



Human Tissue in Research

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**Current Controversies in Research Ethics:
Research Integrity, Research Ethics Committees
and International Clinical Trials**

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Golden Tulip Hotel, Beirut, Lebanon

Background

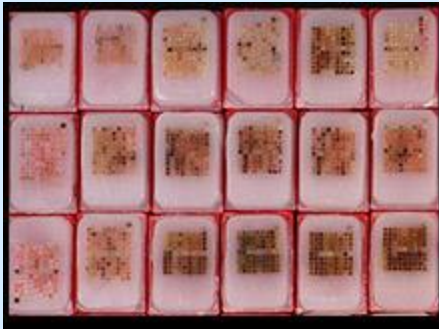


- Human tissue constitutes a valuable source of data.
- Surplus bio-samples are used for research, teaching and quality control.

Background



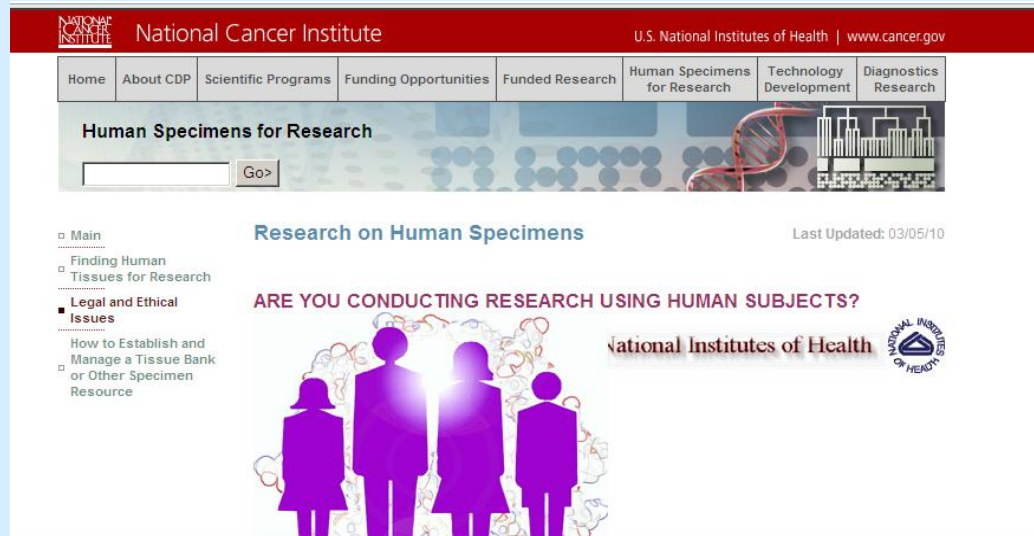
- Tissue samples have been stored in pathology departments for decades.



Background



- Informed consent, privacy and confidentiality as well as ownership of samples are the pillars of ethics in research involving the use of bio-samples .
- Policies, frameworks and legislations have been introduced internationally.



The screenshot shows the National Cancer Institute website. The header includes the NCI logo, the text "National Cancer Institute", and "U.S. National Institutes of Health | www.cancer.gov". A navigation menu contains links for Home, About CDP, Scientific Programs, Funding Opportunities, Funded Research, Human Specimens for Research, Technology Development, and Diagnostics Research. The main content area is titled "Human Specimens for Research" and features a search bar with a "Go" button. Below this, there is a sidebar with a navigation menu including "Main", "Finding Human Tissues for Research", "Legal and Ethical Issues", and "How to Establish and Manage a Tissue Bank or Other Specimen Resource". The main content area displays the heading "Research on Human Specimens" with a "Last Updated: 03/05/10" timestamp. A prominent question asks "ARE YOU CONDUCTING RESEARCH USING HUMAN SUBJECTS?". Below this question is an illustration of four stylized human figures (two adults and two children) in purple, standing in front of a glowing light source. The National Institutes of Health logo is visible in the bottom right corner of the page.

In Jordan....



- Archived tissues in pathology departments are being increasingly used in research conducted at the local institutions and collaborative international research.
- Local Institutional Review Boards(IRB)/Ethics Committees are facing increasing requests for the approval of these studies.



COUNTRY REPORT

CLINICAL RESEARCH LAW IN JORDAN: AN ETHICAL ANALYSIS

IBRAHIM RAMAHI AND HENRY SILVERMAN

Keywords

*research ethics,
clinical trials,
developing world,
informed consent,
pharmaceutical*

ABSTRACT

An ethical analysis of Jordan's Clinical Research Law, which became effective in 2001, was performed. Accordingly, this paper discusses the major components, key strengths and weaknesses of this law. As an initial effort, the Law addresses important aspects of research ethics and, hence, should serve as an example for other Arab Countries in the Middle East. Unique aspects of the Law include the requirement that those conducting any study have insurance that can compensate for research injuries and a system of fines and punishments for noncompliance with the Law. There are, however, some key items missing in the Jordanian Law. For example, the Law does not mention the requirement of a favourable assessment of risks and benefits, the fair selection of subjects, or articles regarding the protection of the rights and welfare of children and other vulnerable subjects participating in research. The paper concludes with the suggestion that new amendments should be considered for future revisions of the Clinical Research Law in Jordan.



