Should we leave patients to their own devices?

Unexplored pharmacy opportunities: use of technology to improve medicine safety

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South African Pharmacy Council

3rd NATIONAL PHARMACY CONFERENCE
3-5 OCTOBER 2019
SUN CITY, SOUTH AFRICA

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A to Z of MEDICINES

Medicine informatics

Clinical Decision Support


Medicine safety is a basic human right


Getting information off the Internet is like taking a drink from a fire hydrant.
Mitchell Kapor

The ROI of a medicine information system

Patient

Up to 50% non-adherence

At least 34% long term treatment persistence (twice controls)

Healthcare professional

24% human error rate in prescribing/dispensing

Human error rate reduced to 2%

Payor, Provider

10-30% of hospital admissions are as a direct result of medicine (mis)management

Savings of >USD 30 billion per annum (US only). No data for emerging markets

Sources provided on request

The Medicine Burden

The Medicine Burden

50%

Of chronic patients (GLOBALLY) are non adherent

5-30%

Of TOTAL hospital admissions are as a result of medicine mismanagement and the complications thereof

(estimated to cost >$30bn/yr in the US)

10%

Of total hospital admissions in SOUTH AFRICA are as a result of medicine mismanagement

Preventing 1 patient from being admitted to hospital saves an average of $40,000

Source: Adverse Drug Events - Why We Care

A-Z Review 1: Analysis of 185,200 chronic scripts

The review examined medicine – medicine interactions only (August 2019)

7%

Of ALL multi-line claims had at least one Severity Level 1 combination

39%

Of ALL multi-line claims had at least one Severity Level 2 combination

Source: A to Z of Medicines Interaction Checker

A-Z Review 2: Analysis of 435,965 unique patients
(10-31Aug2019)

Patients receiving 1 (unique NAPPI) medicine	125,944
Patients receiving 38 (unique NAPPI) medicines	2
Patients receiving 6 or more (unique NAPPI) medicines	19,056
Unique NAPPI to NAPPI interactions (severity level 1 and 2 only)	31,217
Unique AMI to AMI interactions (severity level 1 and 2 only)	3,552 (127,677 occurences of these interactions)
The top 10 NAPPI's responsible for these interactions represent	17.5% of TOTAL NAPPI's
The top 10 NAPPI's responsible for these interactions represent	12.3% of TOTAL cost
Estimated cost (SEP) of medicines related to interactions	> $400,000/month

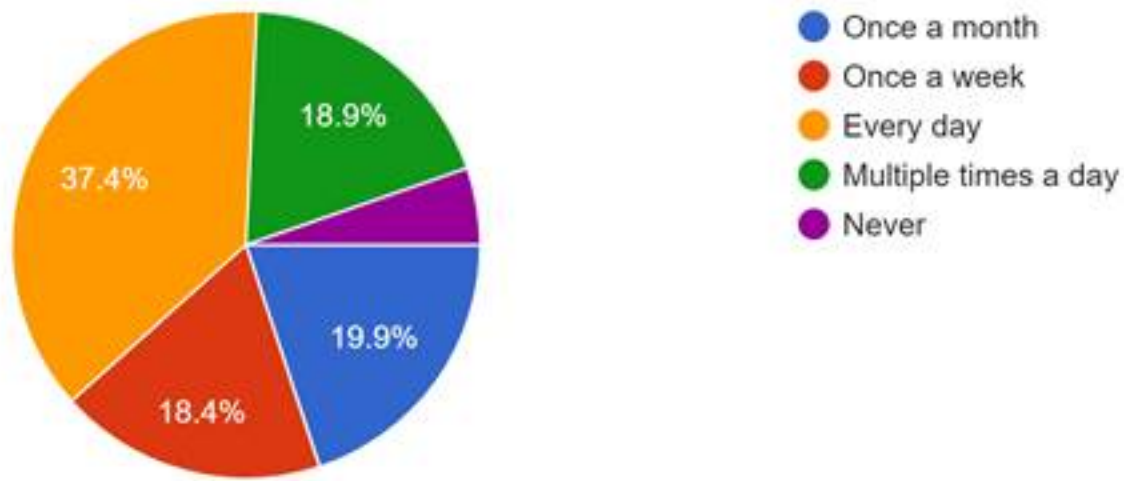
Further analysis should be done to determine: 1) "Other" risk, 2) Interactions leading to hospitalisation, 3) Nature of Chronic-Acute, Acute-Acute interactions

