of the Internet for auditing and surveying diabetes software users and to confirm the proportion of patients with diabetes and their relatives who are actually making use of the AIDA v4.3 program. The Internet-based survey methodology was confirmed to be robust and reliable. Over a $7^1/_2$-month period (from mid-July 2000 to early March 2001) 2,437 responses were received. During the corresponding period 4,100 actual downloads of the software were independently logged via the same route at the AIDA Website—giving a response rate to this audit of 59.4%. Responses were received from participants in 61 countries—although over half of these ($n$ = 1,533; 62.9%) originated from the United States and United Kingdom. Of these responses 1,361 (55.8%) were received from patients with diabetes and 303 (12.4%) from relatives of patients, with fewer responses from doctors, diabetes educators, students, nurses, pharmacists, and other end users. This study has confirmed the feasibility of using the Internet to survey, at no real cost, a large number of medical software downloaders/users. In addition, it has yielded up-to-date and interesting data about who are the main downloaders of the AIDA program.**

## INTRODUCTION

THERE IS INCREASING INTEREST in the application of information technology in diabetes care.[1] The rationale underlying this interest is the hope that computer systems may offer a way of improving the therapy offered to patients with diabetes—permitting more patients

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The AIDA software referred to in this report is an independent, noncommercial development which is being made available free-of-charge via the Internet—at a dot org (.org) not-for-profit Website—as a noncommercial contribution to continuing diabetes education.

to be managed more intensively, in line with the experience of the Diabetes Control and Complications Trial.[2] In addition to database systems and decision support prototypes,[3] an area of clinical diabetes care in which computers may have a great deal to offer is education.[4]

There are many different aspects to diabetes education; however, learning facts is only one of these.[5] The ability to gain experience is also of great importance. It is well recognised that it is not ideal for patients to learn about diabetes control solely from real-life experiences because of the long time frames involved, aside from the possible very real dangers of hypo- or hyperglycemia.[6] For this reason, it has been suggested that an interactive simulation of a diabetic patient might offer one solution.[7] In the same way that aircraft pilots and air traffic controllers are trained on airplane and air traffic simulators, it should be possible for diabetic patients and health-care students to be trained to make appropriate responses to everyday situations using a diabetes simulator.[6]

In this respect education is clearly difficult if based only on verbal and written presentations of dry facts;[8] therefore teaching materials using multimedia presentations may provide a partial solution. However, the aim should also be to teach diabetes self-management in an intuitive, interactive, and enjoyable way, so that the knowledge can be enduring.

Unfortunately, novel technologies can sometimes be introduced into medical practice with little by way of assessment or evaluation. This is particularly the case with the application of computers in clinical diabetes care—where very few studies demonstrating the benefits of computer programs or computer systems have been reported in the literature.[8] In many cases system developers perceive the benefits as "self-evident," and therefore proponents consider it "intuitive" that a computer-based approach will have advantages over a conventional pen/paper-based predecessor. However, in practice often these "advantages" are not quite so clear-cut. Furthermore, the science of evaluating the utility of such programs and surveying users of such software is still very much in its infancy—particularly in diabetes care.[9]

We have therefore set out to address some of these issues for the AIDA interactive educational diabetes simulator. In particular, with AIDA we have been striving to learn as much as possible about what people think of the software, and how they are using it. An important step in doing this is to establish what sort of users are actually downloading the program.

## AIDA BACKGROUND

AIDA is a freeware computer program that permits the interactive simulation of plasma insulin and blood glucose profiles for demonstration, teaching, and self-learning purposes. It has been made freely available, without charge, on the World Wide Web as a noncommercial contribution to continuing diabetes education. In the 6+ years since its original Internet launch over 200,000 people have visited the AIDA Web pages at www.2aida.org, and over 37,000 copies of the program have been downloaded, *gratis*. Further copies have been made available, in the past, on diskette by the system developers and from the British Diabetic Association (London, U.K.).[10]

The AIDA software has been previously described in detail elsewhere in the literature.[5,11] Briefly, it incorporates a compartmental model that describes glucose–insulin interaction in patients completely lacking endogenous insulin secretion. It contains a single extracellular glucose compartment into which glucose enters via both intestinal absorption and hepatic glucose production. The AIDA model also contains separate compartments for plasma and "active" insulin,[12,13] the latter being responsible for glycaemic control while insulin is removed from the former by hepatic degradation.

