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***From Publication to Practice:
Advancing Science Through Effective Communication***



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Predictive Analytics for Effective Poster Design

*Attention Analysis Simulation of Scientific Posters
Aligns Authors' Intent With Viewers' Focus*

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Acknowledgment

The authors thank the ISMPP Abstract Committee for its acceptance of this presentation, Chris Lawrence (MedThink SciCom) for editorial assistance, Loftin Barnes (MedThink SciCom) for presentation design assistance, and numerous colleagues for their encouragement of this research.

Disclaimer

The views and opinions expressed in this presentation are those of the presenters and do not necessarily reflect the opinions of our employers. The opinions do, however, reflect our research, professional efforts, and knowledge accumulated over the years.



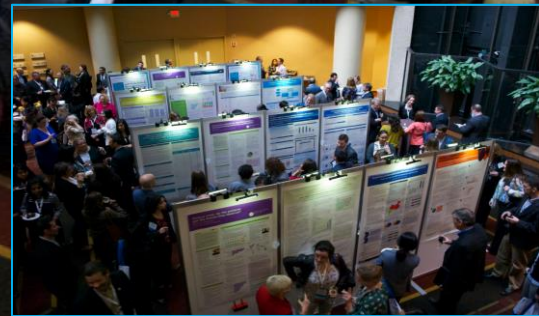
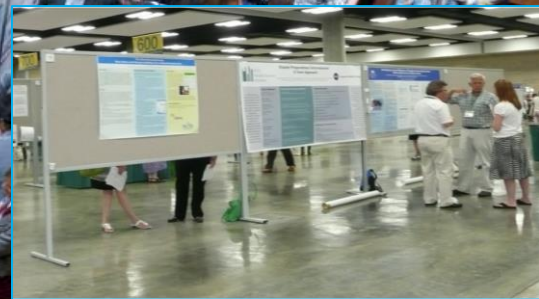
Attention Span Averages...

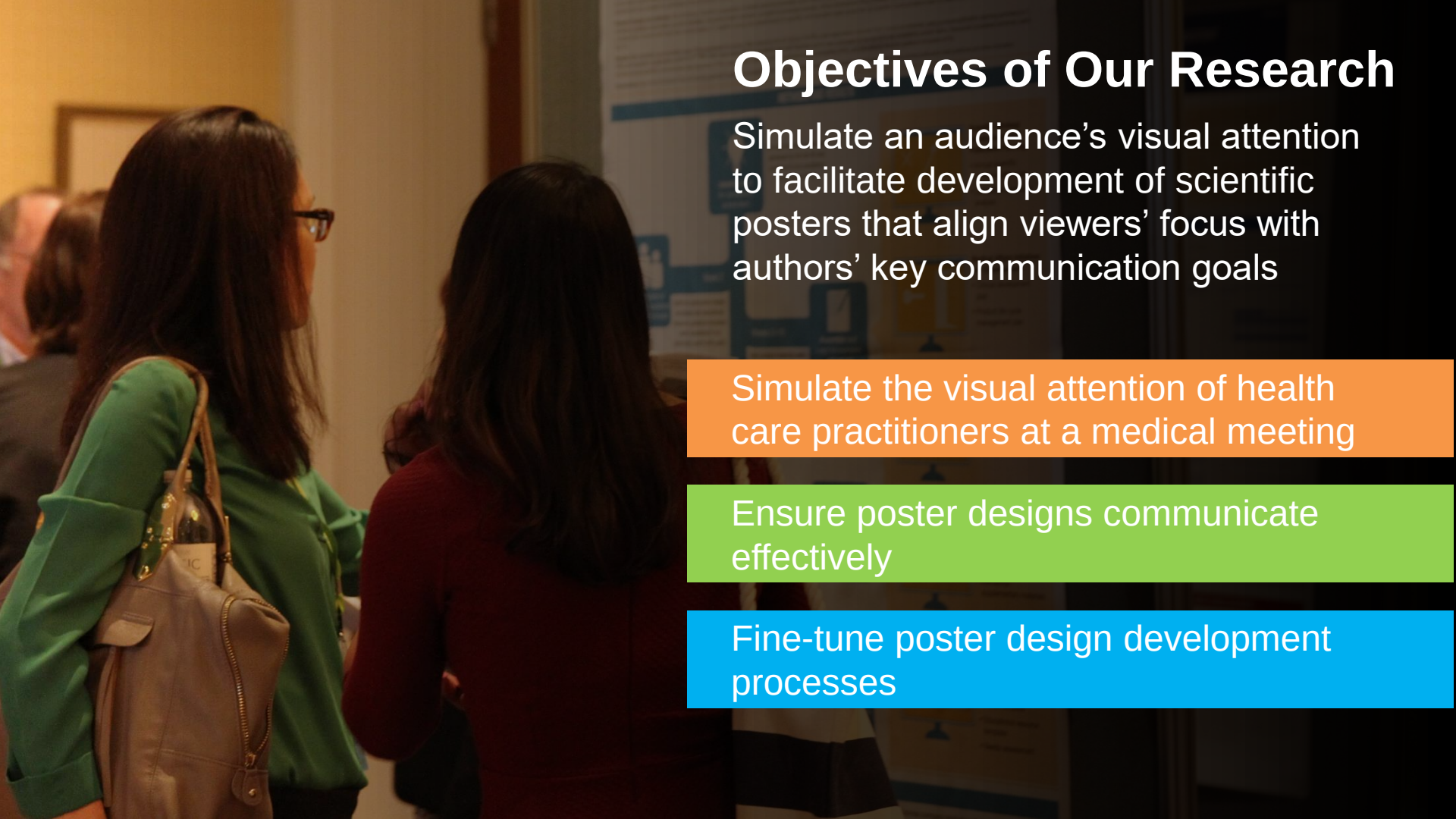
9 secs (goldfish)



8.25 secs (humans)





The background image shows two women from behind, looking at a poster. The woman on the left has long dark hair, wears glasses, a green long-sleeved shirt, and a tan leather bag. The woman on the right has long dark hair and wears a dark red sweater. They are in a room with other posters and people in the background, suggesting a medical conference or meeting.

Objectives of Our Research

Simulate an audience's visual attention to facilitate development of scientific posters that align viewers' focus with authors' key communication goals

Simulate the visual attention of health care practitioners at a medical meeting

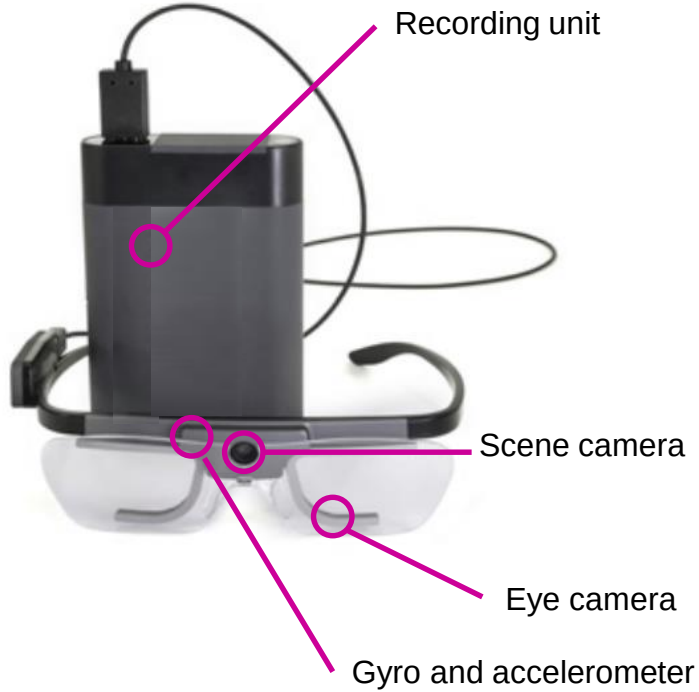
Ensure poster designs communicate effectively