At King Hussein Cancer Center



- Alignment with international regulations.
- Archived tissue samples can only be used in research without patient consent if the samples are
 - anonymized or coded.
 - used in research launched at the KHCC.
 - approval its Institutional Review Board.
- Patient consent is needed
 - prospective collection of blood or tissue samples for the sole purpose of research,
 - sending samples for other laboratories abroad in international collaborative research necessitate consenting patients.

Literature review



- A study on cancer patients by Vermeulen et al indicated that less than 5% of patients with colon and breast carcinoma surveyed declined using tissue in research. More patients (60%) preferred an opt-out plus approach- to one time general consent (11%).

[Vermeulen, Schmidt et al. 2009](#)

Literature review



- The majority of Scottish individuals surveyed were positive about leftover blood being collected and stored for research, but they had concerns about giving an open-ended consent.

[Treweek, Doney et al. 2009](#)

- Agreement on the use of tissue in research was not affected by demographics of the patients whether they were diseased or not .

[Chen, Rosenstein et al. 2005](#)

Literature review



- A Swedish study of the public opinion on the use of tissue in research showed that the majority are willing to donate a sample for storage in bio-banks for future research under general consent, subject to approval by ethics committees.

[Kettis-Lindblad, Ring et al. 2006](#)

- A focused group survey of Japanese lay public indicated diverse attitudes towards the use of archived samples in research without consent.

[Asai, Ohnishi et al. 2002](#)

Literature review



- Most Saudi patients surveyed in one centre agreed on the use of the leftover samples in research whether without (49%) or with (37%) consent, with only 14% objecting to this use.

Al-Qadire, Hammami et al. 2010

- Most Egyptians surveyed on the collection, storage and use of blood samples for future research were not in favour of donating blood samples for future research and of those approving this use many favour a consent model that includes the option restricting the future research to the illness being studied.

Alaa Abou-Zaid et al. 2010



- Assess the awareness on the destination of surplus biosamples.
- Explore the perception of the use of surplus blood and archived tissue in research.
- Explore potential obstacles to the use of surplus blood and archived tissue in research.
- Whether any differences in this perception exists in comparison with published literature.

MATERIALS AND METHODS



- A questionnaire was developed by the investigators in English. It consisted of 34 questions divided into 5 parts including
 - Demographics (7 questions)
 - Previous experience with research (6 questions)
 - Assessment of the awareness of the destination of surplus blood acquired during the course of routine clinical care (5 questions)
 - Assessment of the awareness of the destination of tissue samples acquired during the course of routine clinical care (8 questions)
 - Perception of ownership and potential obstacles in using surplus samples in research (8 questions).

MATERIALS AND METHODS



- Arabic translation was performed.
- Research assistants were recruited from the School of Pharmacy at Jordan University.
- Institutional Review Board approval.
- Pilot phase on 20 patients.
- Adult patients older than 18 years were the main target.

Results

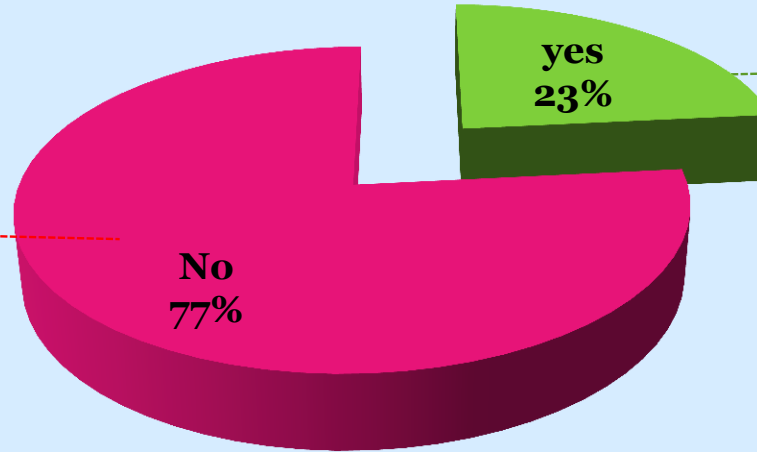


Table 1; Demographics of participants

		Count (Percent %)
Gender	Missing	13
	Male	55 (28.6%)
	Female	137 (71.4%)
Education level	Missing	10
	Illiterate	10(5.1%)
	High school	91(46.7%)
	College	34(17.4%)
	University and post-graduate studies	60(30.8%)
Religion	Missing	6
	Islam	180 (90.5%)
	Christian	19 (9.5%)
Marital status	Missing	11
	Married	160 (82.5%)
	Single	15 (7.7%)
	Divorced	9 (4.6%)
	Widow	10 (5.2%)
Nationality	Missing	18
	Jordanian	178 (95.0%)
	Amman	118 (66.3%)
	Outside Amman	60 (33.7%)
	Non-Jordanians	9 (4.8%)

Previous participation in research?