Human error and poor outcomes should not be happening in a world of big data and machine learning

The OLD World	The **NEW** World
Medicines are developed for patient populations (not individuals)	Medicines are personalised for the individual patient (+genetic) profile
US and European studies estimate a **24%** human error rate in prescribing of medicines	An integrated medicine informatics solution that allows for medicine data set interrogation and patient personalisation reduces human error to **2%**

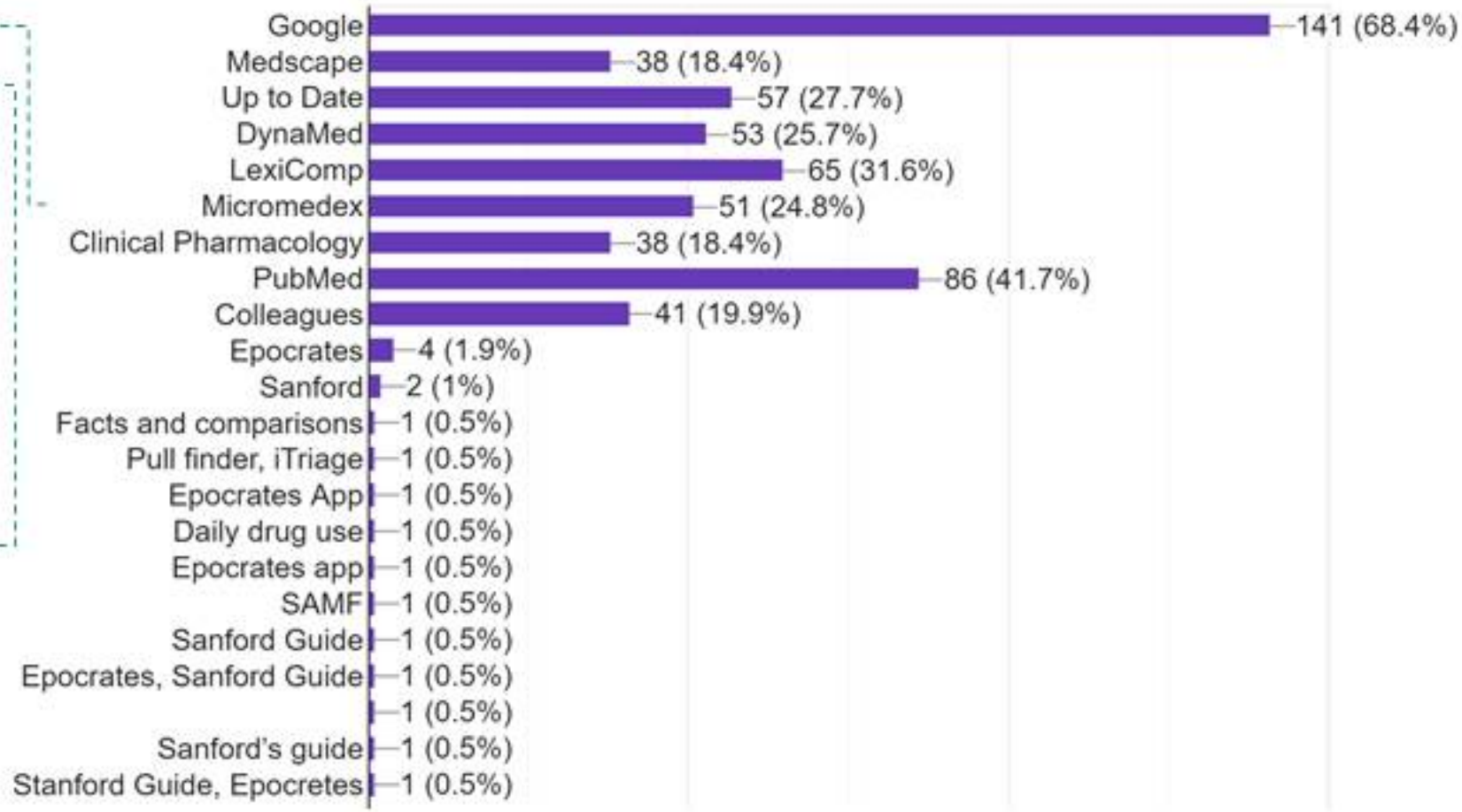
How often are HCP's searching for medicine information?