Fine-tune poster design development processes



Machine Learning Algorithms Can Simulate Attention

Oculomotor Camera



Machine Learning Algorithms



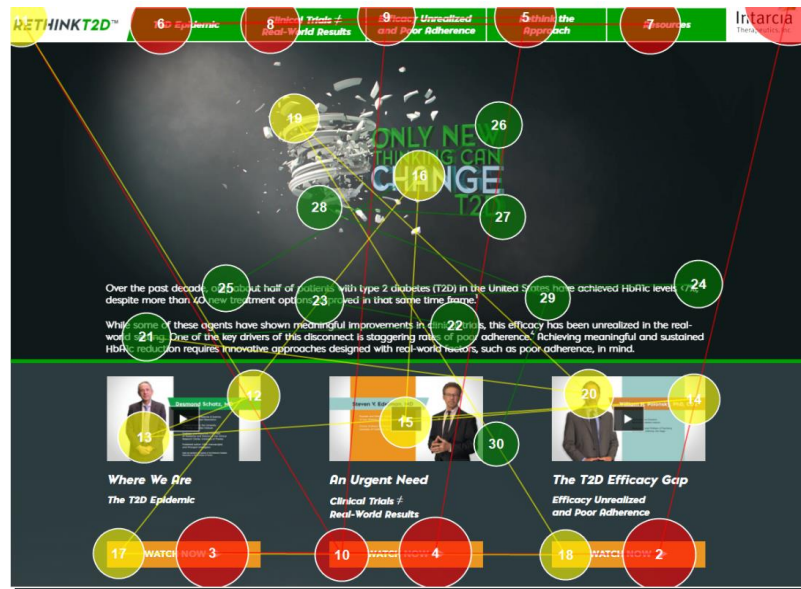


Applications Help Understand Consumer Behavior

Package Design and Shelf Layout



Website Design





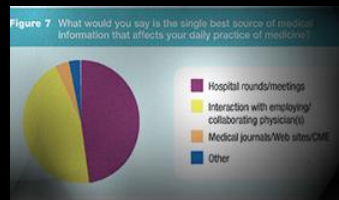
Research Design and Methods

- Collected 16 poster handouts from recent ISMPP annual conferences
- Entered them into machine learning algorithms
 - Simulates eye-tracking session (initial 7.5 seconds) with 91% accuracy

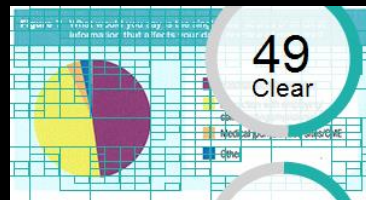
Results were then collated for each poster using
5 interrelated attention analysis reports



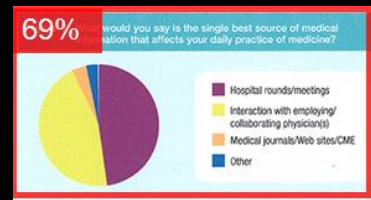
Heat map



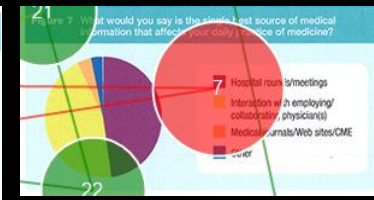
Opacity map



Aesthetics



Areas of interest



Gaze plot

Medical Information Access Preferences: Results of a Survey of Physician Assistants and Nurse Practitioners

6th Annual Meeting of the International Society of Medical Publication Professionals

STUDY OBJECTIVES

- The influence of physician assistants (PAs) and nurse practitioners (NPs) in the delivery of healthcare has grown significantly over the past 40 years. Today, there are more than 135,000 NPs and 72,400 PAs in the United States.^{1,2}
- Only a small amount of data are available that describe how PAs and NPs access the latest medical information, especially with the recent growth of web-based resources. To examine this issue in greater depth, the authors surveyed more than 350 PAs and NPs from a wide range of clinical specialties and practice settings. Our objectives included:
 - Evaluate how PAs and NPs currently access medical information
 - Determine the similarities and differences between PAs and NPs in accessing medical information
 - Assess similarities and differences with physician information access as perceived by the PAs and NPs with whom they work
 - Identify trends that may impact access of medical information

METHODS

- A telephone, electronic survey was prepared that focused on professional and demographic information, and frequency of access to various sources of medical information.
- Survey respondents were asked their perceptions of how their preferences in accessing medical information compared with those of the physicians with whom they regularly work.
- Survey Monkey was used as the primary data collection tool and links to the survey were posted for 60 days (mid-January 2010 through mid-March 2010) on two advance practitioner and physician assistant Web sites (www.clinician1.com and www.advancepractitionerjournal.com).
- No incentives were offered to those responding to the survey.
- A total of 379 individuals responded to the survey: 161 NPs and 218 PAs. Two individuals identified themselves as both an NP and a PA.

RESULTS

- A. Demographics**
 - About 60% of respondents were female. Of the 161 NPs, 148 (92%) were female. Gender for PAs was more evenly divided, with 111 (51%) female and 107 (49%) male respondents.
 - Median age, 34 (43%), representing an equal number of PAs and NPs (50), reported being 50 to 59 years old. Nineteen were aged 20 to 29 years, 75 were 30 to 39 years, 70 were 40 to 49 years, and 50 were 60 years of age or older.
 - There was a broad and fairly even distribution of years in practice, ranging from 14 years to more than 25 years. Seventy-two percent of respondents (124 PAs, 128 NPs) reported having earned a master's degree and 25 reported earning a doctorate (10 PAs, 14 NPs, 1 both).
- B. Patient care was provided by 90% (202 PAs, 155 NPs) of respondents. Family medicine (62), emergency medicine (58), internal medicine (52), women's health (32), pediatrics (14), cardiology (15), orthopedics (15), oncology (13), and occupational health (13) accounted for 65% of all specialty areas. The "other" category was answered by 27 respondents and included a broad range of subspecialties. All other specialty areas received fewer than 10 responses.**
- C. While PAs and NPs can both be found in family practice and general medicine disciplines, PAs were more likely to be found in emergency medicine, orthopedics, and surgical specialties. Nurse practitioners worked more often in pediatrics, women's health, and psychiatric/mental health.**
- D. Hospitals (31%) and non-health maintenance organization (HMO) group practices (31%) were the largest employers of PAs and NPs, followed by solo physician practices (14.7%) and rural health clinics (14.7%). The government and HMOs accounted for less than 10% of responses, while 37 respondents chose "other." Of this group, 5 respondents worked in PA- or NP-owned or managed practice settings (Figure 1).**
- E. Physician assistants were more likely than NPs to be employed by hospitals (36.0% vs. 24.8%), followed by non-HMO group practices (33.4% vs. 28.1%). In contrast, NPs were far more likely to be employed by rural health clinics (22.2% vs. 8.5%).**

Figure 1. Practice type (Please choose one of the following that best represents the practice setting in which you spend the most time providing patient care.)



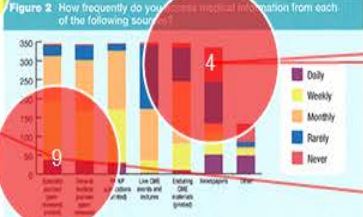
B. Low-Tech Still Communication Method of Choice

- When it comes to patient follow-up, low-tech methods of communications by a notable margin.
- Daily, weekly, or monthly follow-up by phone was reported by 68% of respondents. Conversely, email (62%), Facebook (78%), and LinkedIn (82%) were rarely or never used to follow up with patients.
- Use of the US Postal service was split, with 43% of respondents reporting daily, weekly, or monthly use and 57% reporting using it rarely or never.
- There were no discernible differences in how NPs or PAs communicated follow-up information to patients.

C. PA/NP-Specific Publications Viewed as Credible and as Widely Read as Specialty Journals

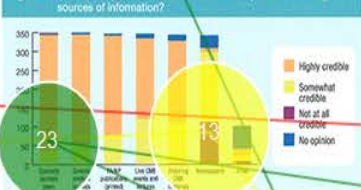
- Of the 379 PA/NP-specific publications were accessed daily, weekly, or monthly by 313 (94.5%) respondents, with most indicating that they read these publications weekly or monthly.
- Printed peer-reviewed specialty (60.7%) and general medicine (87.7%) journals were also accessed daily, weekly, or monthly, with enduring continuing medical education (CME) materials cited by 71.1% of the respondents. About half the respondents (49.7%) attended live CME events daily, weekly, or monthly (Figure 2).

Figure 2. How frequently do you access medical information from each of the following sources?



- When it comes to credibility, PA/NP-specific publications and printed peer-reviewed specialty and general medicine journals were each rated as credible or highly credible sources of medical information by more than 98% of respondents (Figure 3).
- Publications were slightly more credible than live (96%) and enduring CME (94%).
- Two comments about newspapers, a prime source of healthcare information for patients. They were viewed by 22% of respondents as "not at all credible." Respondents also indicated that only newspapers have decreased in their influence during the past 5 years.

Figure 3. How would you rate the scientific credibility of the following sources of information?



- While it stands to reason that PAs and NPs were more likely than physicians to read PA/NP publications, they believed that they read specialty and general medicine journals as frequently as physicians and were somewhat more likely to attend live CME events than were the physicians with whom they work.
- Physician assistants and NPs were most likely to receive 2 or 3 PA/NP-specific publications and one or two specialty or general medicine journals each month (Figure 4).

Figure 4. How many of the following journals do you personally receive each month?