93 participants (59.0%) were never approached by researchers



7 participants (14.6%) enrolled in studies in which blood or tissue samples were requested

- Humanitarian causes were listed as the main motivation for participation.

Table 2; Perception of the destination and potential use of surplus blood and tissue samples

What do you think happens to the leftover (...)?	Blood	Tissue
It is thrown away immediately after the procedure	83 (40.5%)	48 (23.0%)
It is used to teach medical students about disease	56 (27.0%)	70 (34.0%)
It is used to test new drugs	25 (12.2%)	44 (21.5%)
It is preserved and kept (archived)	21 (10.2%)	49 (24.0%)
Do not know	39 (17.0%)	31 (15.0%)
If you could decide what happens to the leftover (...), which of the following would you agree to?		
Teaching medical students	141 (68.8%)	129 (63.0%)
Medical research	139 (67.8%)	138 (67.3%)
Diagnosing other diseases	106 (51.7%)	86 (42.0%)
Training doctors	78 (38.0%)	78 (38.0%)
Calibration of the medical devices	62 (30.0%)	58 (28.0%)

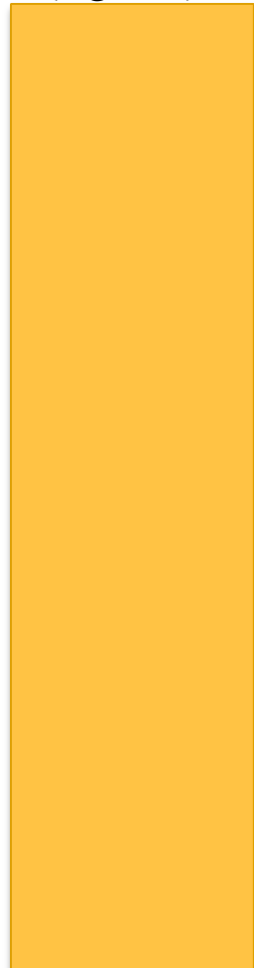
Where have you learned about what happens to the leftover blood/tissue samples?



- Self education through active search or previous experience.
- Public media.
- Medical team:
 - 5.4 % in the blood sample section
 - 7.4% in the tissue sample section

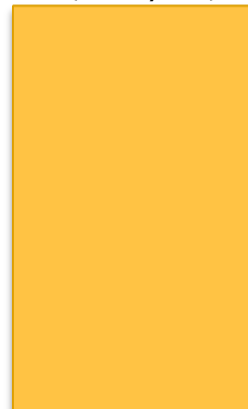
Perception of the ownership of the samples

129
(63.1%)



Medical body

55
(26.7%)



Patient

21
(10.2%)



