Special Feature

Optimizing the delivery and outcome of implant dentistry with computer software utilization

By Dr. David A. Gelb

Implant dentistry has gained universal acceptance within the dental community as a new technology supported by long-standing research from which it has evolved. Today, implant procedures are expanding in their clinical indications with the development of new hardware geometries, surface textures and restorative components, and ever-changing protocols to support implant treatment planning and esthetic and functional outcomes previously thought unobtainable.

These developments have posed both an opportunity and challenge to the implant community. Many of these protocols and hardware utilizations are ever changing in their execution over differing periods of healing time. Consequently, they have not been supported with the same comprehensive research as the implant procedures that preceded them. This has created a need for a tool that would help the practicing clinician manage, track, and coordinate the implant process, and provide ongoing clinical research.

Virtual implant coordinator

Among the software solutions developed to serve this need is The Implant Tracker™. This software module is specifically designed to help manage, optimize, and grow an implant practice and act as a virtual implant coordinator and clinical research investigator in the background of an implant practice (see Figure 1, at right).

From the first time that a patient visits a dentist for examination and consultation, the patient's treatment objectives may be recorded. This treatment plan will be deleted from the patient's record only after all the procedures indicated for that patient have been completed.

At the Stage I surgical appointment, all the details associated with that procedure are recorded with drop-down menu choices that the clinician has established within his or her office, as shown in Figure 2 (bottom left):

- the patient's medical history,
- implant size and manufacturer,
- implant location,
- number of times the site was used, and

Figure 1

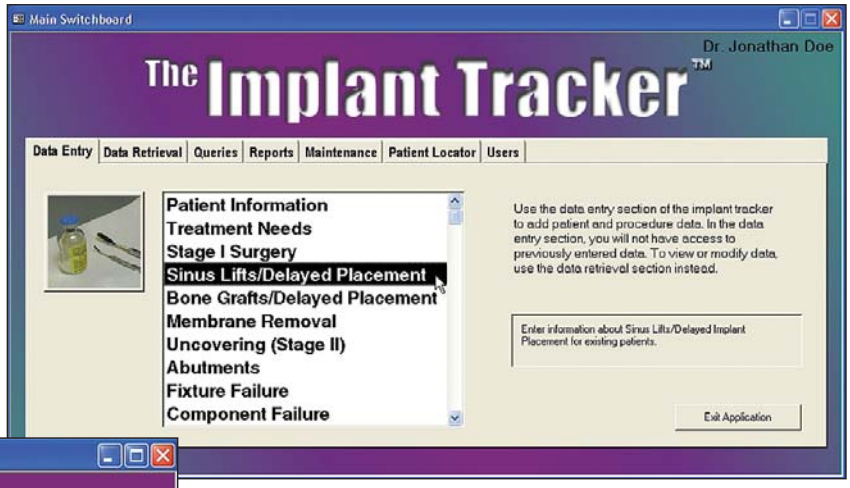
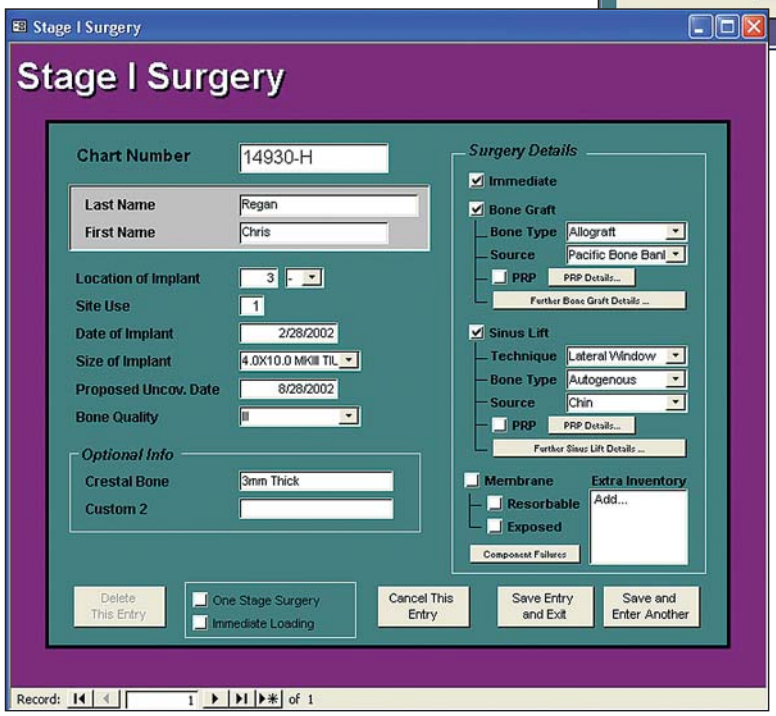


Figure 2



- the choice of immediate implant, one stage procedure or immediate loading.

Additional menu choices include surgery details, also shown in Figure 2:

- sinus lift both simultaneous or delayed,
- bone graft both simultaneous and delayed,
- bone graft source and details,
- PRP details,
- membrane details,
- sinus lift bone graft details,

and many other clinical parameters under which the implant was placed.