The actual mathematics underlying the model have been documented elsewhere.[12] Full details of the AIDA model are also accessible from within the AIDA software package, and can be viewed and printed separately via the Internet (from www.2aida.org/technical).

While other interactive simulators of glucose–insulin interaction in diabetes have been described in the literature,[7,13–19] to date these do not seem to have been distributed widely via the Internet, or been made particularly widely available.

Connected with this, it is important to note

that AIDA, like other model-based approaches, is not sufficiently accurate to be used for individual patient simulation or glycaemic prediction.[20–22] Therefore, as the program and Website make clear, AIDA is not intended for therapy planning and can only be used for teaching, self-learning, or demonstration purposes.

Sample case studies using AIDA have been described previously in this journal.[5,23–26] Further examples of the sort of simulations that AIDA can offer can also be found elsewhere in the literature,[4,7] and at www.2aida.org/demo on the Internet.

## METHODOLOGY

For the current work we have sought to confirm the feasibility of undertaking an audit about downloading of AIDA v4.3 via the Internet. In the first instance we have initially focused on finding out the extent to which patients with diabetes, and their relatives, have been downloading the AIDA software for personal use.

### *Rationale for the audit*

While a large number of downloads of the software have been logged at the AIDA Website, up to now, apart from user testimonials about the program[4,27,28] and *ad hoc* comments received by the system developers via e-mail,[29–32] there has been little formal assessment as to who has actually been downloading or making use of the simulator.

### *Study methodology*

For a period of $7^1/_2$ months—between 10th July 2000 and 4th March 2001—people downloading the AIDA software were invited to answer anonymously six simple questions about themselves. The questions are shown in Table 1—together with the reply options that were made available for selection.

In addition to identifying the sort of end users that were downloading the program, an additional purpose of the survey was to confirm what computer hardware and operating systems people were using—in order to facilitate the development and release of updates to the AIDA software.

Depending on the speed of the Internet connection (modem, telephone line, Ethernet link, Broadband, etc.), it can take around 5 min to download the AIDA program. While this download is taking place it is possible for visitors to be asked questions, and answer them, without interfering with the actual download process.

Table 1. Questions Asked of Downloaders (in Bold) Together with Possible Preselectable Responses (in Italics)

| | |
|---|---|
| (i) | **What operating system are you currently using?**<br>*-Windows 3.1/3.11/'95/'98/'NT/'ME/'2000*<br>*-OS/2/Virtual PC (Apple Mac)/SoftWindows (Apple Mac)*<br>*-DOS/Other* |
| (ii) | **What type of computer are your currently using?**<br>*-Pentium I/II/III PC*<br>*-286/386/486 PC*<br>*-Apple Mac/Unix server/Other* |
| (iii) | **Where did you first hear about AIDA?** *(free text)* |
| (iv) | **Where are you from?**<br>*-Country selector (237 countries to choose from)* |
| (v) | **Which of the following categories best describes you?**<br>*-A patient with diabetes/a relative of a patient*<br>*-A student/a doctor/a nurse /a diabetes educator*<br>*-A pharmacist/none of the above* |
| (vi) | **Which version of AIDA are you downloading?**<br>*-AIDAv4.3 (32-bit Windows install procedure)*<br>*-AIDAv4.0 (16-bit DOS install procedure)* |

Derived from Lehmann.[9]

For the current study we took advantage of this 5-min download "window of opportunity" to ask the six questions for which we were seeking answers. We also took advantage of the fact that Internet Common Gateway Interfaces (CGI-BINs) provide an easy way for people to offer responses via the Internet. The use of such CGI-BINs does not require the respondents to have an e-mail address and, importantly, permits their answers to be submitted completely anonymously.

It was felt to be important to allow the responses to be given confidentially as some Internet users are not keen to identify themselves on the Web. Therefore, by keeping the survey anonymous it was expected that the response rate could be increased, with the expectation being that this would reduce the likelihood of people being inhibited about actually answering the questions.

Responses submitted by end users were each individually delivered automatically, via e-mail (usually within a matter of seconds), to the main e-mail account for AIDA-related enquiries (www@2aida.org). Figure 1 shows how this information is received. Data are provided as free text as well as with each category of preset response automatically numerically coded by the HyperText Markup Language (HTML)/CGI-BIN software. This automatic data coding assisted later analysis.