Source: A-Z study, 2018 (n=237)



Where are HCP's searching?

Source: A-Z study, 2018 (n=237)



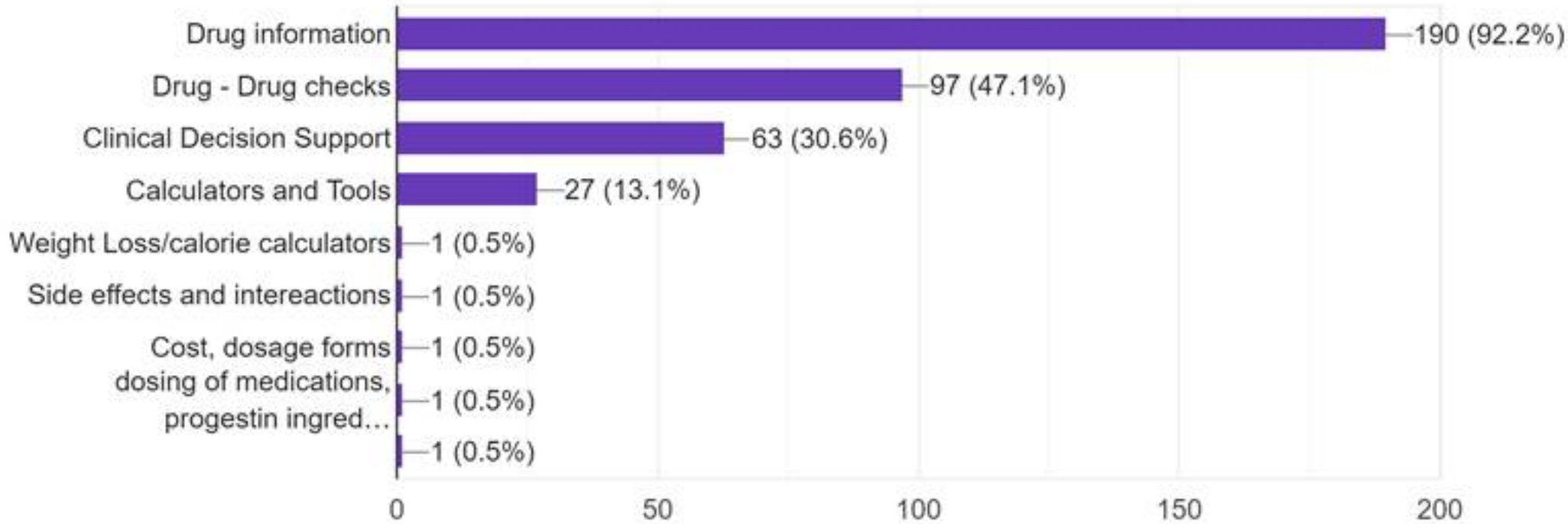
Google can't help with (any) complex patient specific interrogation