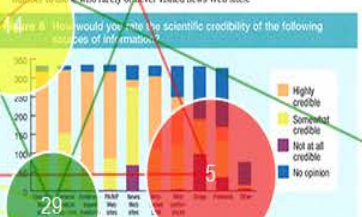
- D. More Timely Access of Web-based Medical Information**
 - The growing influence of Web-based information is reflected in the practices of both PAs and NPs as they access medical information via the Web with greater frequency than they do traditional medical journals (Figure 5).
 - At least two-thirds of respondents are daily or weekly visitors to specialty (74.5%) or general medicine Web sites (70.9%). This compares favorably to daily or weekly access to specialty (55.6%) and general medical journals (48.2%). The less frequent publishing schedules of traditional medical journals may be a reason for this finding. The authors also recognize that an on-line survey format may also draw more internet-savvy participants.
 - Respondents reported weekly and monthly access to specialty (80.0%) and general medical journals (78.1%) at slightly higher rates than daily and weekly access to their Web-based counterparts. Over the course of a single month, access to Web sites and print journals was roughly the same.
 - A total of 54.2% of respondents visit PA/NP-specific Web sites on a daily or weekly basis compared with 49.4% for PA/NP-specific journals. However, over the course of a month, journals were accessed more frequently (64.5%) than Web sites (75.1%).

Figure 5. How frequently do you access medical information from Web-based sources?



- More than 50% of the time, respondents agreed or strongly agreed that specialty and general medicine Web sites, PA/NP-specific specialty and general Web-based CME. At least two-thirds of respondents stated that their use of these sites has increased over the past 5 years (Figure 6).
- Respondents gave evidence-based medicine Web sites high ratings for credibility. These Web sites, for which there are relatively few comparable print journals, were accessed daily or weekly by 66% of respondents, and 49.1% accessed on-line CME at least monthly. A notable finding was the frequency with which respondents specified the Web sites www.medscape.com and www.update.com.
- The number of respondents who visited news Web sites frequently was about equal in number to those who rarely or never visited news Web sites.

Figure 6. How would you rate the scientific credibility of the following sources of information?



- E. Web Conferences, Blogs, and Podcasts Still Evolving**
 - At least one-fourth of respondents rarely or never access Web conferences (74.5%), blogs (84.2%), or podcasts (88.0%). This is interesting, especially for a group of respondents who have shown their internet savvy by accessing this survey via the Web. This finding raises two questions:
 - Is it possible that PAs and NPs do not find Web conferences, blogs, and podcasts relevant to their clinical practice?
 - Or, it is likely that the producers of Web conferences, blogs, and podcasts have not considered PAs and NPs a primary audience?
 - To a lesser extent, respondents viewed Web conferences and news Web sites as more credible or highly credible. Their access to these sites has remained the same over the past 5 years.
 - More than 40% of PAs and NPs had no opinion about the credibility of blogs or podcasts. This is consistent with the earlier finding that they rarely or never access blogs or podcasts.
 - With the exception of the more frequent access by PAs and NPs to Web sites specific to their professions, responses to a question asking respondents to compare their internet access frequency to that of their physician co-workers were inconclusive.

F. Strong Physician Co-Worker Influence

- When asked about the single best source of medical information that affects their daily practice of medicine, respondents rated interaction with physician employers/collaborators and medical journals/Web sites CME highly (48.1% and 44.8% respectively) (Figure 7).



- When it comes to the single best source of medical information that affects their daily practice of medicine, respondents rated interaction with physician employers/collaborators and medical journals/Web sites CME highly (48.1% and 44.8% respectively) (Figure 7).

CONCLUSIONS

- With more than 135,000 PAs and NPs in the United States, these advanced practice clinicians have established themselves as important providers of healthcare in a wide variety of settings and specialties.
- Physician assistants and NPs were remarkably similar in most of their responses, with only a few differences of note.
- Physician assistants and NPs are as likely as physicians to rely on traditional, printed specialty and general medicine journals. However, they rely heavily on journals that are specific to their professions.
- When it comes to timeliness of information, PAs and NPs are much more likely to access medical information daily or weekly via the internet.
- Specialty and evidence-based medicine Web sites are highly regarded and accessed frequently, as are sites such as www.epocrates.com and www.update.com. For medical publishers and Web sites, these findings offer opportunities to broaden their reach to include this growing clinical audience.
- Web conferences, blogs, and podcasts are rarely accessed and their credibility with the PA and NP audiences is less clear. Producers of these online media may find a willing audience if the content is targeted to PAs and NPs, relevant to their clinical situations, and as credible as content found on specialty and evidence-based medicine sites.
- Finally, PA and NP working relationships with physician co-workers, whether they are supervisors or collaborators, are excellent. As a source of continuing medical information, PAs and NPs value interactions with their physician co-workers as highly as they do medical journals, Web sites, and CME activities.

ACKNOWLEDGEMENTS

- The authors would like to acknowledge the efforts of Dr. M. A. Chaffin, MD, of Cleveland Clinic, for her assistance in the design and implementation of the survey. They would also like to thank Dr. M. A. Chaffin, MD, for her assistance in the design and implementation of the survey.

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1. Physician Assistant Workforce Study. A Report. American Academy of Nurse Practitioners.
2. 2008 NANA Practice in Ambulatory Care. A Report. American Academy of Nurse Practitioners.
3. Information, contact Frank Rodas at frank.rodas@thorburncommunications.com

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STUDY OBJECTIVES

The influence of physician assistants (PAs) and nurse practitioners (NPs) in the delivery of healthcare has grown significantly over the past 40 years. Today, there are more than 135,000 NPs and 72,400 PAs in the United States.^{1,2}

Only a small amount of data are available that describe how PAs and NPs access the latest medical information, especially with the recent growth of web-based resources. To examine this issue in greater depth, the authors surveyed more than 350 PAs and NPs from a wide range of clinical specialties and practice settings. Our objectives included:

- Evaluate how PAs and NPs currently access medical information
- Determine the similarities and differences between PAs and NPs in accessing medical information
- Assess similarities and differences with physician information access as perceived by the PAs and NPs with whom they work

For a complete list of study objectives, visit www.updatemag.com.

METHODS

A descriptive, cross-sectional survey was conducted that surveyed all physician assistants and nurse practitioners who responded to advertisements for the survey.

Survey respondents were asked their perceptions of how their preferences in accessing medical information compared with those of the physicians with whom they regularly work.

Survey Monkey was used as the primary data collection tool and links to the survey were posted for 60 days (mid-January 2010 through mid-March 2010) on two nurse practitioner and physician assistant Web sites: www.nursepractitioner.com and www.assistantpractitioner.com.

No incentives were offered to those responding to the survey.

A total of 373 individuals responded to the survey: 181 NPs and 192 PAs. Two individuals identified themselves as both an NP and a PA (NP).

RESULTS

Demographics of the respondents:

Most of the respondents were female. Of the 181 NPs, 149 (82%) were female. Sixty-four PAs were more evenly divided, with 111 (55%) female and 105 (49%) male respondents.

In terms of age, 164 (43%), representing an equal number of PAs and NPs (82), reported being 50 to 59 years old. Nineteen were aged 20 to 29 years, 75 were 30 to 39 years, 70 were 40 to 49 years, and 50 were 60 years of age or older.

There was a broad and fairly even distribution of years in practice, ranging from 14 years to more than 25 years. Seventy-two percent of respondents (134 PAs, 122 NPs) reported having earned a master's degree and 25 reported earning a doctorate (10 PAs, 14 NPs, 1 both).

Patient care was being provided by 90% (202 PAs, 155 NPs) of respondents. Family medicine (62), emergency medicine (38), internal medicine (29), women's health (22), pediatrics (18), cardiology (15), orthopedics (15), oncology (13), and occupational health (13) accounted for 65% of all specialty areas. The "other" category was answered by 27 respondents and included a broad range of subspecialties. All other specialty areas received fewer than 10 responses.

While PAs and NPs can both be found in family practice and general medicine disciplines, PAs were more likely to be found in emergency medicine, orthopedics, and surgical specialties. Nurse practitioners worked more often in pediatrics, women's health, and psychiatric/mental health.

Hospitals (21%) and non-health maintenance organization (HMO) group practices (31%) were the largest employers of PAs and NPs, followed by solo physician practices (14.7%) and rural health clinics (14.7%). The government and HMOs accounted for less than 10% of responses, while 37 respondents chose "other." Of this group, 5 respondents worked in PA- or NP-owned or managed practice settings (Figure 1).

Physician assistants were more likely than NPs to be employed by hospitals (36.0% vs. 24.8%), followed by non-HMO group practices (33.4% vs. 28.1%). In contrast, NPs were far more likely to be employed by rural health clinics (22.2% vs. 8.3%).

Figure 1. Practice type (Please choose one of the following that best represents the practice setting in which you spend the most time providing patient care.)



A. Low-Tech Still Communication Method of Choice

When it comes to patient follow-up, low-tech trumped high-tech methods of communications by a notable margin.

Daily, weekly, or monthly follow-up by phone was reported by 68% of respondents. Conversely, email (62%), Facebook (78%), and LinkedIn (82%) were rarely or never used to follow-up with patients.

Use of the US Postal service was split, with 43% of respondents reporting daily, weekly, or monthly use and 57% reporting using it rarely or never.

There were no discernible differences in how NPs or PAs communicated follow-up information to patients.