These codes and the free text comments were automatically extracted from the e-mail notes using proprietary software, and the resulting data were imported into Microsoft Excel™ for summarising and analysis.[9]

The questions selected were intentionally chosen to be straightforward—and therefore hopefully easy for people to answer. Judging by the large number of responses received during the survey period ($n$ = 2,437) this has proved to be the case. Also, it was arranged so that five out of the six questions could be answered simply by clicking on the entry and selecting the desired response using a pointing device (e.g., a computer mouse) (Fig. 2). Therefore typing was only required to answer one of the questions ("*Where did you first hear about AIDA*?").

While the questions are simple, the power of such a survey comes from the large number of responses that can be received over a period of time.

```
From: AIDA_user_response <AIDA_user_response_www@2aida.org>
To: www@2aida.org <www@2aida.org>
Subject: www.2aida.org download response
Date: Tuesday, January 9, 2001 21:09:33 GMT

Below is the result of your feedback form.  It was submitted by
<AIDA_user_response_www@2aida.org> on Tuesday, January 9, 2001 at 21:09:32
-------------------------------------------------------------------------

a, Their operating system is: 4, Windows '98

b, Their computer is: 1, Pentium III PC

c, They first heard about AIDA from: Search Engine

d, Their country is: 222, United States

e, They are: 1, A patient with diabetes

f, They are downloading: 1, AIDA v4.3 (32-bit Windows install procedure)

-------------------------------------------------------------------------
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**FIG. 1.** E-mail note showing how the survey information for each individual response is received at the main e-mail account for AIDA-related queries (www@2aida.org). The answers to five of the six questions have each been automatically, numerically coded by the dispatching software. For example, answer (a) category 4 is the code for the Windows 98 operating system, and answer (e) category 1 is the code for a patient with diabetes. This coding facility assists subsequent semi-automated data analysis.

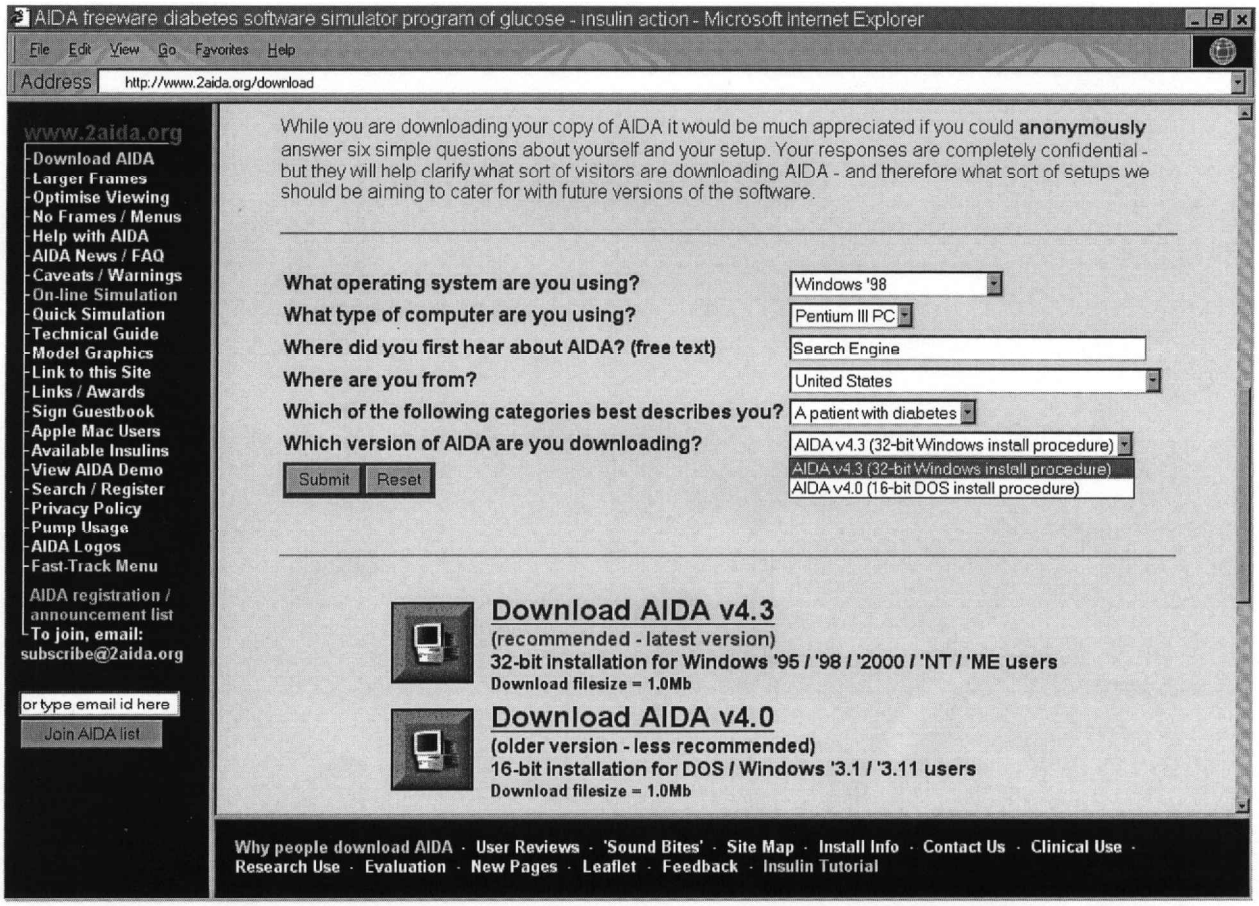


**FIG. 2.** Shows the download Web page at the AIDA Website (www.2aida.org/download) where downloaders can provide their survey responses. Five of the six questions make use of pulldown menus with preselected answers to reduce the need for free text typing.

*Proof-of-concept (pilot) study*

A preliminary survey of downloads of the old release of AIDA (v4.0) was trialled previously with a smaller number of downloads[9] to demonstrate the overall feasibility of this Internet-based survey approach. However, with an increasing number of visitors to the AIDA Website and with the launch in July 2000 of a new, updated release of the AIDA software (v4.3), a decision was made to embark on a fresh audit of a larger number of downloads of the program.

AIDA v4.3 was first made available to beta testers via a separate section of the AIDA Website (www.2aida.org/beta) as from 10th July 2000. As no major problems were identified with the AIDA v4.3 program or the install file/installation process, the v4.3 software went on general freeware release later during July 2000.

The current audit includes 146 download responses from these AIDA beta testers regarding the AIDA v4.3 software. These responses were received and analysed separately from the AIDA v4.0 downloads that were also taking place in parallel via the main AIDA Website in early July 2000. The analysis of these AIDA v4.0 downloads up to mid-July 2000 have been previously reported elsewhere.[9]

## RESULTS

A total of 2,437 audit responses were received during the $7\frac{1}{2}$ months between 10th July 2000 and 4th March 2001. During this period 4,100 actual downloads of the software were independently logged via the www.2aida.org/download page at the AIDA Website, giving a response rate to this audit of 59.4%.

*Who are you?*