Expensive and/or Access restricted

~~US + European (not localised)~~

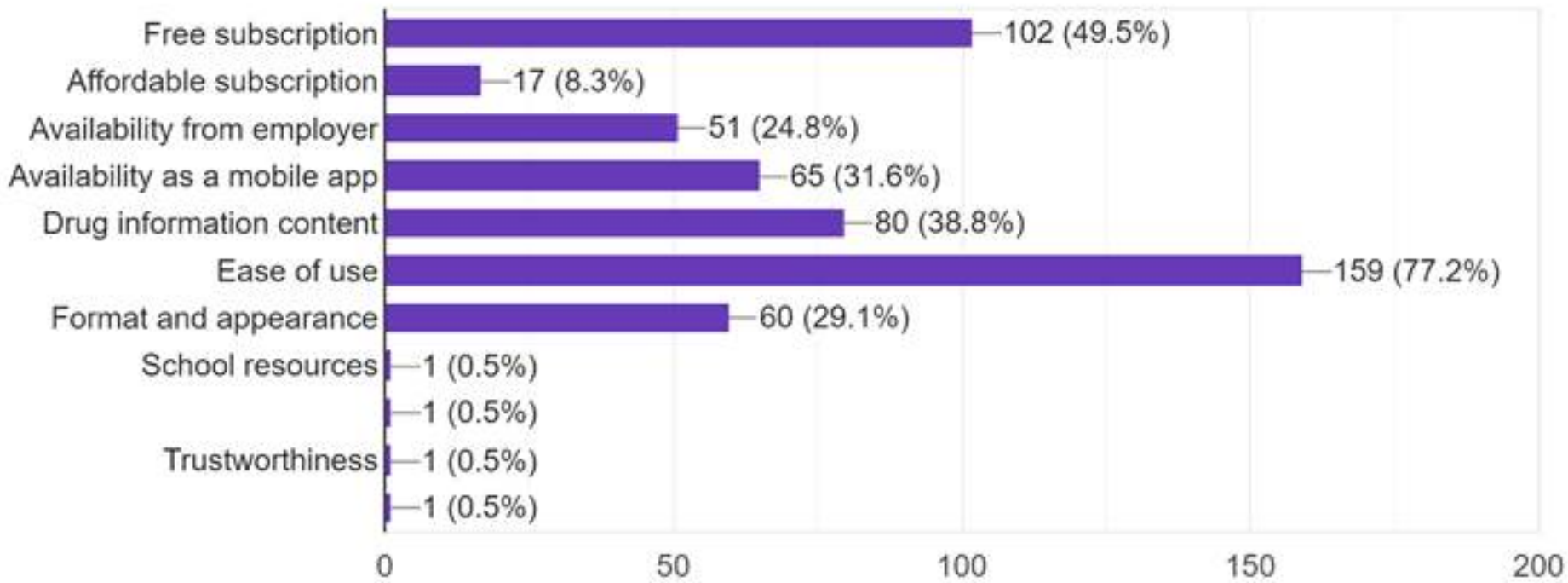
What do HCP's search for?

Source: A-Z study, 2018 (n=237)



Why do HCP's use one source over another?

Source: A-Z study, 2018 (n=237)



What are HCP's willing to pay?

Source: A-Z study, 2018 (n=237)

A hard pill to swallow

Across Emerging Markets, medicine information systems are:

1. Prohibitively expensive and largely unavailable
2. Not localised for local medicine sets or genetic population groups
3. Not available in formats that allow for automation of database queries, interrogation or computational modeling

The A-Z Solution

A-Z. Medicine Information Specialists

1. A-Z has created a globally competitive medicine information system

1. The data coding is compliant to international WHO ATC, regional and national coding standards

1. A-Z references more than 6000 global sources for the data

1. The data architecture and intelligence allows for localisation and complex computational interrogation (in real time)

1. A-Z enables clinical decision support, automation of medicine management and big data queries, thereby reducing human error, risk to patients and cost to the healthcare system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Pharmacists are a rich reservoir of clinical knowledge and perspective that is complementary to physician services. Automation of dispensing, reimbursement for medication therapy management services and other specialized clinical services, and enhanced clinical patient information access are three potent current forces likely to expand pharmacy capacity to improve medication safety.

Elizabeth Chrischilles, Professor of Epidemiology, The University of Iowa

At the heart of our big data

We automate and allow for any medicine related query:

- Search single medicines
- Search medicine-medicine
- Customise for any formulary
- Choose how to display data

We make all this medicine information available through the latest technology and cloud based computing

Our data algorithms allow for complex clinical interrogation and computational modelling of risk and risk mitigation

Thank you

info@atozofmedicines.com

THANK YOU!

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A-Z Products

Patient

reme
(medicine adherence)

Healthcare professional

Safe Patient
(Clinical decision support)

Payor, Provider

API's
(Access ALL A-Z data)

Who uses A-Z products?

	PATIENT	DOCTOR, NURSE	PHARMACIST	ADMINISTRATOR /SCHEME
reme (medicine adherence)	GET IT ON Google Play Download on the App Store	Download desktop app + integrate to practice software	Download desktop app + integrate to pharmacy software	Medicine management solutions and data analytics
Safe Patient (clinical decision support)		GET IT ON Google Play Download on the App Store	GET IT ON Google Play Download on the App Store	
API's (access ALL A-Z data)		e-Prescribing, medicine management	Integrate all data into pharmacy software	Automate medicine reviews, medicine management, cost reviews, PBM's, other

The Future

Big Data, Machine Learning and the SaaS nature of reseller agreements and integration into the Healthcare ecosystem allows the company to position itself for next generation technology advances:

01 | Understanding and changing Patient Behaviour

02 | Reducing Human Error of Prescribing/Dispensing

03 | Enabling results based financing

04 | e-Commerce