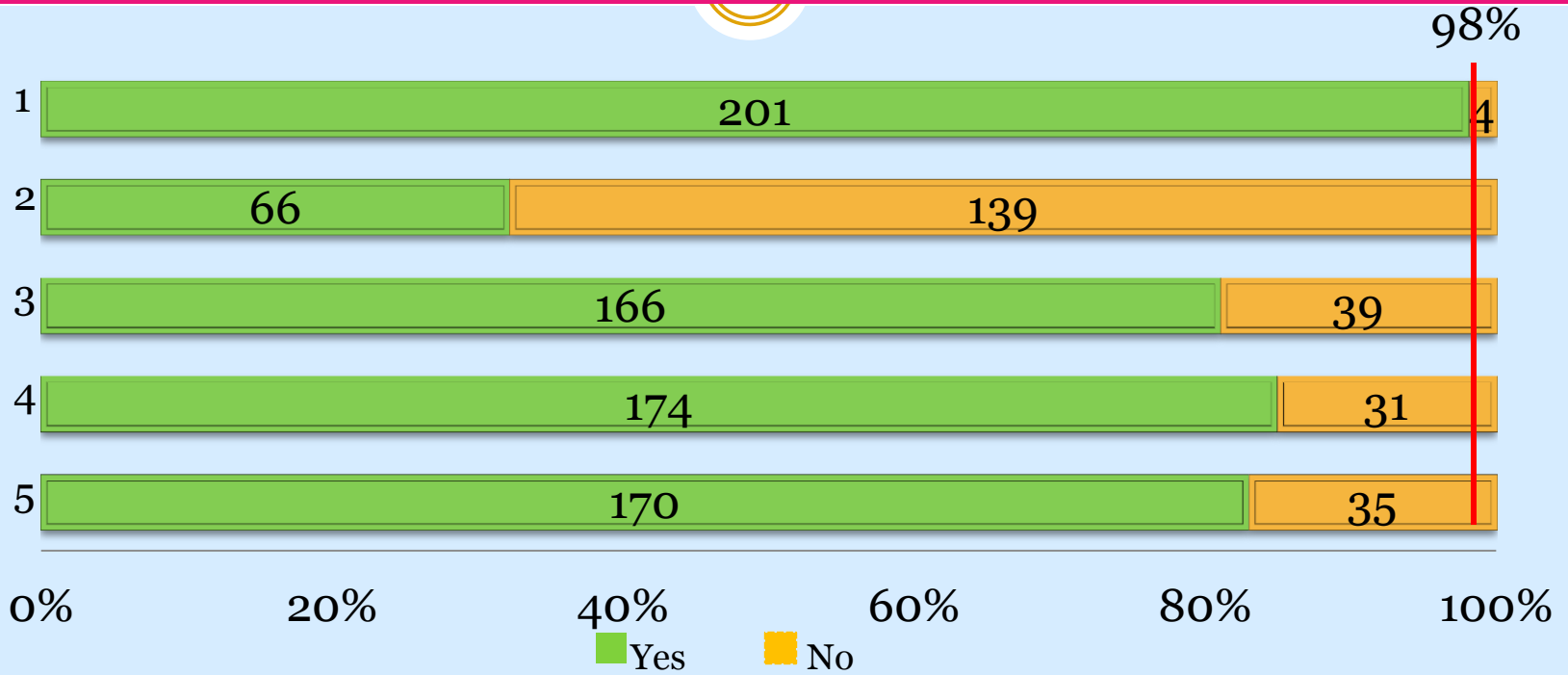
No body

Potential obstacles



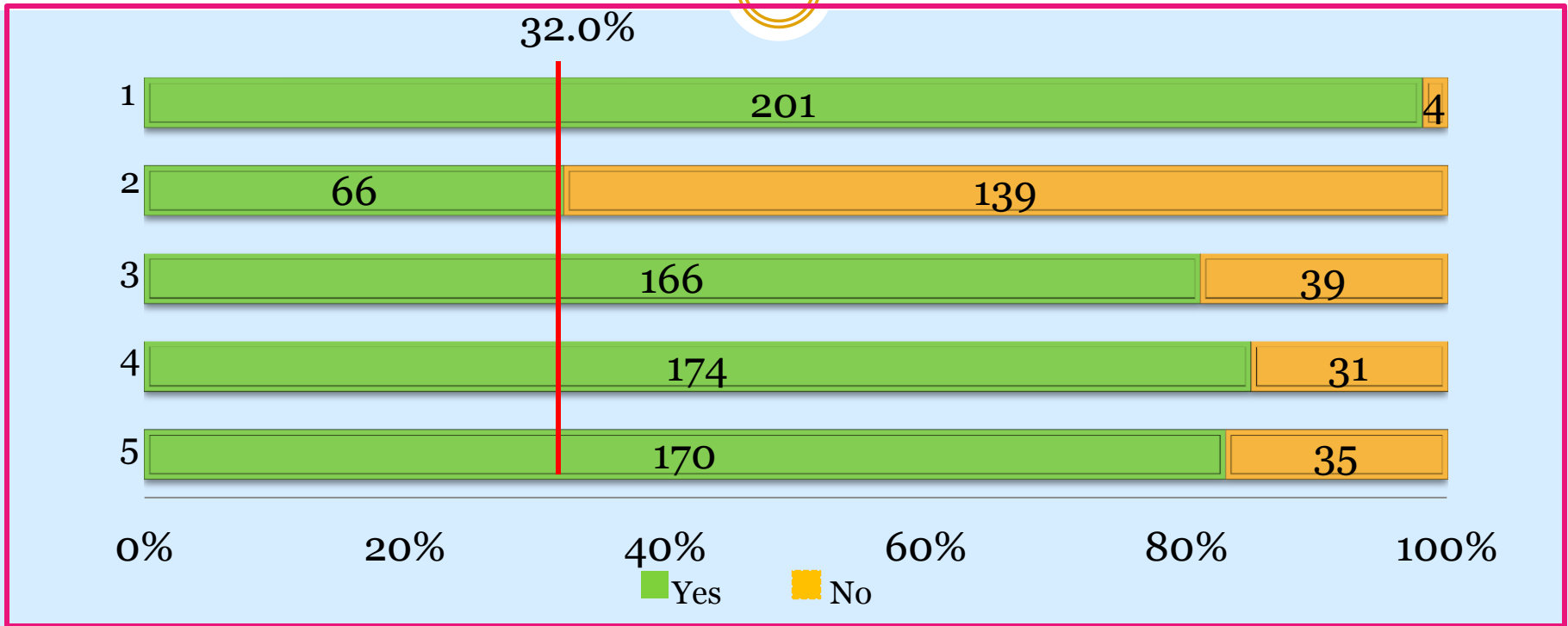
- 1- Utilization of surplus/archived samples in research if consented.
- 2- Consented each time their samples are used in research.
- 3- Sending samples laboratories of international researchers.
- 4- Informed about the results.
- 5- Donate blood samples primarily for research purposes only.