Of these responses, 1,361 (55.8%) were received from patients with diabetes, 303 (12.4%) from relatives of patients, 294 (12.1%) from doctors, 155 (6.4%) from diabetes educators, 130 (5.3%) from students, 65 (2.7%) from nurses, 61 (2.5%) from pharmacists, and 68 (2.8%) from other end users (who regarded themselves as none of the above).

*Which country are you from?*

Responses were received from end users in 61 countries, including (in alphabetical order) Algeria, Argentina, Australia, Austria, Bahrain, Belgium, Bolivia, Bosnia and Herzegovina, Brazil, Canada, Chile, China, Columbia, Croatia (Hrvatska), the Czech Republic, Denmark, Ecuador, Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Iran, Ireland, Israel, Italy, Japan, Korea, Lithuania, Malaysia, Malta, Mexico, the Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Puerto Rico, Romania, Singapore, the Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Ukraine, United Arab Emirates, the United Kingdom, the United States, U.S. Minor Outlying Islands, Uruguay, Vatican City State (Holy See), and the Western Sahara.

Over half the responses (62.9%) came from the United States and United Kingdom: 1,109 (45.5%) and 424 (17.4%), respectively. Table 2 summarises the number of responses per country with 17 or more responses.

*What computer and operating system are you using?*

The vast majority of respondents (2,165; 88.8%) were using Pentium PCs to download AIDA, with just 66 (2.7%) using 80286/80386/80486 PCs, 36 (1.5%) using Apple Macintosh computers, and 170 (7.0%) using other (unspecified) computers. Most of the respondents (2,393; 98.2%) were also using 32-bit Windows operating systems (Windows 95/98/NT/ME or Windows 2000), with just five (0.2%) using the older Windows 3.1 or 3.11 operating systems, and the remaining 39 (1.6%) using DOS or other operating systems.

TABLE 2. SUMMARISES THE NUMBER OF RESPONSES PER COUNTRY WITH 17 OR MORE

| *Country* | *Number of responses*[a] | *Percentage (of 2,437 total)* |
|---|---|---|
| United States | 1,109 | 45.5 |
| United Kingdom | 424 | 17.4 |
| Canada | 101 | 4.1 |
| Germany | 90 | 3.7 |
| Italy | 83 | 3.4 |
| Australia | 59 | 2.4 |
| Brazil | 56 | 2.3 |
| Netherlands | 45 | 1.8 |
| Poland | 27 | 1.1 |
| Spain | 26 | 1.1 |
| Greece | 25 | 1.0 |
| India | 24 | 1.0 |
| Singapore | 21 | 0.9 |
| Korea | 19 | 0.8 |
| France | 17 | 0.7 |

[a]2,126 responses (87.2%) from 15 countries. The remaining 311 responses (12.8%) from 46 other countries (16 or fewer per country) are not shown.

*Where did you first hear about AIDA?*

Table 3 summarises where respondents first heard about the software: 1,634 replies were received to this question [i.e., 803 respondents (33.0%) left this question blank]. This is perhaps understandable as users would need to type something in as free text—making this particular question slightly more involved to answer.

Of those who did provide a response, 25.1% ($n = 410$) reported discovering AIDA just by browsing or surfing the Web, 253 (15.5%) found AIDA via search engines, while 191 (11.7%) first heard about AIDA from a linked or referring Website (Table 3).

*Which version of AIDA are you downloading?*

While AIDA v4.3—a release of the software with a Windows install procedure—was launched in July 2000, AIDA v4.0—using a DOS install procedure—has continued to remain available from the AIDA Website for people with older computers.

Of the respondents, 2,399 (98.4%) reported downloading the AIDA v4.3 software while just 38 respondents (1.6%) reported downloading the older AIDA v4.0 program during this time.

Table 3. Summarises Where Respondents First Heard About the AIDA v4 Diabetes Simulation Software

| *Where did you first hear about AIDA?* | *Number* | *% of replies (n = 1,634)* |
|---|---|---|
| Just browsing/surfing the Web | 410 | 25.1 |
| Found via a search engine | 253 | 15.5 |
| From a linked/referring Website | 191 | 11.7 |
| From a diabetes newsgroup/diabetes discussion list/chatroom/newsletter | 162 | 9.9 |
| By e-mail | 108 | 6.6 |
| From my doctor/nurse/hospital/clinic/a colleague | 91 | 5.6 |
| From a friend/relative | 86 | 5.3 |
| From a journal/newspaper article | 82 | 5.0 |
| From Diabetes Insight (a closely linked diabetes Website) | 49 | 3.0 |