C. PA/NP-Specific Publications Viewed as Credible and as Highly Read Specialty Journals

Of the 373 specific publications were accessed daily, weekly, or monthly by 313 (94.1%) respondents, with most indicating that they read these publications weekly or monthly.

Printed peer-reviewed specialty (90.7%) and general medicine (87.7%) journals were also accessed daily, weekly, or monthly, with enduring continuing medical education (CME) materials cited by 71.1% of the respondents. About half the respondents (49.7%) attended live CME events daily, weekly, or monthly (Figure 2).

D. More Timely Access of Web-based Medical Information

The growing influence of Web-based information is reflected in the practices of both PAs and NPs as they access medical information via the Web with greater frequency than they do traditional medical journals (Figure 3).

At least two-thirds of respondents are daily or weekly visitors to specialty (74.5%) or general medicine Web sites (70.9%). This compares favorably to daily or weekly access to specialty (55.6%) and general medical journals (48.2%). The less frequent publishing schedules of traditional medical journals may be a reason for this finding. The authors also recognize that an on-line survey format may also draw more internet-savvy participants.

Respondents reported weekly and monthly access to specialty (80.0%) and general medical journals (78.1%) at slightly higher rates than daily and weekly access to their Web-based counterparts. Over the course of a single month, access to Web sites and print journals was roughly the same.

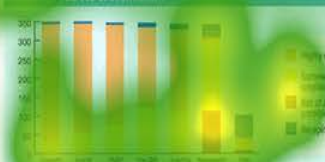
A total of 54.2% of respondents visit PA/NP-specific Web sites on a daily or weekly basis compared with 49.4% for PA/NP-specific journals. However, over the course of a month, journals were accessed more frequently (54.5%) than Web sites (51.1%).

When it comes to credibility, PA/NP-specific publications and printed peer-reviewed specialty and general medicine journals were both rated as credible or highly credible sources of medical information by more than 98% of respondents (Figure 3).

Publications were slightly more credible than live (96%) and enduring CME (94%).

Two comments about newspapers, a prime source of healthcare information for patients, They were viewed by 22% of respondents as "not at all credible." Respondents also indicated that only newspapers have decreased in their influence during the past 5 years.

Figure 3. How would you rate the scientific credibility of the following sources of information?



E. Web Conferences, Blogs, and Podcasts Still Evolving

At least three-fourths of respondents rarely or never access Web conferences (74.5%), blogs (84.2%), or podcasts (88.0%). This is interesting, especially for a group of respondents who have proven their internet savvy by accessing this survey via the Web. This finding raises two questions:

Is it possible that PAs and NPs do not find Web conferences, blogs, and podcasts relevant to their clinical practice?

Or, is it likely that the producers of Web conferences, blogs, and podcasts have not considered PAs and NPs a primary audience?

To a lesser extent, respondents viewed Web conferences and new Web sites as somewhat credible or highly credible. Their access to these sites has remained the same over the past 5 years.

More than 40% of PAs and NPs had no opinion about the credibility of blogs or podcasts. This is consistent with the earlier finding that they rarely or never access blogs or podcasts.

With the exception of the more frequent access by PAs and NPs to Web sites specific to their professions, responses to a question asking respondents to compare their internet access frequency to that of their physician co-workers were inconclusive.

Figure 4. How frequently do you access medical information via the Web?



F. Strong Physician Co-Worker Influence

When queried about the single best source of medical information that affects their daily practice of medicine, respondents ranked interaction with physician employers/collaborators and medical journals/Web sites CME highly (48.1% and 44.8% respectively) (Figure 7).

More than 90% of the time, respondents viewed as somewhat credible or highly credible specialty and general medicine Web sites, PA/NP-specific Web sites, and Web-based CME. At least two-thirds of respondents stated that their use of these sites has increased over the past 5 years (Figure 6).

Respondents gave evidence-based medicine Web sites high ratings for credibility. These Web sites, for which there are relatively few comparable print journals, were accessed daily or weekly by 66.0% of respondents, and 48.0% accessed on-line CME at least monthly.

A notable finding was the frequency with which respondents specified the Web sites www.epocrates.com and www.updatemag.com.

The number of respondents who visited news Web sites frequently was about equal in contrast to those who rarely or never visited news Web sites.

When asked how frequently they rate the scientific credibility of sources of information:

Respondents rated the scientific credibility of sources of information as follows:

Highly credible: 10.0%, Somewhat credible: 10.0%, Credible: 10.0%, Not credible: 10.0%, Not at all credible: 10.0%, No opinion: 10.0%.

When it comes to timeliness of information, PAs and NPs are much more likely to access medical information daily or weekly via the internet.

Specialty and evidence-based medicine Web sites are highly regarded and accessed frequently, as are sites such as www.epocrates.com and www.updatemag.com. For medical publishers and Web sites, these findings offer opportunities to broaden their reach to include this growing clinical audience.

Web conferences, blogs, and podcasts are rarely accessed and their credibility with the PA and NP audiences is less clear. Producers of these online media may find a willing audience if the content is targeted to PAs and NPs, relevant to their clinical situations, and as credible as content found on specialty and evidence-based medicine sites.

Finally, PA and NP working relationships with physician co-workers, whether they are supervisors or collaborators, are excellent. As a source of current medical information, PAs and NPs value interactions with their physician co-workers as much as they do medical journals, Web pages, and CME activities.

CONCLUSIONS

With more than 200,000 PAs and NPs in the United States, these advanced practice clinicians have established themselves as important providers of healthcare in a wide variety of settings and specialties.

Physician assistants and NPs were remarkably similar in most of their responses, with only a few differences of note.

Physician assistants and NPs are as likely as physicians to rely on traditional, printed specialty and general medicine journals. However, they rely heavily on journals that are specific to their professions.

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| <p>The interaction between physicians and patients regarding PAs and NP is the primary focus of the study. The researcher is interested in understanding the relationship between physicians and patients regarding PAs and NP.</p> <p>13666 13667 13668 13669 13670 13671 13672 13673 13674 13675 13676 13677 13678 13679 13680 13681 13682 13683 13684 13685 13686 13687 13688 13689 13690 13691 13692 13693 13694 13695 13696 13697 13698 13699 13700 13701 13702 13703 13704 13705 13706 13707 13708 13709 13710 13711 13712 13713 13714 13715 13716 13717 13718 13719 13720 13721 13722 13723 13724 13725 13726 13727 13728 13729 13730 13731 13732 13733 13734 13735 13736 13737 13738 13739 13740 13741 13742 13743 13744 13745 13746 13747 13748 13749 13750 13751 13752 13753 13754 13755 13756 13757 13758 13759 13760 13761 13762 13763 13764 13765 13766 13767 13768 13769 13770 13771 13772 13773 13774 13775 13776 13777 13778 13779 13780 13781 13782 13783 13784 13785 13786 13787 13788 13789 13790 13791 13792 13793 13794 13795 13796 13797 13798 13799 13800 13801 13802 13803 13804 13805 13806 13807 13808 13809 13810 13811 13812 13813 13814 13815 13816 13817 13818 13819 13820 13821 13822 13823 13824 13825 13826 13827 13828 13829 13830 13831 13832 13833 13834 13835 13836 13837 13838 13839 13840 13841 13842 13843 13844 13845 13846 13847 13848 13849 13850 13851 13852 13853 13854 13855 13856 13857 13858 13859 13860 13861 13862 13863 13864 13865 13866 13867 13868 13869 13870 13871 13872 13873 13874 13875 13876 13877 13878 13879 13880 13881 13882 13883 13884 13885 13886 13887 13888 13889 13890 13891 13892 13893 13894 13895 13896 13897 13898 13899 13900 13901 13902 13903 13904 13905 13906 13907 13908 13909 13910 13911 13912 13913 13914 13915 13916 13917 13918 13919 13920 13921 13922 13923 13924 13925 13926 13927 13928 13929 13930 13931 13932 13933 13934 13935 13936 13937 13938 13939 13940 13941 13942 13943 13944 13945 13946 13947 13948 13949 13950 13951 13952 13953 13954 13955 13956 13957 13958 13959 13960 13961 13962 13963 13964 13965 13966 13967 13968 13969 13970 13971 13972 13973 13974 13975 13976 13977 13978 13979 13980 13981 13982 13983 13984 13985 13986 13987 13988 13989 13990 13991 13992 13993 13994 13995 13996 13997 13998 13999 14000 14001 14002 14003 14004 14005 14006 14007 14008 14009 14010 14011 14012 14013 14014 14015 14016 14017 14018 14019 14020 14021 14022 14023 14024 14025 </p> |
|---|

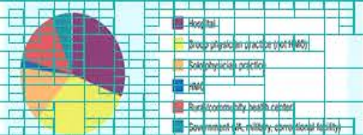
METHODS

14. **Information:** electronic survey was prepared that focused on patients' and demographic information, and frequency with which respondents accessed sources of medical information.
15. **Survey respondents:** were asked their perception of how their preferences in accessing medical information correlated with those of the physician with whom they regularly meet.
16. **Survey Monkey** was used as the primary data collection tool and links to the survey were emailed to all physicians from January 2010 through mid-March 2010. www.surveymonkey.com was used as the survey assistant. Web site: www.surveymonkey.com and www.surveymonkey.com.
17. No incentives were offered to those responding to the survey.