Potential obstacles



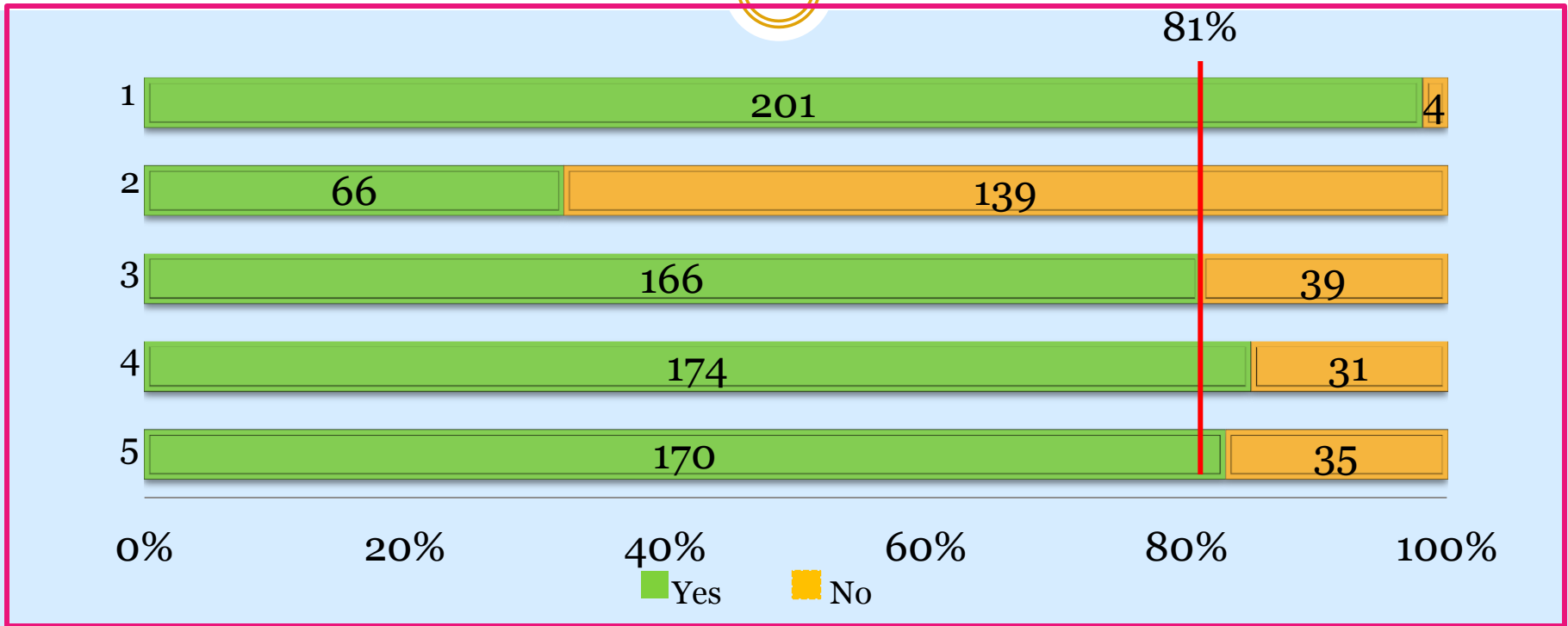
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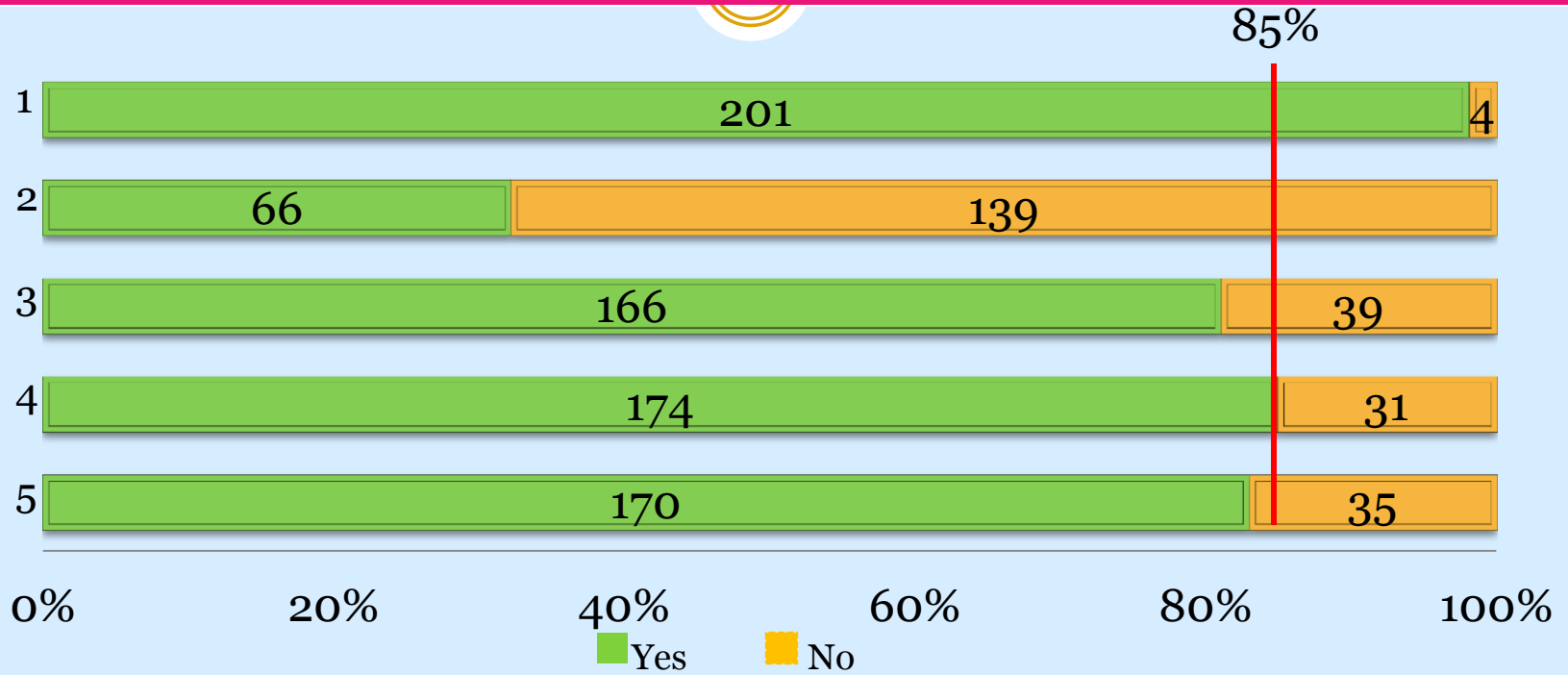