| Through my National Medical/Diabetes Association | 46 | 2.8 |
| Throught this Website (http://www.2aida.org) | 33 | 2.0 |
| Through my school/college/university | 30 | 1.8 |
| Through web search for diabetes software | 28 | 1.7 |
| Other (none of the above) | 65 | 4.0 |

A total of 1,634 people answered this particular question.

## DISCUSSION

The current study has confirmed the feasibility of using the Internet to survey large numbers of users/downloaders of diabetes software. It has also provided useful and interesting information—highlighting that over two-thirds of respondents (1,664; 68.3%) are people with diabetes or their relatives. We do not wish to overinterpret these findings—but it is illuminating that so many patients and relatives are turning to the Internet for diabetes-related information.

Clearly it can never be automatic or straightforward to extrapolate the results of a sample survey to a complete population. However, it does seem reasonable to assume that the results of this survey—certainly for the question regarding who has been downloading the software—are typical for the entire period that AIDA has been available on the Internet (there appears no obvious reason why this should not be the case).

In the 5 years up to March 2001 there were 22,230 downloads of the AIDA software independently logged at the AIDA Website. The current survey results therefore suggest that over 15,000 of these downloads are likely to have been made by patients and/or their relatives—as opposed to approximately 5,000 downloads by healthcare professionals (doctors, diabetes educators, nurses, and pharmacists—but not including students and "others"). Given the continued downloading and usage of the software, these data do offer a useful indication as to the extent to which individuals with diabetes and their relatives are accessing AIDA.

It should be made clear that the data presented in this report for the number of downloads of the program only refer to the main AIDA Website (www.2aida.org). Other Internet sites also store copies of AIDA—including the CompuServe Diabetes Forum, the CIX Balance [diabetes] archive, the Lehigh diabetes server, and the Diabetic DataCentre Website. However, downloads from these satellite sites are not all counted or logged, and it is important to note that the current survey has not been run at any of these satellite Websites.

Furthermore, there are a growing number of software archives on the Web that offer visitors an opportunity to download the AIDA software directly from the AIDA U.S. mirror site (http://us.2aida.org) by linking directly to the AIDA installation file. Such downloads, although counted and logged at the AIDA Website, do not allow visitors to have sight of the AIDA download Web page (www.2aida.org/download). As a result downloads via these separate freeware archive sites on the Web (e.g., see Table 4) do not allow downloaders to be queried or surveyed. Therefore downloads

Table 4. Examples of Third Party Websites that Provide Direct Links to Download the AIDA Software

| *Website* | *Number of downloads*[a] |
|---|---|
| www.cnet.com | 2,316 |
| www.zdnet.com | 931 |
| www.freewarefiles.com | 644 |
| www.winsite.com | 262 |

[a]Download figures correct as of 24th May 2002.

via these external sites have not been included in the current audit.

*Limitations*

Clearly this audit has some limitations. Most obvious is the fact that, like many surveys/audits, it is based upon self-reported data, although the large number of responses received do go some way to offset this. However, a relatively major limitation of the current study is that while it offers an indication as to who has been downloading the software, we do not know how much these people have actually used AIDA. For instance, whether people download the install file and then do nothing with the program—or use it a great deal—cannot be established from a survey conducted, as this one has been, at the point of download.

However, we do have various other methods of assessing use of the simulator—and all these different indicators need to be considered together to compile an overall perspective.