RESULTS

- [illegible]

Figure 1 Protocol type + file search path of a of the (c) file virus that has
 infected part of the program file of a running program. A file virus must limit its spreading to file not virus.



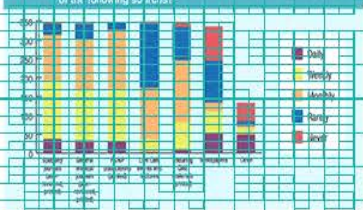
B. Low-Tech Still Communication Methods: Choices

- When it comes to patient follow-up, low-tech trumped high-tech methods of communication by a notable margin.
- Daily, two- to four-month follow-up telephone calls were reported by 66% of respondents. Conversely, casual (two- to five-minute) phone calls and faxed-out (25%) were rarely or never used to follow up with patients.
- Use of the US Mail for letters was split, with 43% of respondents reporting at least weekly, or monthly, and another 40% reporting using it at least weekly or never.
- Table 1. Patient follow-up methods by specialty
- | Specialty | Telephone calls | US Mail | Computer | Other |
|-----------------------|-----------------|---------|----------|-------|
| Primary care | 66% | 43% | 10% | 1% |
| Cardiology | 66% | 30% | 13% | 1% |
| Neurology | 66% | 30% | 13% | 1% |
| Orthopedics | 66% | 30% | 13% | 1% |
| Obstetrics/gynecology | 66% | 30% | 13% | 1% |
| Pediatrics | 66% | 30% | 13% | 1% |
| Psychiatry | 66% | 30% | 13% | 1% |
| Radiology | 66% | 30% | 13% | 1% |
| Urology | 66% | 30% | 13% | 1% |

There were no significant differences in total or fat
formation or index.

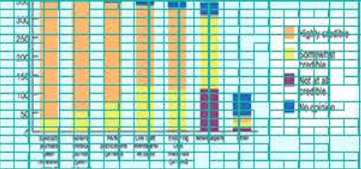
- C. *PubMed-Specific Publications Viewed as Credible and Widely Read as Specialty Journals*
- Of the 14,312 PubMed-specific publications were accessed daily, weekly, or monthly by 131,244 respondents, with most indicating that they view these publications as credible and widely read. Printed peer-reviewed specialty (60,736) and general medicine (82,248) journals were also accessed daily, weekly, or monthly, with reducing costs/insuring medical education (42,616) material cited by 23.1% of the respondents. About half believes osteopaths (40.7%) attended CME (60.6%) daily, weekly, or monthly (Figure 2).

Editorial Board *Journal of the Philosophy of Education Society of Great Britain*



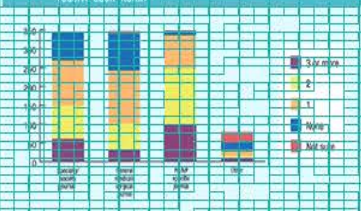
- Which it comes to credibility, the 40% specific public health and primary care reviewed specialist and general medicine journals were as likely as credible as nursing or other sources of medical information by more than 50% of respondents (Figure 9). Indicators were slightly more credible than law (50%) and ending (54%) (44%). Two comments about newspapers, a prime source of health care information for patients, they are involved by 24% of respondents in "not at all credible." Respondents also indicated that only newspapers have decreased in their influence during the past 5 years.

Figure 3 10x7 WGSST VIKI RATE THE SC ENTIRE CIRCLE IN% OF THE FOLLOWING



- Physician assistants and NPs were more likely to receive 2 or 3 PA/NP-specific publications (one of 6 cases) than other medical professions (sixteen of 104 cases).

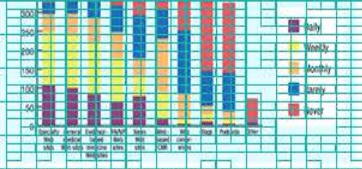
Figure 4 – TOY: IF ANY OF THE FOLLOWING SOURCE IS C.O.S. OR DISEASES



D. Moir & Timely Access of Web-based Medical Information

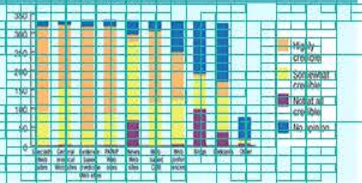
- The general influence of Web-based information sources in the practices of both FAS and non-FAS academic librarians was significant, with greater frequency of use in the two research categories (Table 6).
- At least two-thirds of respondents for each of twelve sources (or possibly 12/24) or greater indicated Web use (70.0%). This comparison is possible because each source asked to specify location and general content type (Table 7). The most frequent publication selection for both FAS and non-FAS respondents was the peer-reviewed journal. Journal recognition (not content variety) found may be a reasonable reflection on library participants.
- Respondents for each category indicated access to peer-reviewed journal content. Journals (63.0%) were slightly higher than news and multiple access to Web. Web-based content may be more available than print, but access to Web sites and print journals was similar.
- A total of 44.2% of respondents indicated that they used Web sites on a daily or weekly basis (Table 8). The use of Web sites was more frequent than other sources. However, over the course of a month, journals were accessed more frequently (64.0%) than Web sites (53.1%).

I agree I've read and understand your privacy policy and I agree to give you my contact information so you can reach me about my account.



- Most participants did not find the information on the websites to be useful for their health or general knowledge. Web sites for PCP, NP, and WebMD were the most commonly used sites. Most respondents stated that their use of these sites has increased over the past 5 years (figure 1).
- Most participants were not aware of medicine Web sites with high ratings for credibility. These sites, which they are relatively less comfortable using, were accessed less frequently than the sites with low ratings for credibility. The most commonly used Web site was WebMD, which had the lowest credibility rating. A total of 10 Web sites were used by at least 10 respondents (table 1). The Web sites www.uptodate.com and www.medscape.com were used by the most respondents.
- The number of respondents who visited more Web sites frequently was about equal in number to those who visited fewer Web sites frequently.

Figure 6 How would you rate the printer's technical support, or the following information?



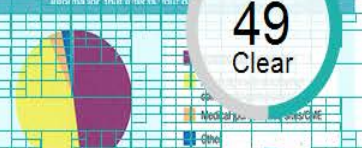
Web Conferences, Blogs, and Podcasts: Still Growing

- [illegible]

Strong Physician Co-Worker Influence

- When queried about the single best source of medical information that affects their daily practice of medicine, respondents ranked interaction with physicians as the top choice, followed by journals, collaborations and medical journals Web sites (CME faculty (6/1/14).

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CONCLUSIONS

- With more than 100,000 Asian NPs in clinical practice, established there is a wide variety of settings and specialties among NPs, and NPs were certified through a few differences in mode. Physicians assistants and NPs are licensed in the same way, and NPs are licensed in specialty and general medicine. The Journal of the American Nurses Association is a journal that publishes articles that interest their professions.
- When it comes to nursing education, NPs and NPs are much more likely to accept medical information only or weekly in their interest.
- Specialty and evidence-based medicine NPs with the highest number of accepted research articles are such as www.docuconnect.com and www.updateme.com. For medical journals and Web-based journals, nursing opportunities is broader than that to include this growing clinical interest.
- Web conferences, blogs, and podcasts are more engaged and their credibility by the NP and NPs. The content in the field of NP and NPs is more likely to be published in the content in the field of NP and NPs, relevant to the clinical community, and as credible in content found on specialty and evidence-based medicine sites.

ACKNOWLEDGEMENTS

- The authors would like to acknowledge the support of the National Natural Science Foundation of China (NSFC) for the project on "Research on the Impact of the Internet on the Development of the Chinese Economy". The authors would like to thank Dr. J. E. Mittman, A. A. J. van der Vliet, and T. J. van der Vliet for their support and assistance during the study period.

SEEDING

100. AUA2017 Physical Activity Census National Report American Academy of Physician Assistants

Medical Information Access Preferences: Results of a Survey of Physician Assistants and Nurse Practitioners

6th Annual Meeting of the International Society of Medical Publication Professionals

STUDY OBJECTIVES

- The influence of physician assistants (PAs) and nurse practitioners (NPs) in the delivery of healthcare has grown significantly over the past 40 years. Today, there are more than 135,000 NPs and 72,400 PAs in the United States.^{1,2}
- Only a small amount of data are available that describe how PAs and NPs access the latest medical information, especially with the recent growth of web-based resources. To examine this issue in greater depth, the authors surveyed more than 350 PAs and NPs from a wide range of clinical specialties and practice settings. Our objectives included:
 - Evaluate how PAs and NPs currently access medical information
 - Determine the similarities and differences between PAs and NPs in accessing medical information
 - Assess similarities and differences with physician information access as perceived by the PAs and NPs with whom they work
 - Identify trends that may impact access of medical information

METHODS

- A telephone, electronic survey was prepared that focused on professional and demographic information, and frequency with which respondents accessed sources of medical information.
- Survey respondents were asked their perceptions of how their preferences in accessing medical information compared with those of the physicians with whom they regularly work.
- Survey Monkey was used as the primary data collection tool and links to the survey were posted for 60 days (mid-January 2010 through mid-March 2010) on two nurse practitioner and physician assistant Web sites: www.clinician1.com and www.advancedpracticejobs.com.
- No incentives were offered to those responding to the survey.
- A total of 379 individuals responded to the survey: 161 NPs and 216 PAs. Two individuals identified themselves as both an NP and a PA (both).