Reports alert clinician

The program then prompts the clinician to expeditiously complete the implant sequence. Specifically designed

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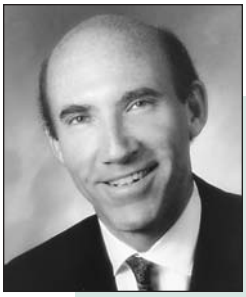
reports alert the clinician to implants ready for uncovering (as shown in Figure 3) membrane removal, implant placement in healed sinus lifts or bone grafts, abutment connection, final prosthesis, recall, etc. With the software serving as virtual implant coordinator, all procedures leading up to the final implant-supported prosthesis can be completed as expeditiously as possible.

Finally, the software enables the user to report clinical research and clinical outcome analysis in either tabular, life table analysis or by area (see Figure 4). The modules reporting this data are included in the program. In addition, the clinician has the flexibility to create custom queries and include multiple and varied parameters of interest. The reporting screens are uniform, so that data of comparable parameters from different centers using this software will be comparable and can be collated for multi-center reporting. In this way, the clinician receives the support of the same type of clinical investigation that has been the hallmark of implant dentistry. Furthermore, the clinician can clearly align the clinical outcomes with variable hardware and surgical protocols within his or her practice, assuring that they compare favorably with benchmark success rates established in the literature.



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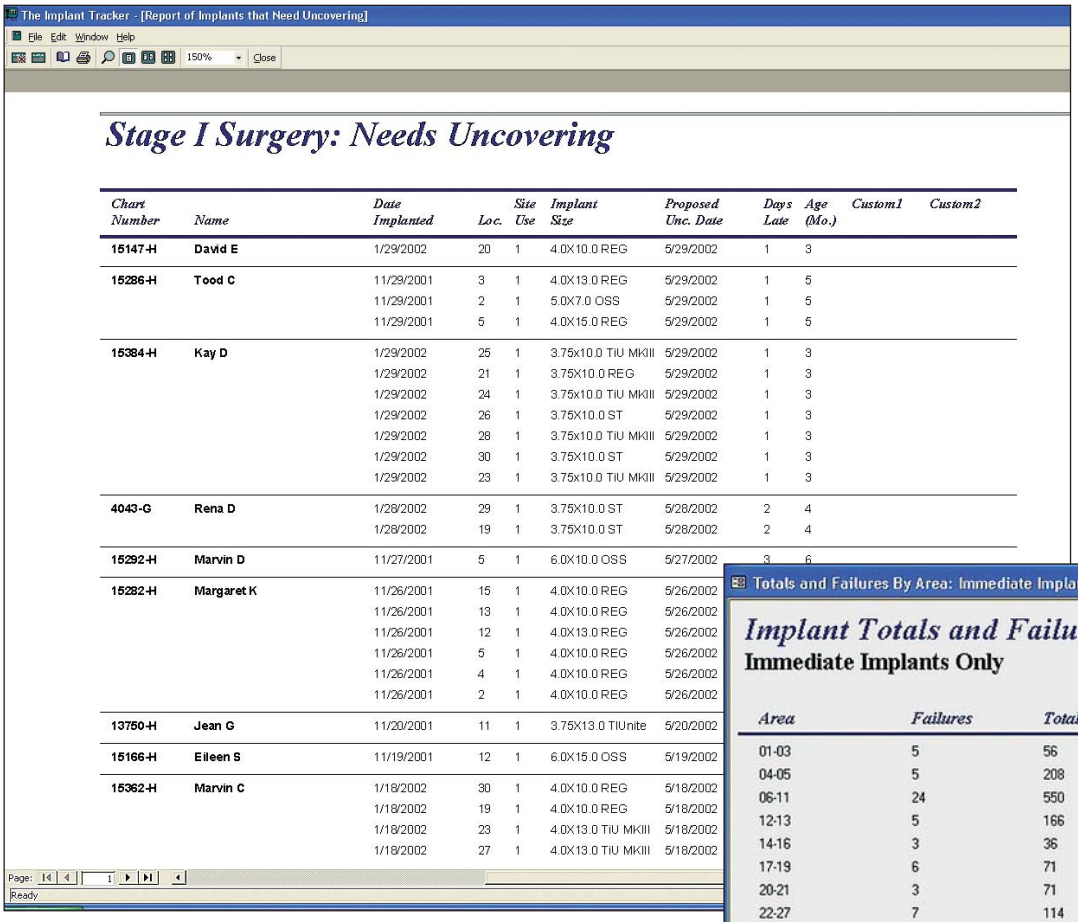
Implant dentistry will continue to evolve with ever-changing hardware, surface textures, and surgical and prosthetic protocols, all designed to improve the clinical discipline of implant dentistry for both clinician and patient. Database analysis is critical for clinicians, both individually and collectively, to assure the continuity of clinical outcome to the same levels previously reported, which have become recognized as desirable and obtainable benchmark success rates.