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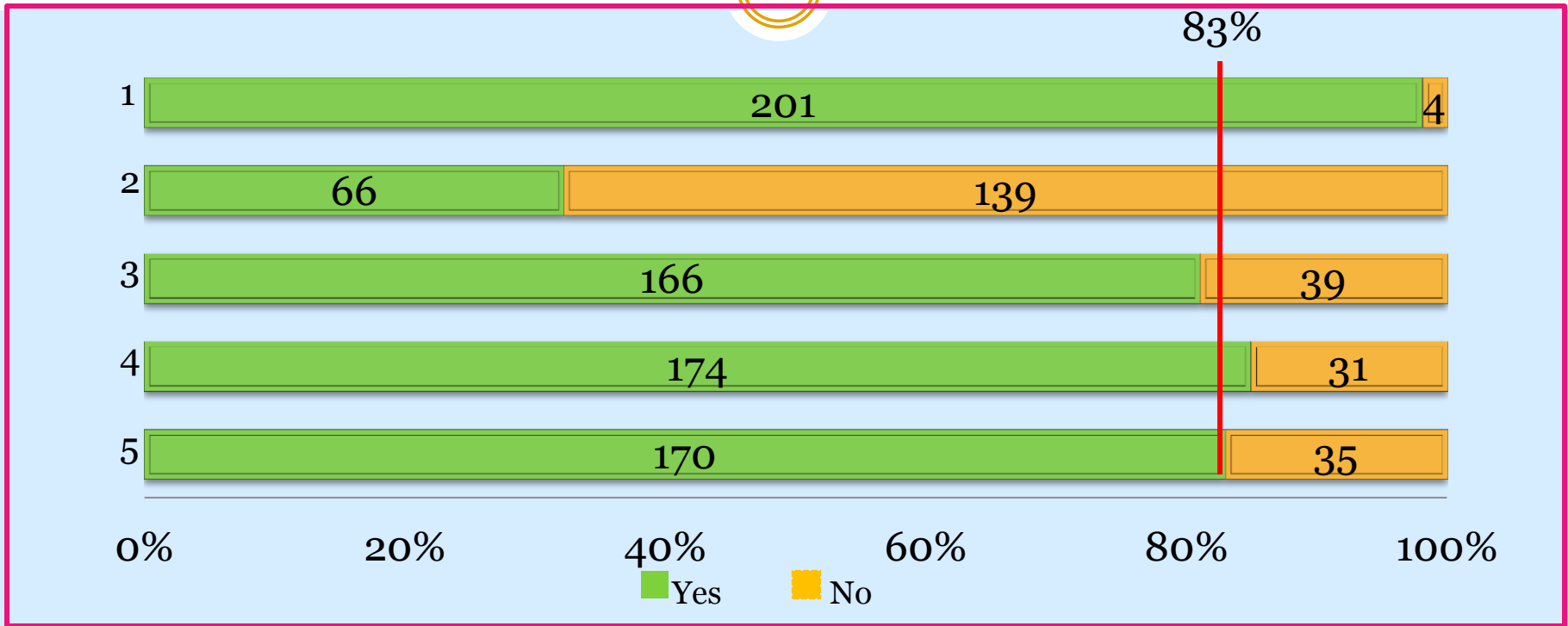
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