RESULTS

A. Demographics

- Almost 60% of respondents were female. Of the 161 NPs, 148 (92%) were female. Gender for PAs was more evenly divided, with 111 (51%) female and 105 (49%) male respondents.
- In terms of age, 164 (43%), representing an equal number of PAs and NPs (62), reported being 50 to 59 years old. Nineteen were aged 20 to 29 years, 75 were 30 to 39 years, 70 were 40 to 49 years, and 50 were 60 years of age or older.
- There was a broad and fairly even distribution of years in practice, ranging from 14 years to more than 25 years. Seventy-two percent of respondents (134 PAs, 128 NPs) reported having earned a master's degree and 25 reported earning a doctorate (10 PAs, 14 NPs, 1 both).
- Patient care was being provided by 90% (202 PAs, 155 NPs) of respondents. Family medicine (62), emergency medicine (38), internal medicine (29), women's health (23), pediatrics (18), cardiology (15), orthopedics (15), and occupational health (13) accounted for 65% of all specialty areas. The "other" category was answered by 27 respondents and included a broad range of subspecialties. All other specialty areas received fewer than 10 responses.
- While PAs and NPs can both be found in family practice and general medicine disciplines, PAs were more likely to be found in emergency medicine, orthopedics, and surgical specialties. Nurse practitioners worked more often in pediatrics, women's health, and psychiatric/mental health.
- Hospitals (21%) and non-health maintenance organization (HMO) group practices (31%) were the largest employers of PAs and NPs, followed by solo physician practices (14.7%) and rural health clinics (14.7%). The government and HMOs accounted for less than 10% of responses, while 37 respondents chose "other." Of this group, 5 respondents worked in PA or NP-owned or managed practice settings (Figure 1).
- Physician assistants were more likely than NPs to be employed by hospitals (36.0% vs. 24.8%), followed by non-HMO group practices (33.4% vs. 28.1%). In contrast, NPs were far more likely to be employed by rural health clinics (22.2% vs. 8.5%).

Figure 1 Practice type (Please choose one of the following that best represents the practice setting in which you spend the most time providing patient care.)

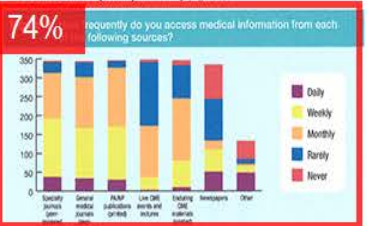


B. Low-Tech Still Communication Method of Choice

- When it comes to patient follow-up, low-tech trumped high-tech methods of communication by a notable margin.
 - Daily, weekly, or monthly follow-up by phone was reported by 66% of respondents. Conversely, e-mail (62%), Facebook (78%), and LinkedIn (82%) were rarely or never used to follow up with patients.
- Use of the US Postal service was split, with 43% of respondents reporting daily, weekly, or monthly use and 57% reporting using it rarely or never.
- There were no discernible differences in how NPs or PAs communicated follow-up information to patients.

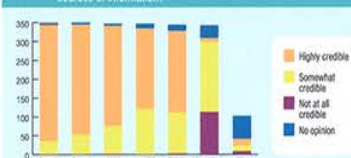
C. PA/NP-Specific Publications Viewed as Credible and as Widely Read as Specialty Journals

- Of note, PA/NP-specific publications were accessed daily, weekly, or monthly by 313 (94.5%) respondents, with most indicating that they read these publications weekly or monthly.
- Printed peer-reviewed specialty (60.7%) and general medicine (87.7%) journals were also accessed daily, weekly, or monthly, with enduring continuing medical education (CME) materials cited by 71.1% of the respondents. About half the respondents (49.7%) attended live CME events daily, weekly, or monthly (Figure 2).



- When it comes to credibility, PA/NP-specific publications and printed peer-reviewed specialty and general medicine journals were both rated as credible or highly credible sources of medical information by more than 98% of respondents (Figure 3).
- Publications were slightly more credible than live (96%) and enduring CME (94%).
- Two comments about newspapers, a prime source of healthcare information for patients, They were viewed by 22% of respondents as "not at all credible." Respondents also indicated that only newspapers have decreased in their influence during the past 5 years.

Figure 3 How would you rate the scientific credibility of the following sources of information?



- While it stands to reason that PAs and NPs were more likely than physicians to read PA/NP publications, they believed that they read specialty and general medicine journals as frequently as physicians and were somewhat more likely to attend live CME events than were the physicians with whom they work.
- Physician assistants and NPs were most likely to receive 2 or 3 PA/NP-specific publications and one or two specialty or general medicine journals each month (Figure 4).

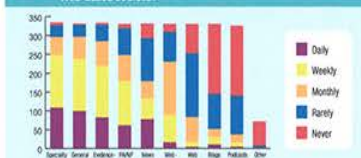
Figure 4 How many of the following journals do you personally receive each month?



D. More Timely Access of Web-based Medical Information

- The growing influence of Web-based information is reflected in the practices of both PAs and NPs as they access medical information via the Web with greater frequency than they do traditional medical journals (Figure 5).
- At least two-thirds of respondents are daily or weekly visitors to specialty (74.5%) or general medicine Web sites (70.9%). This compares favorably to daily or weekly access to specialty (55.6%) and general medical journals (48.2%). The less frequent publishing schedules of traditional medical journals may be a reason for this finding. The authors also recognize that an on-line survey format may also draw more internet-savvy participants.
- Respondents reported weekly and monthly access to specialty (80.0%) and general medical journals (78.1%) at slightly higher rates than daily and weekly access to their Web-based counterparts. Over the course of a single month, access to Web sites and print journals was roughly the same.
- A total of 54.2% of respondents visit PA/NP-specific Web sites on a daily or weekly basis compared with 49.4% for PA/NP-specific journals. However, over the course of a month, journals were accessed more frequently (94.5%) than Web sites (75.1%).

Figure 5 How frequently do you access medical information from Web-based sources?



- More than 98% of the time, respondents viewed as somewhat credible or highly credible specialty and general medicine Web sites, PA/NP-specific Web sites, and Web-based CME. At least two-thirds of respondents stated that their use of these sites has increased over the past 5 years (Figure 6).
- Respondents gave evidence-based medicine Web sites high ratings for credibility. These Web sites, for which there are relatively few comparable print journals, were accessed daily or weekly by 66.0% of respondents, and 49.0% accessed on-line CME at least monthly. A notable finding was the frequency with which respondents specified the Web sites www.epocrates.com and www.update.com.
- The number of respondents who visited news Web sites frequently was about equal in number to those who rarely or never visited news Web sites.

Figure 6 How would you rate the scientific credibility of the following sources of information?

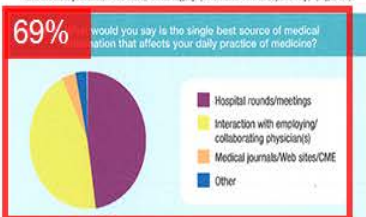


E. Web Conferences, Blogs, and Podcasts Still Evolving

- At least three-fourths of respondents rarely or never access Web conferences (74.5%), blogs (84.2%), or podcasts (88.0%). This is interesting, especially for a group of respondents who have proven their internet savvy by accessing this survey via the Web. This finding raises two questions:
 - Is it possible that PAs and NPs do not find Web conferences, blogs, and podcasts relevant to their clinical practice?
 - Or, it is likely that the producers of Web conferences, blogs, and podcasts have not considered PAs and NPs a primary audience?
- To a lesser extent, respondents viewed Web conferences and news Web sites as somewhat credible or highly credible. Their access to these sites has remained the same over the past 5 years.
- More than 40% of PAs and NPs had no opinion about the credibility of blogs or podcasts. This is consistent with the earlier finding that they rarely or never access blogs or podcasts.
- With the exception of the more frequent access by PAs and NPs to Web sites specific to their professions, responses to a question asking respondents to compare their internet access frequency to that of their physician co-workers were inconclusive.

F. Strong Physician Co-Worker Influence

- When queried about the single best source of medical information that affects their daily practice of medicine, respondents ranked interaction with physician employers/collaborators and medical journals/Web sites CME highly (48.1% and 44.8% respectively) (Figure 7).