Only with ongoing clinical investigative analysis focused on new and ever-changing protocols can implant dentistry continue to distinguish itself as an outstanding and well-substantiated service providing enhanced esthetic and functional outcome for most tooth replacement needs.


The Implant Tracker - [Report of Implants that Need Uncovering]

File Edit Window Help

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Stage I Surgery: Needs Uncovering

Chart Number	Name	Date Implanted	Loc.	Site Use	Implant Size	Proposed Unc. Date	Days Late	Age (Mo.)	Custom1	Custom2
15147-H	David E	1/29/2002	20	1	4.0X10.0 REG	5/29/2002	1	3		
15286-H	Tood C	11/29/2001	3	1	4.0X13.0 REG	5/29/2002	1	5		
		11/29/2001	2	1	5.0X7.0 OSS	5/29/2002	1	5		
		11/29/2001	5	1	4.0X15.0 REG	5/29/2002	1	5		
15384-H	Kay D	1/29/2002	25	1	3.75x10.0 TiU MKIII	5/29/2002	1	3		
		1/29/2002	21	1	3.75X10.0 REG	5/29/2002	1	3		
		1/29/2002	24	1	3.75x10.0 TiU MKIII	5/29/2002	1	3		
		1/29/2002	26	1	3.75X10.0 ST	5/29/2002	1	3		
		1/29/2002	28	1	3.75x10.0 TiU MKIII	5/29/2002	1	3		
		1/29/2002	30	1	3.75X10.0 ST	5/29/2002	1	3		
		1/29/2002	23	1	3.75x10.0 TiU MKIII	5/29/2002	1	3		
4043-G	Rena D	1/28/2002	29	1	3.75X10.0 ST	5/28/2002	2	4		
		1/28/2002	19	1	3.75X10.0 ST	5/28/2002	2	4		
15292-H	Marvin D	11/27/2001	5	1	6.0X10.0 OSS	5/27/2002	3	6		
15282-H	Margaret K	11/26/2001	15	1	4.0X10.0 REG	5/26/2002				
		11/26/2001	13	1	4.0X10.0 REG	5/26/2002				
		11/26/2001	12	1	4.0X13.0 REG	5/26/2002				
		11/26/2001	5	1	4.0X10.0 REG	5/26/2002				
		11/26/2001	4	1	4.0X10.0 REG	5/26/2002				
		11/26/2001	2	1	4.0X10.0 REG	5/26/2002				
13750-H	Jean G	11/20/2001	11	1	3.75X13.0 TIUnite	5/20/2002				
15166-H	Eileen S	11/19/2001	12	1	6.0X15.0 OSS	5/19/2002				
15362-H	Marvin C	1/18/2002	30	1	4.0X10.0 REG	5/18/2002				
		1/18/2002	19	1	4.0X10.0 REG	5/18/2002				
		1/18/2002	23	1	4.0X13.0 TiU MKIII	5/18/2002				
		1/18/2002	27	1	4.0X13.0 TiU MKIII	5/18/2002				

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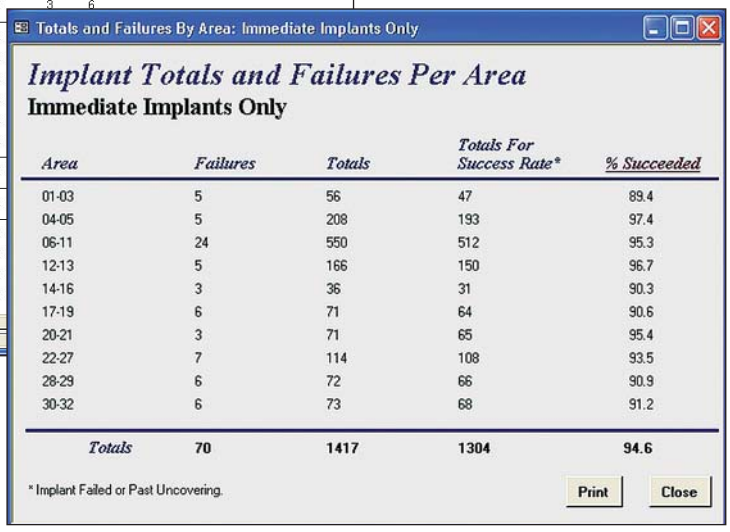
Ready

Figure 3 ▲
Specifically designed reports alert the clinician to implants ready for uncovering


Totals and Failures By Area: Immediate Implants Only

Implant Totals and Failures Per Area

Immediate Implants Only

Area	Failures	Totals	Totals For Success Rate*	% Succeeded
01-03	5	56	47	89.4
04-05	5	208	193	97.4
06-11	24	550	512	95.3
12-13	5	166	150	96.7
14-16	3	36	31	90.3
17-19	6	71	64	90.6
20-21	3	71	65	95.4
22-27	7	114	108	93.5
28-29	6	72	66	90.9
30-32	6	73	68	91.2
Totals	70	1417	1304	94.6

* Implant Failed or Past Uncovering.

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Figure 4 ▶
Clinical outcomes analysis is reported by area. Additional program options enable outcome reporting by tabular or life table analysis as well.