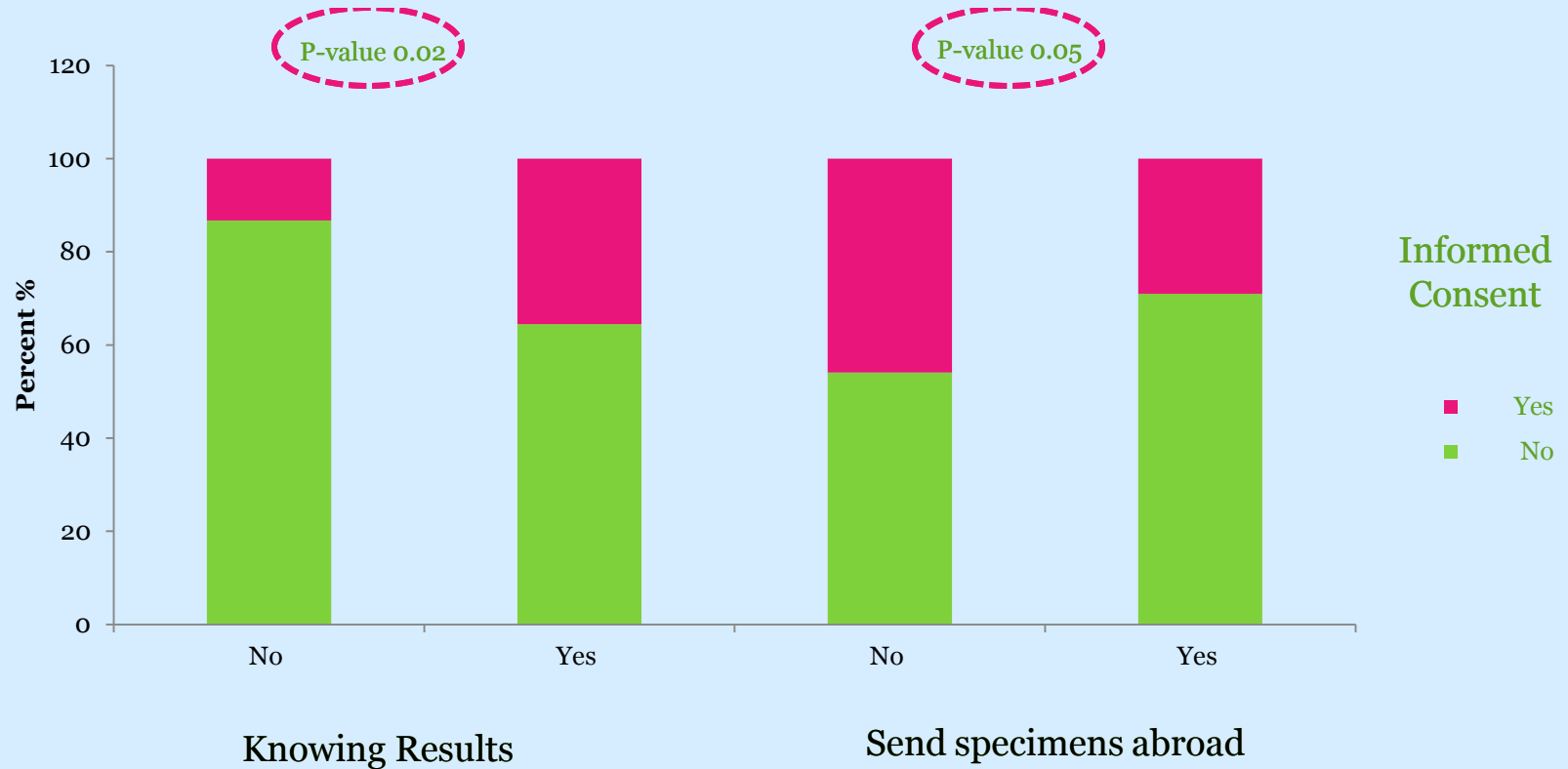
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Potential obstacles