CONCLUSIONS

- With more than 200,000 PAs and NPs in the United States, these advanced practice clinicians have established themselves as important providers of healthcare in a wide variety of settings and specialties.
- Physician assistants and NPs were remarkably similar in most of their responses, with only a few differences of note.
- Physician assistants and NPs are as likely as physicians to rely on traditional, printed specialty and general medicine journals. However, they rely heavily on journals that are specific to their professions.
- When it comes to timeliness of information, PAs and NPs are much more likely to access medical information daily or weekly via the internet.
- Specialty and evidence-based medicine Web sites are highly regarded and accessed frequently, as are sites such as www.epocrates.com and www.update.com. For medical publishers and Web sites, these findings offer opportunities to broaden their reach to include this growing clinical audience.
- Web conferences, blogs, and podcasts are rarely accessed and their credibility with the PA and NP audiences is less clear. Producers of these online media may find a willing audience if the content is targeted to PAs and NPs, relevant to their clinical situations, and as credible as content found on specialty and evidence-based medicine sites.
- Finally, PA and NP working relationships with physician co-workers, whether they are supervisors or collaborators, are excellent. As a source of current medical information, PAs and NPs value interactions with their physician co-workers as highly as they do medical journals, Web sites, and CME activities.

ACKNOWLEDGEMENTS

The authors would like to acknowledge the efforts of Lisa Ballard, MBA, CMT, of Churchill Communications for her efforts in writing, editing, and report to the survey results. The authors would also like to thank Dr. David L. Minnema, PA, of www.clinician1.com and Tim Raab of www.advancedpracticejobs.com for posting links to the survey during the testing period.

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 2. 2008-2009 Physician Assistant Census National Report. American Academy of Physician Assistants.
- For additional information, contact Frank Rodino at frank.rodino@churchillcommunications.com.

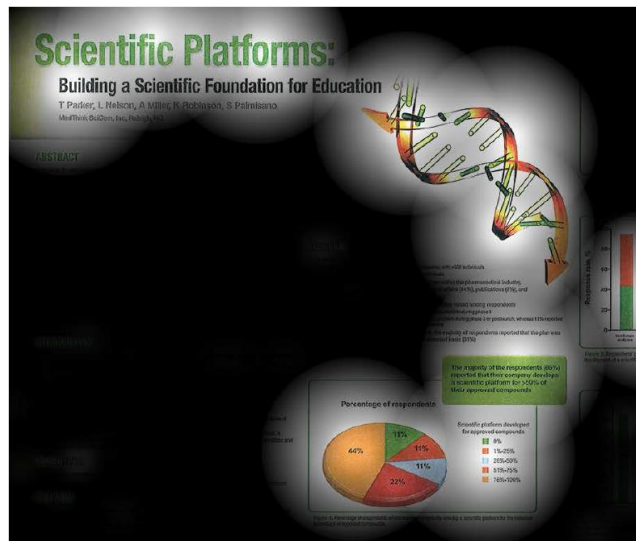


Results—Good Examples

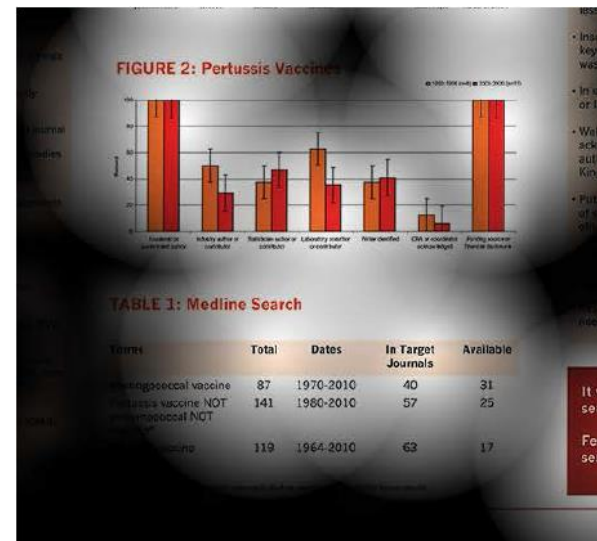
Short headlines are better,
essential for type on
colored background



Graphic elements
that lead your eye



Clear figures,
get rid of chart junk



It was difficult to determine whether contributions to serology or statistics were acknowledged

Fewer explicit acknowledgements of statistics and serology were found than initially anticipated

RESULTS

Study population

- More than 200,000 hits were obtained with the search term
- On applying the filters, 1368 articles remained and were used for further analysis

Overall results

- About 11% of the articles acknowledged MfVs (Figure 1)
- Agency-based MfVs: 38.46%
- Internal writers: 69.54%
- MfVs acknowledged by their name: 67.55%

Figure 1

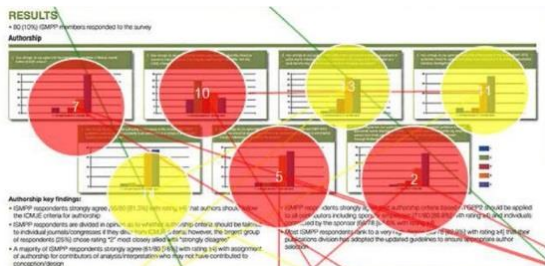
Figure 1 is a 3D bar chart illustrating the percentage of articles that acknowledged MfVs, categorized by agency type (Agency-based MfV and Internal MfV) and whether the MfV was acknowledged by name. The Y-axis represents the percentage of articles (0 to 12%). The X-axis shows the agency type, and the Z-axis shows the percentage of articles (0, 50, 100%). The bars are color-coded: green for 'Not acknowledged' and red for 'Acknowledged'.

Agency Type	Not acknowledged (%)	Acknowledged (%)
Agency-based MfV	~11%	~38%
Internal MfV	~7%	~69%

Legend: Not acknowledged (green), Acknowledged (red).

*MfVs that were acknowledged without an accompanying financial writing agency disclosure included in the Internal colleagues/affiliates

†Data on agency-based, agency-based writer, and 500+ marks are a subset of the Internal data



Overall 3-fold increase over 2011

Percentage of respondents

The majority of the respondents (85%) reported that their company develops a scientific platform for >50% of their reported compounds.

Scientific platform developed for reported compounds:

- 0% 17%
- 1%-25% 11%
- 26%-50% 22%
- 51%-75% 44%
- 76%-100%

85% organization have a policy on RWE publications?

No, there is no policy

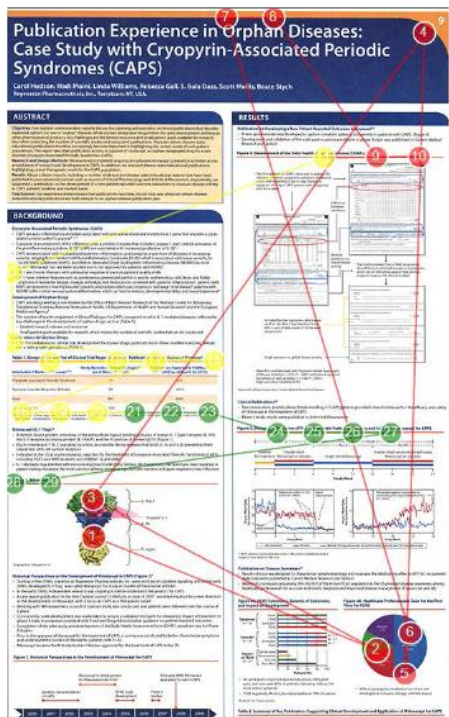
I don't know whether there is a policy or not

61% 18% 11%

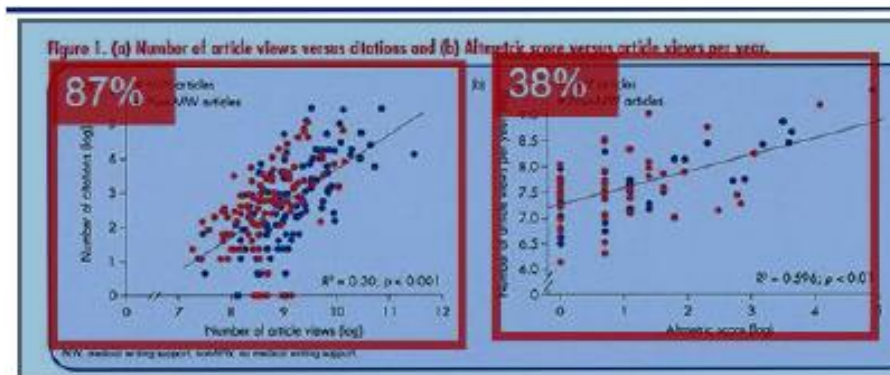


Results—Neutral Examples

Good areas of focus,
very long eye movements



Draws attention, but summarize it!

