

It All Adds Up: Nutrition Analysis Software Can Open the Door to Professional Opportunities

Because HR 3590, the Patient Protection and Affordable Care Act, includes a mandate (Section 4205) that calorie information be posted at the point of purchase for vending machine snacks and standard menu items at certain types of restaurants (1)—specifically, chain restaurants with at least 20 machines or establishments across the country—the nutrient values of restaurant offerings and how they affect the daily diet are back in the spotlight. However, at these early legislative stages, this attention is mostly coming from government officials, health and nutrition professionals, and journalists, with the ultimate goal of capturing the attention of consumers once these provisions are put into action.

As a result of this impending need for accurate nutrient information, registered dietitians (RDs) may soon find themselves asked to provide these data in a number of contexts, from the restaurant that seeks to determine calculations for its menu (whether by mandate or choice) to the private client seeking to make sense of this information. Provision of such information requires access to a reliable, robust, and accurate nutrient calculation software program. But how does an RD go about selecting the software program that best suits his or her professional needs?

THE COMPLICATED TASK OF SOFTWARE SELECTION

According to Liz Marr, MS, RD—who heads Liz Marr and Associates LLC, a

food and nutrition communications consultancy outside Boulder, CO, and provides recipe development and nutrition analysis information to food companies and restaurants—choosing any type of software can be daunting because of the number and variety of available platforms (see the [Figure](#)). However, conducting the research in advance will lead to more satisfaction with the purchased product.

Note that many nutrient calculation software packages have the same basic features and functions, including intake analysis, recipe creation and analysis, client data tracking, and report generation (2). It is therefore necessary for potential users to have a strong sense of how they expect to use the software in their practice.

Marr says that it is important to have a clear idea of the most crucial functions for one's particular practice setting before shopping around. She recommends creating a spreadsheet to rate the functions of various platforms.

"If you think about the end-product as the services you are providing as an RD," Marr says, "accuracy and reporting capabilities are the two most important attributes of nutrient analysis software."

Depending on work setting, Marr says, considerations may include integration into a larger platform with additional functions—such as menu costing, medical nutrition therapy, inventory control, and others—or information technology standards, such as client-server, Web-based, portability, security, and so forth.

Following are some questions an RD might consider when evaluating software packages (3):

- Does the database contain all the foods and nutrients of interest?
- Is the database complete for these particular nutrients?

- Are the foods in the database adequately specific for accurate nutrient assessment?
- Is the nutrient database maintained for accuracy based on marketplace and data-availability updates?
- Does the software manufacturer communicate regularly with food manufacturers for updated information?
- How is accuracy ensured?

Although database currency is a valuable requirement, be aware that "with 800 new products hitting the supermarket shelves every month," it is difficult for software manufacturers to be fully updated at all times (4).

Selection criteria based on software features may include the following:

- Foodservice management capabilities
- Nutrition assessment capabilities
- Nutrient analysis capabilities
- Reference
- Menu production and management capabilities
- Data regarding specialty populations
- Fitness programming capabilities
- Functionality on a portable digital assistant
- Smartphone compatibility

Personal selection criteria may include factors such as cost, user friendliness, and product quality:

Cost

Cost is frequently a factor when purchasing any type of product, even from something as simple as a package of ballpoint pens to something as complex as an insurance package. Nutrient calculation software costs can run from close to \$100 to approximately \$700, and frequently these prices are for access for a single user and don't include additional fees such as for updates and upgrades. But