- 1- Utilization of surplus/archived samples in research if consented.
- 2- Consented each time their samples are used in research.
- 3- Sending samples laboratories of international researchers.
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- 5- **Donate blood samples primarily for research purposes only.**

The correlation between the need for informed consent for using samples in research and need to know the results as well as willingness to send samples to outside laboratories



Would you agree that researchers use your leftover blood/tissue?		Total	No Count (%)	Yes Count (%)	P-value
Age	Missing	30		25	0.80
	30-60	127	3(2.4%)	124(97.6%)	
	60+	33	1(3.1%)	31(96.9%)	
	<30	15		15(100%)	
Gender	Missing	13		8(100%)	0.33
	Male	55	2(3.6%)	53(96.4%)	
	Female	137	2(1.5%)	134(98.5%)	
Education	Missing	10		5	0.09
	Illiterate	10	1(10.0%)	9(90.0%)	
	School	91	0 (0.0%)	90(100%)	
	College	34	1(2.9%)	33(97.1%)	
	Undergraduate	51	2(3.9%)	49(96.1%)	
	Graduate	9	0 (0.0%)	9(100%)	

Note: P-values based on Chi-Square test and Fisher's Exact Test

Do you wish to be contacted again for your consent each time a research project is conducted on the leftover blood/tissue?		Total	No Count (%)	Yes Count (%)	P-value
Age	Missing	30			0.17
	30-60	127	89(70.1%)	38(29.9%)	
	60+	33	19(59.4%)	13(40.6%)	
	<30	15	13(86.7%)	2(13.3%)	
Gender	Missing	13			0.33
	Male	55	34(61.8%)	21(38.2%)	
	Female	137	94(69.1%)	42(30.9%)	
Education	Missing	10			0.29
	Illiterate	10	7(70.0%)	3(30.0%)	
	School	91	65(72.2%)	25(27.8%)	
	College	34	24(70.6%)	10(29.4%)	
	Undergraduate	51	28(54.9%)	23(45.1%)	
	Graduate	9	7(77.8%)	2(22.2%)	

Note: P-values based on Chi-Square test and Fisher's Exact Test

Do you accept that the leftover tissue be sent to laboratories or institutions abroad for research?		Total	No Count (%)	Yes Count (%)	P-value
Age	Missing	30			0.36
	30-60	127	23(18.1%)	104(81.9%)	
	60+	33	8(25.0%)	24(75.0%)	
	<30	15	1(6.7%)	14(93.3%)	
Gender	Missing	13			0.59
	Male	55	12(21.8%)	43(78.2%)	
	Female	137	25(18.4%)	111(81.6%)	
Education	Missing	10			0.14
	Illiterate	10	4(40.0%)	6(60.0%)	
	School	91	20(22.2%)	70(77.8%)	
	College	34	6(17.6%)	28(82.4%)	
	Undergraduate	51	5(9.8%)	46(90.2%)	
	Graduate	9	1(11.1%)	8(88.9%)	

Note: P-values based on Chi-Square test and Fisher's Exact Test

Would you voluntarily give blood samples for medical research purposes only?		Total	No Count (%)	Yes Count (%)	P-value
Age	Missing	30	3	22	0.90
	30-60	127	24(18.9%)	103(81.1%)	
	60+	33	5(15.2%)	28(84.8%)	
	<30	15	2(13.3%)	13(86.7%)	
Gender	Missing	13		8(100%)	0.91
	Male	55	10(18.2%)	45(81.8%)	
	Female	137	24(17.5%)	113(82.5%)	
Education	Missing	10	1	4	0.73
	Illiterate	10	3(30.0%)	7(70.0%)	
	School	91	14(15.4%)	77(84.6%)	
	College	34	6(17.6%)	28(82.4%)	
	Undergraduate	51	8(15.7%)	43(84.3%)	
	Graduate	9	2(22.2%)	7(77.8%)	

Note: P-values based on Chi-Square test and Fisher's Exact Test

CONCLUSION



- The awareness of the destination of the surplus blood and tissue need to be increased.
- The potential use of leftover blood and tissue in research is well perceived by this sample of patients.
- The views and acceptance are not different from international literature.
- KHCC procedural consent needs to be updated to include a clear statement of the potential use of left over bio-samples /archived tissue in research.
- Medical team has to pursuit a more active role in informing the patients on this vital issue.

CONCLUSION



- Increasing public awareness on the value of human bio-samples in research through engaging public media in awareness campaigns should be promoted.
- This study can be used as a core for a larger scale study addressing the views of non-cancer patients at other health sectors and of healthy individuals from the public on the use of tissue in research, establishing a base for nationwide guidelines.

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Thank you

