

Clinical research for  
evidence-based care



Steve

Combining multiple  
data sources



Rebecca

Data collection in  
clinical practice



Heiko

Identification  
of individuals



Patricia

Biometrics

Workflow integration

Controlled vocabularies

Socioeconomic impact

# Data Collection in Clinical Practice

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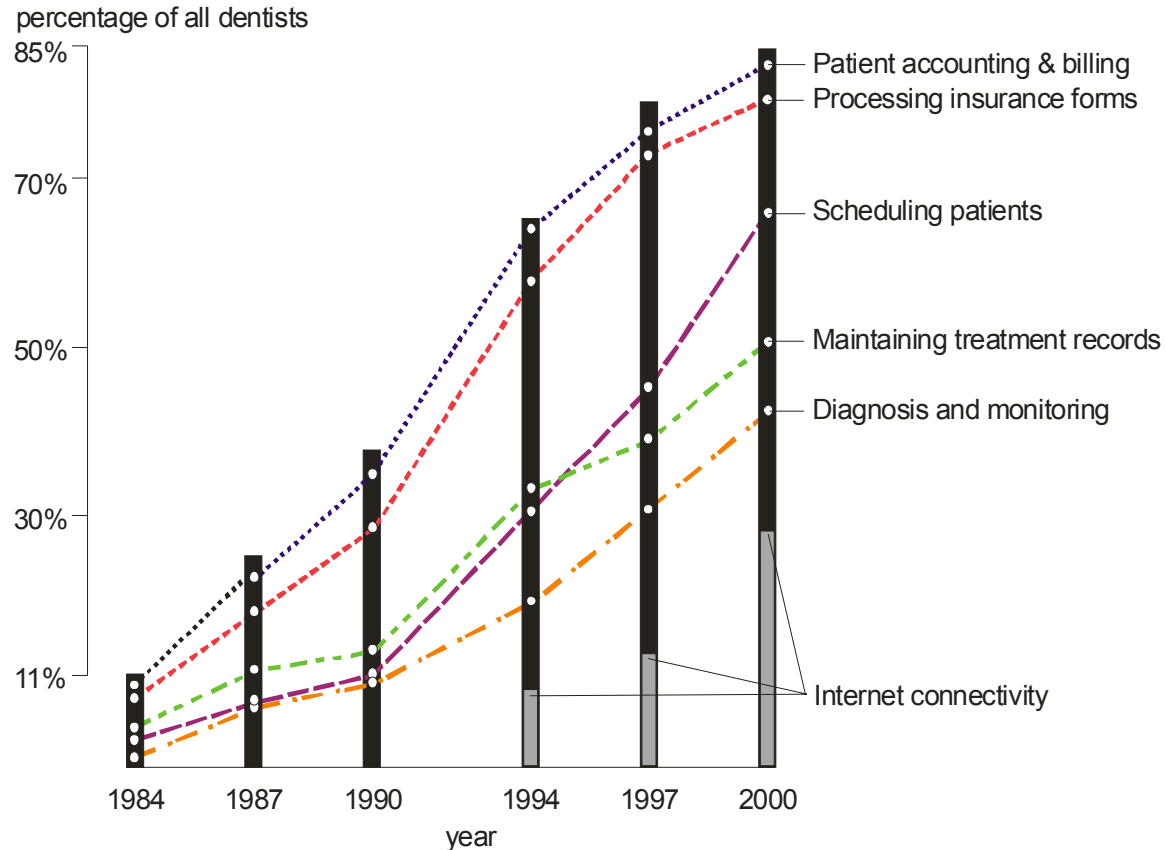
University of Pittsburgh

# Agenda

- Identify individuals
- Current status of computer usage in dental practice
- Electronic Data Collection (EDC)
- Data integration
- Workflow integration
- Combining data from multiple sources



# General computer use



Computer ownership, Internet connectivity and selected computer uses in dental practice (1984-2000)

(Schleyer T.K. Spallek H, Bartling WC, Corby P. The technologically well-equipped dental office. Journal of the American Dental Association 2003: 134 (January); 30-41.)