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Company Name	General Software Uses	Web site
Axya Systems (Stafford, TX)	<ul style="list-style-type: none"> ● Nutrient analysis of diets, recipes, and menus ● Corporate wellness consulting ● Food labels 	www.axya.com
BioEx Systems (Smithville, TX)	<ul style="list-style-type: none"> ● Nutrition analysis for outpatient and consumers' fitness modules 	www.bioexsystems.com
CBORD (Ithaca, NY)	<ul style="list-style-type: none"> ● Catering ● Foodservice management ● Inventory and delivery ● Menu management ● Nutrition analysis ● Nutrition assessment 	www.cbord.com
Computrition (Chatsworth, CA)	<ul style="list-style-type: none"> ● Food safety guidelines ● Foodservice management ● Inventory control ● Menu management ● Nutrition analysis ● Nutrition care management 	www.comptrition.com
CyberSoft NutriBase (Phoenix, AZ)	<ul style="list-style-type: none"> ● Exercise tracking ● Labels ● Menu management ● Nutrition analysis ● Nutrition assessment 	www.nutribase.com
DFM Technologies (Clive, IA)	<ul style="list-style-type: none"> ● Foodservice management ● Menu management ● Nutrition analysis ● Nutrition assessment 	www.dfmsoft.com
DietMaster Systems (Rochester, MN)	<ul style="list-style-type: none"> ● Foodservice management ● Menu management ● Nutrition analysis ● Nutrition assessment 	www.dietmaster.com
ESHA Research (Salem, OR)	<ul style="list-style-type: none"> ● Client management ● Exercise tracking ● Food labels ● Nutrition analysis ● Menu management 	www.esha.com
CBORD GeriMenu (Ithaca, NY)	<ul style="list-style-type: none"> ● Food labels ● Menu management ● Nutrition analysis ● Nutrition assessment ● Long-term care 	www.gerimenu.com
The Nutrition Company FoodWorks (Long Valley, NJ)	<ul style="list-style-type: none"> ● Nutrition analysis 	www.nutritionco.com
Nutritional Computing Concepts Computer Planned Nutrition (Zionsville, IN)	<ul style="list-style-type: none"> ● Diabetes support ● Food and meds tracking ● Food labels ● Nutrition analysis ● For individuals and professionals 	www.ncconcepts.com
Hopkins Technology EZMealTracker (Hopkins, MN)	<ul style="list-style-type: none"> ● Menu management ● Nutrition analysis 	www.ezmealtracker.com
SureQuest Systems (Carrollton, TX)	<ul style="list-style-type: none"> ● Menu management ● Nutrition analysis 	www.surequest.com
Vision Software Technologies (Goodlettsville, TN)	<ul style="list-style-type: none"> ● Menu management ● Nutrition analysis ● Nutrition assessment 	www.vstech.com

Figure. Information on nutrition software manufacturers and their products' applications. Adapted from reference (5).

while it may be tempting to purchase based on savings, like most products, if fewer dollars are paid for nutrient calculation software, then fewer features are offered. For example, although an RD may feel sticker shock when considering the higher-end software packages such as ESHA Research's (Salem, OR) Food Processor SQL, CyberSoft's (Phoenix, AZ) NutriBase 7, and Axya Systems' (Stafford, TX) Nutritionist Pro 4, it is best if he or she also takes practice needs into account: the pricier bundles on average profess a greater number of foods in the database and nutrients analyzed and availability of a downloadable trial (5). However, not all nutrition professionals will need a program as robust as these.

Marr advises RDs to factor the software costs into the annual budget with the understanding that "because of ongoing database and programming updates (a highly desirable feature), the software is not going to be a one-time expense but rather a license with periodic charges."

For that reason, RDs should be careful not to "overbuy" a software package beyond the needs of the practice; however, by that same token, "underbuying" a software package or trying to make do with free software will not have a successful outcome. "You get what you pay for, and you need to be able to stand by your services," Marr says.

User Friendliness

Ease of use is a frequent criterion for software selection of any kind. Although new software applications frequently take some getting used to, especially if one is accustomed to another format, manufacturers' demos are very useful in determining how comfortable it is to work in a given program. While some manufacturers provide would-be users a mini-tour, other companies allow full access to the program's functions for a restricted time period (2).

Keep in mind, however, that demos are frequently abbreviated versions of

the software and may not accurately reflect the extensiveness of the database; therefore, would-be purchasers are encouraged to look beyond the trial versions for assessing database capabilities (3).

However, "user friendliness" may also refer to how helpful the manufacturer is if problems should arise. Contacting a software manufacturer's information line with pre-purchase questions will provide a useful glimpse into the quality of its customer service and indicate whether it provides clear support or is unhelpful (2).

While considering the actual interaction with customer support representatives, if there are budgetary concerns, it is also worthwhile to make note of any additional costs that come with customer support—some companies may opt to not provide a toll-free phone number, and some might offer only a limited number of free helpline calls before charges are imposed (2).

RDs who use a Mac (Apple Inc, Cupertino, CA) should note that options for Mac users are limited (6); however,

workarounds, such as personal computer emulators, are available (7).

Whether via their Web site or upon consumer request, many software manufacturers provide information regarding recent updates, software patches (to fix glitches), and other important software-related news.