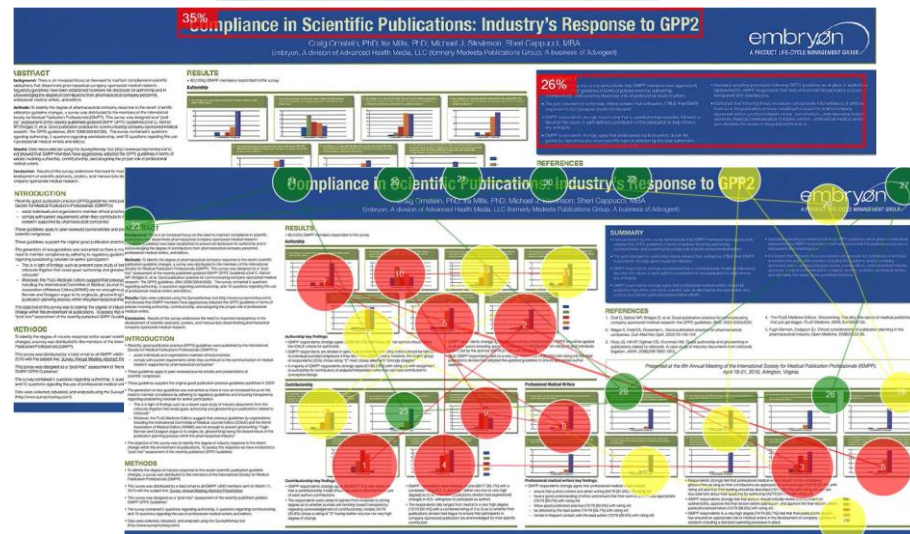


Good attention, wrong areas

-
- METHODS**
- 5 published studies were identified
- 1 study excluded for "clinical risk" to the core and "English" were applied
- 18 abstracts were screened
- 16 abstracts were included based on relevance of all the abstracted articles were used to prepare Microsoft Excel spreadsheet
- 4 studies were identified



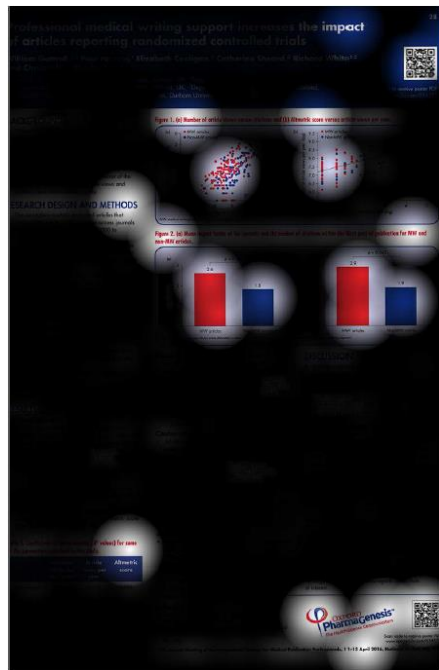
Callout box, but too much copy





Results—Suboptimal Examples

If using QR/VR codes, place them strategically



Wrong location, don't add color



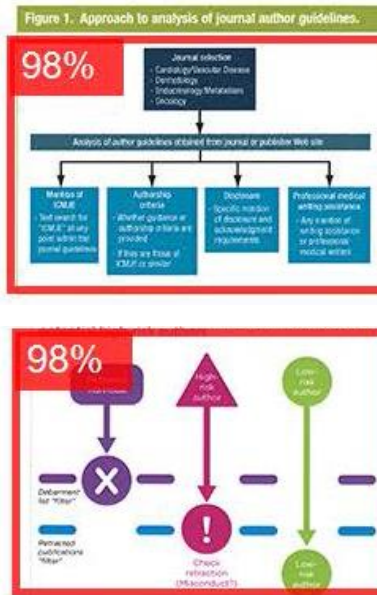


Results—Suboptimal Examples

Key study findings, very low attention

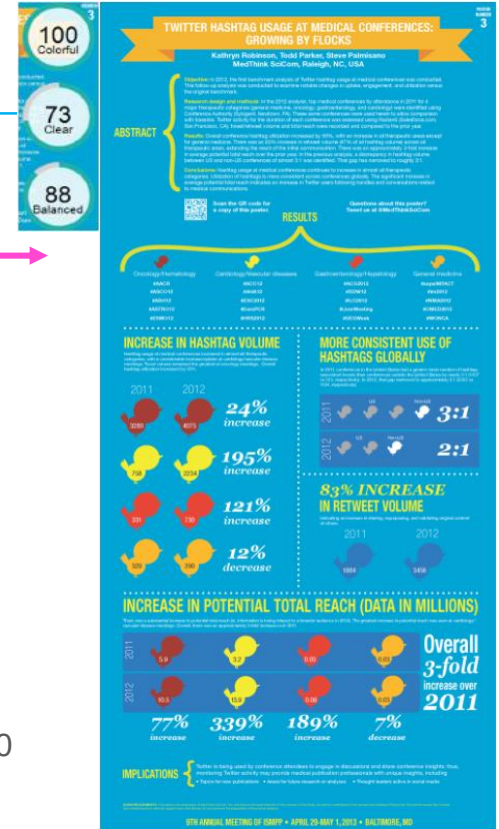
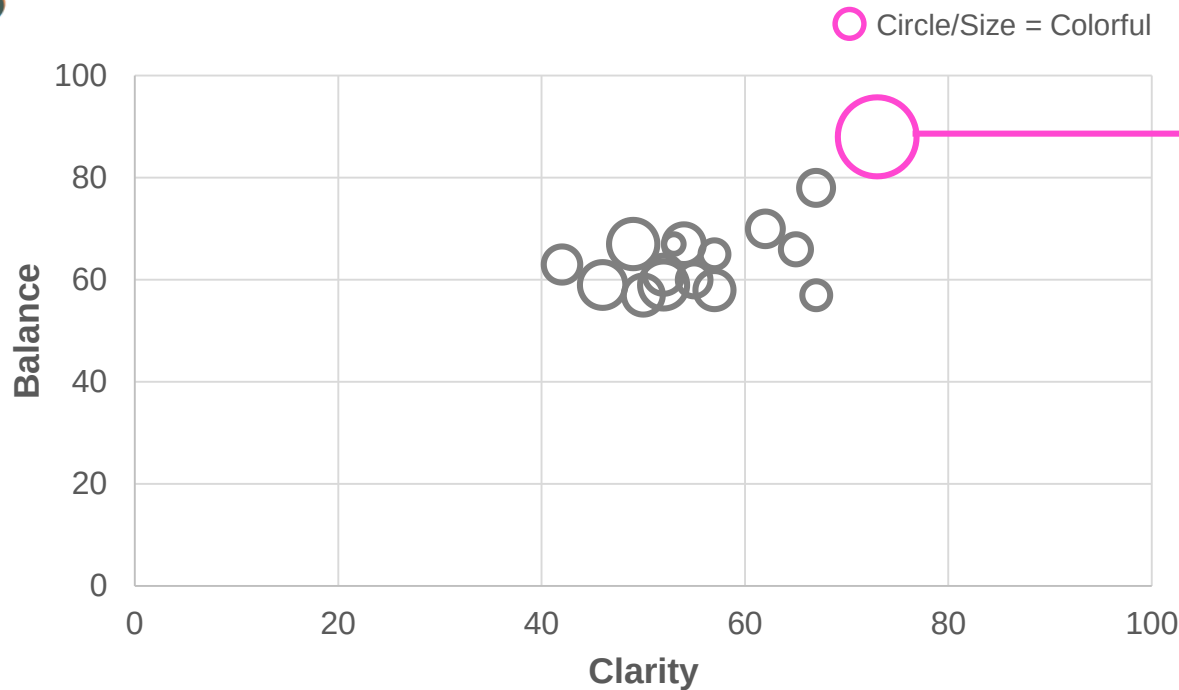


Less important information, far too much attention





Results—Aesthetics^{a,b}



^aHighest scoring poster for overall aesthetics in attention analysis simulation had been voted *ISMPP Best in Visual Communication* in 2013.

^bPosters awarded *ISMPP Best in Visual Communication* scored much higher than unawarded posters (separate assessment).



Implications—Update Your Poster Development Process



Abstract
accepted



Conference call
with author/s



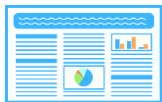
Lay out poster, run poster through
Attention Analysis Simulation,
incorporate changes



Discuss *Attention Analysis
Simulation* results and
additional poster layout changes



Incorporate
changes and run
Attention Analysis Simulation



Poster and handouts
used at conference



So What Can We Do?

- Use short headlines
- Use call-out boxes with knock-out type to summarize key ideas
- Graphs are better than tables for summarizing key data quickly
- Use negative space to improve visual appeal (i.e. don't crowd your poster)
- Use one accent color with high contrast to draw attention when needed
- Ask authors what they want viewers to see
- Be open to change and updating your processes



Summary—Ensure Execution of Authors' Vision

1

ATTENTION

...to the most important
poster elements

2

EFFICIENCY

...in the scan path pattern
appropriate for learning

3

CREDIBILITY

...through a visually
attractive scientific poster

14TH ANNUAL MEETING OF ISMPP

DISCUSSION



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THANK YOU!



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