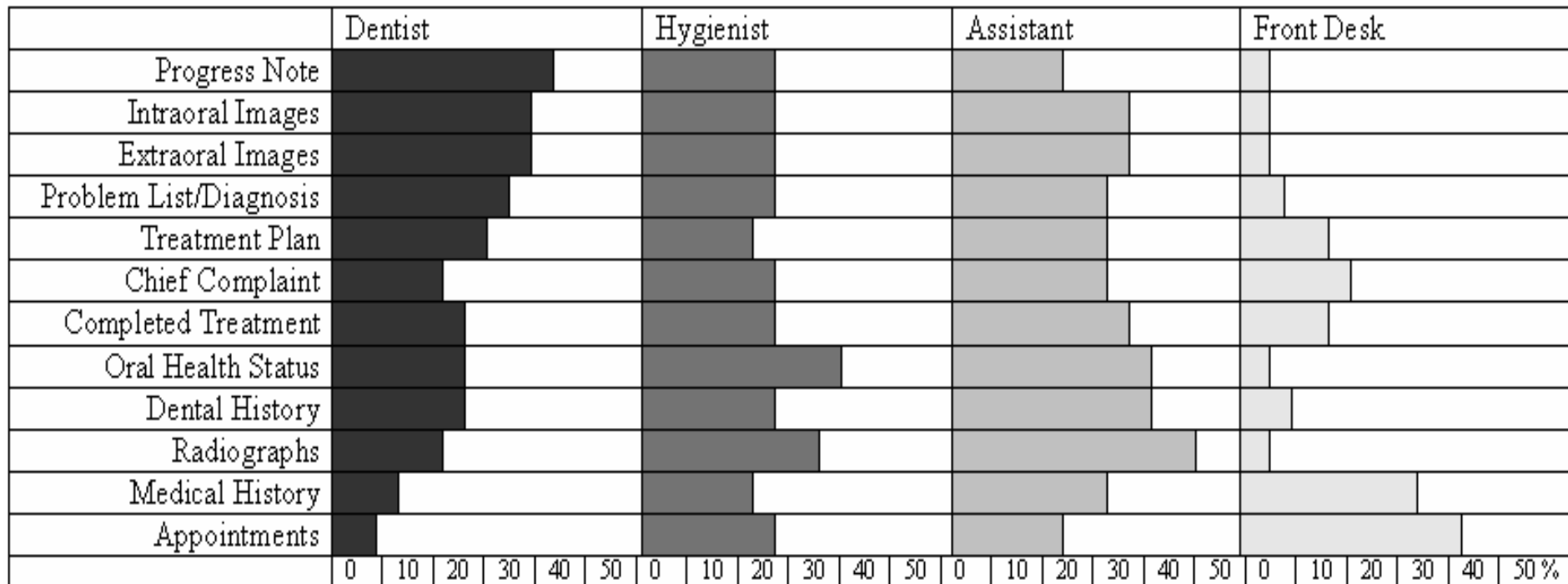


# Background

- many new digital technologies for dentistry in the last 20 years:
  - digital radiology
  - intraoral/digital cameras
  - computer-based patient records
  - CAD/CAM
  - decision support
  - ...
- approx. 87% of all dentists use computers
- approx. 26% of those use them at chairside