Also important is the venue in which the RD seeks to use the software. Marr notes that several software packages are available in a client-server configuration, whereas others are designed for standalone computers that are not networked, and yet others are available via the Web; thus, the RD's practice need will inform which version or installation method is most suitable.

Product Quality

RDs may learn a lot about the quality of a given software package by researching the available programs or contacting the manufacturers directly to ask product-related queries of customer service. For example, the professional background of the individuals consulting on product creation “gets at the credibility and potentially the reliability of the data as well as the functionality of the software,” says Marr. However, the software’s intended application will determine who best serves the product development team. Whereas many software products might have RDs or food scientists on the team, for example, “For software systems geared primarily toward foodservice, involvement of individuals in other disciplines, such as chefs and operations managers, would be important.”

For RDs unsure of what to ask when attempting to discern a product’s quality via a customer service department, Marr recommends the following questions:

- What type of training do you provide initially and, if there are personnel changes, in the future?
- How often do you provide database and program updates?
- Are software updates available for Web-based downloads?
- For larger operations and software platforms, what level of onsite or remote software support do you offer?
- How do you address database errors reported by customers?

The number of items in the database itself may not be a useful tool for

determining the comprehensive quality of a software package, because “some systems include separate database entries for different forms of the same food (eg, solid, cubed, and grated cheeses), for different preparations of the same food (eg, fried, baked, or breaded chicken), or for the same food with amounts expressed in different units” (3).

Food manufacturers avail software manufacturers of their products’ nutrient data for incorporation into the database. Yet, despite the continuous evolution of these products—in earlier iterations of nutrition calculation software, for example, ethnic foods and vegetarian options were less commonly included in the databases (3)—information gaps do still exist. “That’s where an RD’s knowledge comes into play,” says Marr. “Being able to make informed judgments for substitutions is important.”

SOFTWARE PACKAGES FOR DIFFERENT PRACTICE TYPES

As noted previously, different types of dietetics practice will be best served by different types of nutrient calculation software programs. According to Marr, examples of practices benefiting from specific types of software include the following:

- For RDs who plan menus for schools participating in the US Department of Agriculture School Meals program, only certain software programs have been approved for such use.*
- Some nutrient information analysis software is part of a broader software platform that allows integration of data, which have applications in larger food and/or nutrition services systems. The software may allow for medical nutrition therapy management, diet planning, menu planning, recipe development, and indexing as well as nutrient information analysis of menu items; however, the programs may also include business planning and operations

**The list of approved programs is available at: http://healthymeals.nal.usda.gov/nal_display/index.php?info_center=14&tax_level=2&tax_subject=234&level3_id=0&level4_id=0&level5_id=0&topic_id=2689&placement_default=0.*

management components such as inventory control, purchasing, ordering, sales, menu and recipe costing and pricing, and so on. Computrition (Chatsworth, CA) is an example of such a program with applications for health care settings, whereas ChefTec (Boulder, CO) is used for restaurants and foodservice systems.

- Some software is designed to meet the food labeling regulations and create food labels, whereas some software is primarily for nutrient analysis of consumers’ food intake. For example, ESHA Research’s Food Processor is primarily for nutrition and fitness but includes a recipe analysis component, whereas Genesis R&D, also from ESHA Research, is used for product development and menu labeling.
- Private practice RDs working directly with consumers may use software for nutrient and physical activity tracking, diet and physical activity goal setting, and menu planning. Some software packages may have more detailed options for physical activity, diabetes exchanges, MyPyramid servings, and so on. RDs should consider which analysis and reporting options are most important for the types of clients in particular practice settings. Behavior modification approaches may incorporate self-assessment tools, such as having clients monitor their own food intake. RDs may want to explore the various low-cost personal digital assistant (PDA) applications available to consumers as well as Web-based programs that may be integrated with or completely separate from professional software packages.
- Because of the legal implications created by Section 4205, RDs working with restaurants on nutrient calculations will likely need to painstakingly document how they computed these values. Just about all nutrient calculation software packages are based on the US Department of Agriculture’s Nutrient Database for Standard Reference, but RDs working in the menu labeling context may require software that also provides source information, sample count, and standard error of the mean for all items in the database (4).

See the textbox on page 218 for more detailed information about nu-

trient calculation software for RDs working with restaurants.