For instance, a formal, in-depth/detailed survey of 200 AIDA users (patients, relatives, and healthcare professionals) from 21 different countries has been completed and is in the process of being analysed. This will offer data on the number of times these people have run the AIDA program, and the number of simulations performed (automatically logged by the software), therefore establishing amongst other things actual usage of the program.

Similarly there are other ways that we can estimate usage. AIDA on-line is a mouse-controlled, Windows-based version of AIDA that can be accessed via the Internet completely free of charge at www.2aida.org/online.[19,33]

This facility permits interactive diabetes simulations to be run in a standard Web-browser window. During the period of the current survey the number of simulations logged at AIDA on-line rose from over 45,000 simulations (in July 2000) to over 126,000 (in March 2001). Even allowing for some 68,000 simulations that were run to harvest blood glucose data for training a type of diabetes neural network/decision support prototype,[19] more than 13,000 simulations were run at AIDA on-line during this time—suggesting considerable on-going interest and usage.

While no single indicator can offer a definitive view of continued use of the diabetes simulator, we believe it is particularly informative when a whole series of variables, from different sources and collected in different ways, all point in the same direction.

*Response rate*

As well as having the possible limitations documented above, this current study does have some important things in its favour. Most notable is the much better response rate (59.4%) observed in the current study, compared with the apparent response rate (35.6%) documented in the earlier, pilot/proof-of-concept study.[9] There are various reasons for this improved response rate. Firstly, in October 2000 the AIDA Website moved to its own dedicated facility at www.2aida.org on the Web. As a result downloads of the AIDA software started to be made from its own server, and therefore it became possible to differentiate between program downloads that originated at the AIDA Website and direct program downloads that originated from other third-party sites (Tables 4 and 5). As outlined above, downloads from these third-party/external Websites would have bypassed the AIDA download page, and therefore people accessing the AIDA software via this route would not have had an opportunity to participate in the current AIDA audit/survey. Given this, in the current study, being able to differentiate between the surveyable and nonsurveyable downloads leads to a much more accurate assessment of the denominator and therefore a better estimate of the true audit response rate.

For information, between 10th July 2000 and 4th March 2001, in addition to the surveyable

Table 5. Further Examples of Third Party/External Websites that Provide Direct Links to Download AIDA, but Which Do not Necessarily Count or Log the Number of Downloads

| |
|---|
| www.2haveit.com |
| www.freedownloadscenter.com |
| www.freewarestop.com |
| www.32bit.com |
| www.softwarefiles.com |
| www.downlinx.com |
| www.ed3k.com |
| www.freedownload-games.com |
| www.skali.com |
| www.topdownloads.org |
| www.passtheshareware.com |
| www.downloadsoft-ware.com |
| www.2000shareware.com |
| www.sharewarejunction.com |
| www.freesaver.net |
| www.programfiles.com |
| www.freewarehome.com |
| www.download-freeware.com |
| www.freewarefilez.com |
| www.sofotex.com |
| www.moochers.com |
| www.filetransit.com |
| www.gamextazy.com |

4,100 downloads there were also approximately 2,135 separate downloads of the AIDA software that were made directly, from third-party Websites (e.g., Tables 4 and 5), bypassing the AIDA download/survey page.

Another possible reason for the better response rate in the current study is the fact that visitors to a new, dedicated Website (www.2aida.org) perhaps might have been more motivated to provide feedback and contribute to an audit/survey. Furthermore, the larger overall number of downloads in the current study (4,100 + 2,135 = 6,235) as compared with 3,821 in the previous pilot survey[9] may also have contributed to a higher response rate.