# Chairside data entry (100 offices)



# Storage of patient information

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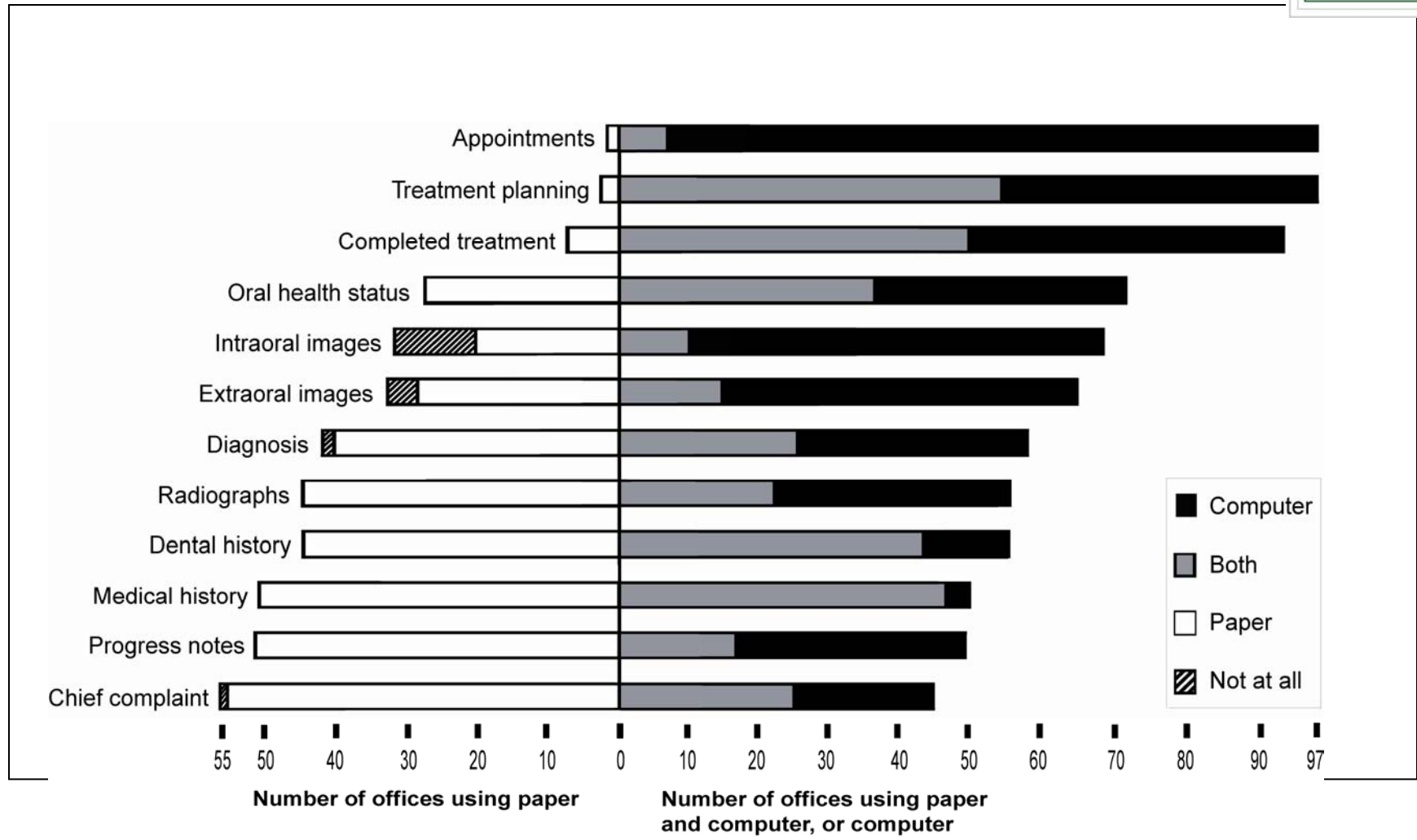
Combining multiple data sources

Data collection in clinical practice

Identification of individuals

Steen  
Rebecca  
Marko  
Pamela

Controlled vocabularies  
Workflow integration  
Interoperability



# Barriers and Disadvantages

- space for computers
- staff training
- steep learning curve
- computer crash
- infection control
- time consuming to enter data
- cost









The “window sill” configuration.

Where is the monitor?

In the opposite corner of the room, lets walk over...

# Why collect data electronically?

- AHRQ's PBRN initiative is to “establish or improve electronic collection and aggregation by the network of data derived from the individual practices”
- Electronic Data Collection (EDC) improves compliance in long-term data collection
- integration of the data collection process with practice operations and workflow



# Data Integration Objective

integrate data collection progressively with the practice management system already in use in the practice



# Data Integration – Level 0

- Practice and research/data collection IT Infrastructure separate
- Use of Tablet PCs as primary data entry device
- Distribution of preconfigured systems to dentists.



# Data Integration – Level 1

- Data collection takes advantage of existing electronic patient data
- Tablet PC application uses bridging to retrieve patient data from PMS.
- Dentists use same Tablet PC to record study-related data.



# Data Integration – Level 2



- Research Study Data Collection and Management Fully Integrated into the PMS
- Tablet PC application uses bridging to retrieve patient data from PMS.
- Dentists use their own PMS to record study-related data.

# Workflow Integration Objective

- embed the *knowledge* required to conduct research into the IT infrastructure
- Electronic Data Collection (EDC) improves compliance in long-term data collection
- integration of the data collection process with practice operations and workflow





# Workflow Integration – Level 0

- research- and data collection-related activities, from the standpoint of IT, are separated from practice operations.
- unfamiliar with the process of conducting research or data collection
- need for training and support



# Workflow Integration – Level 1



- Research Protocol Management Integrated into the PMS
- Knowledge about research protocols is integrated into the PMS.
- IT infrastructure supports the study participant's flow through the research study.

# Workflow Integration – Level 2

- Research Process Integrated into Practice Workflow
- management of the research process in the practice itself is integrated into the IT infrastructure
- “cradle-to-grave” support for conducting research in dental offices