CONTINUED PRODUCT EVOLUTION

Nutrient calculation software is constantly evolving. In the mid-1980s, before widespread computer networking or Internet capabilities were available, the nutrient calculation software was disk operating system-based and for standalone PCs, notes Marr, who adds previous versioning of the software that was being tested was not computerized. Rather, it was based on hand-calculations. Since its inception, the software has evolved “in many ways, from search and calculation speed to database size, to client-server, to cloud-based, to PDAs, to integration with other food-related functions, and the innovation continues,” Marr says. “But one thing remains constant: the importance of having reliable food and nutrient data, which goes back to continued support for food composition research.”

As far as future applications, says Marr, “Expect to see growth in cloud-based (Web-based) and portable device applications; incorporation of nutrigenomics into programs for clinical settings; and continued improvements in speed, functionality, and reporting.

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NUTRIENT CALCULATION AND RESTAURANT MENU LABELING GUIDELINES

Liz Marr, MS, RD

Section 4205 of H.R. 3590 may lead to a windfall of career opportunities for RDs, as smaller restaurants and vending machine operators seek to adhere to the rules regulating menu postings for calories and provision of additional nutrient data upon request^a. But is it acceptable for RDs to use nutrient calculation software to determine these values?

Under the Patient Protection and Affordable Care Act (Affordable Care Act), the analysis can be performed by nutrient information analysis software rather than laboratory analysis. However, some regulatory details remain specific to the foodservice setting, including potential variation of serving size and menu item formulation, training of foodservice workers, ingredient variation, and so on. Software with a large, reliable database is very important and so is being able to enter user-generated values, provided the RD can obtain complete data for required nutrients.

In response to the Patient Protection and Affordable Care Act signed into law in 2010, the US Food and Drug Association (FDA) solicited public comments regarding development of regulations for restaurant and vending machine menu labeling.^b Included in the request for information was “determination of calorie content of foods” looking at issues such as the following^c:

- Information about standardization of recipes and methods of preparation
- Information about variation in serving size and formulation of menu items
- The role of inadvertent human error
- Information about training of foodservice workers
- Information about variations in ingredients
- Any other relevant factors.

So more specific guidance can be expected when the final rules are issued. However, an FDA regulation in place since 1996 stipulates that, specific to restaurant menu labeling, “nutrient levels may be determined by nutrient databases, cookbooks, or analyses, or by other reasonable bases that provide assurance that the food or meal meets the nutrient requirements for the claim.”^d The Affordable Health Care Act refers to that regulation^e.

^aThis applies particularly to restaurants that opt to voluntarily comply with the legislation and smaller chains and vending machine operators just at or over the threshold for 20 restaurants/machines. The larger national chains already have nutrient calculation software and staff determining the nutrient values. Source: Stein K. Making wellness delicious: Building a Healthier Chicago's FIT City program. *J Am Diet Assoc*. 2010;110:1620-1625.

^bThe comment period closed October 12, 2010.

^cFederal Register/Vol. 75, No. 129/Wednesday, July 7, 2010/Notices pg. 39028.

^dSection 4205 [of the Affordable Health Care Act] states that a restaurant or similar retail food establishment shall have a reasonable basis for its nutrient content disclosures, including nutrient databases, cookbooks, laboratory analyses, and other reasonable means, as described in Title 21 Code of Federal Regulations, section 101.10. (Section 403(q)(5)(H)(iv) of FFDCFA.) <http://www.gpo.gov/fdsys/pkg/CFR-2010-title21-vol2/xml/CFR-2010-title21-vol2-part101.xml#seqnum101.9>. Accessed October 14, 2010.

^e101.10 Nutrition labeling of restaurant foods: “Nutrition labeling in accordance with § 101.9 shall be provided upon request for any restaurant food or meal for which a nutrient content claim (as defined in § 101.13 or in subpart D of this part) or a health claim (as defined in § 101.14 and permitted by a regulation in subpart E of this part) is made, except that information on the nutrient amounts that are the basis for the claim (e.g., “low fat, this meal provides less than 10 grams of fat”) may serve as the functional equivalent of complete nutrition information as described in § 101.9. Nutrient levels may be determined by nutrient databases, cookbooks, or analyses, or by other reasonable bases that provide assurance that the food or meal meets the nutrient requirements for the claim. Presentation of nutrition labeling may be in various forms, including those provided in § 101.45 and other reasonable means. [61 FR 40332, Aug. 2, 1996].” <http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodLabelingNutrition/ucm223266.htm>. Accessed October 14, 2010.