Notwithstanding the larger numbers of respondents in the current audit, it is interesting how relatively consistent the findings remain over time, compared with the previous proof-of-concept study.[9] Therefore, in the 1999/2000 survey of AIDA v4.0[9] 762 of 1,360 respondents (56.0%) were patients with diabetes, while 184 (13.5%) were relatives of patients, with 177 (13.0%) being doctors. By contrast, in the current 2000/2001 audit of AIDA v4.3, 1,361 of 2,437 respondents (55.8%) were patients with diabetes, while 303 (12.4%) were relatives of patients, with 294 (12.1%) being doctors. Similarly, the top five countries responsible for the majority of download responses were the United States, United Kingdom, Italy, Germany, and Canada in the 1999/2000 AIDA v4.0 survey,[9] as compared with the United States, United Kingdom, Canada, Germany, and Italy in the current 2000/2001 AIDA v4.3 audit (Table 2).

## CONCLUSIONS

The continued download and usage of the AIDA software—years after its original release—continues to pleasantly surprise. In this respect there is a growing realisation that diabetes simulations—such as those offered by AIDA—may actually increase patient empowerment.[29] Therefore in the current study we have sought to find out what proportion of downloads of the AIDA v4.3 simulator can be ascribed to patients with diabetes and/or their relatives.

Clearly a survey such as this cannot be any substitute for clinical randomised controlled trials (RCTs) to formally establish the educational utility of such diabetes simulations. Indeed such a pilot RCT has been undertaken,[34,35] and further more extensive RCTs are planned.[26,36,37] However, more than one sort of study is needed to formally test out a software application, and this Web-based audit approach does have some particular utility, especially in terms of studying a large number of subjects.

Connected with this a separate, formal, detailed survey of 200 AIDA users has been completed, and we hope that this will also yield some useful insight into the continued usage of the program. Furthermore we intend to repeat the current data collection—and extend it with future versions of AIDA—to learn more about who is actually downloading the software, making this part of an on-going, routine audit for the program. In addition we hope that work like this will encourage other software developers to undertake similar audits of the usage of their medical/diabetes programs via the Internet.

## SYSTEM AVAILABILITY

The latest release of AIDA (v4.3a) can be downloaded, without charge, from www.2aida.org on the Internet. The program runs on IBM PC or compatible 80386/80486/Pentium-based machines and requires approximately 3 Mb of hard disk storage space. AIDA can also be used on Apple Macintosh computers running PC emulators such as Virtual PC or SoftWindows. A fully Internet-based version of AIDA, called AIDA on-line, is also available for use free-of-charge at www.2aida.org/online on the Web. This allows AIDA's diabetes simulations to be run from any computer, anywhere, provided it has an Internet connection and a graphical display.

An interactive educational Diabetes/Insulin Tutorial that has been integrated with AIDA on-line can also be accessed without charge at www.2aida.org/tutorial on the Web. This allows visitors to dynamically simulate some of what they have learnt in the tutorial about balancing insulin and diet in diabetes, using AIDA on-line.

People who wish to be automatically informed about updates and enhancements to the AIDA software range can subscribe (for free) to the AIDA diabetes simulator announcement list by sending a blank e-mail note to subscribe@2aida.org

Any readers who might be interested in collaborating by applying a standardised RCT protocol[36] themselves in an evaluation of AIDA in their own unit(s) for clinician/specialist nurse/educator-led patient teaching sessions are invited to contact the author. Further information about the evaluation of AIDA for patient use can be found at www.2aida.org/evaluate on the Web.

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